Microsoft® Office® 2013/365 and Beyond

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Microsoft Office 2013/365 and Beyond

Computer Concepts and Applications

Theodor Richardson
Charles Thies

Mercury Learning and Information
Dulles, Virginia
Boston, Massachusetts
New Delhi

Publisher: David Pallai

Mercury Learning and Information
22841 Quicksilver Drive
Dulles, VA 20166
info@merclearning.com
www.merclearning.com
1-800-758-3756

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To my mother, Deborah Richardson; she is my calm voice of reason and one of the strongest people I have ever known. I am blessed to have you as my mother, and I love you very much.

—Theodor Richardson

To Nestor Garcia, my uncle and friend, who always encouraged me to work hard and to pursue my dreams. You are missed by all who knew you, and we will not forget your courage and perseverance to the end.

—Charles Thies

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Introduction

If you have ever wanted to learn about using either the Microsoft operating system or the Mac operating system, along with productivity tools necessary for the modern business world, then this book is for you. You might be a new student who has little to no experience with this type of software or maybe you are a novice computer user wanting to learn to use an alternative platform; in either case, you should find this book to be a helpful and constructive companion on your journey.

When we first started looking at developing an introductory textbook, we noticed that a variety of schools offered intro courses that focused on the Microsoft environment, yet many students seemed to be showing up to class with Apple. Through the years, we have noticed that students come to class with both Microsoft and Apple products and there has never been a book that could successfully address both versions of the software used in the course.

We have yet to find an introductory textbook that offers the range of alternatives that this book offers. *Microsoft Office 365 and Beyond* is divided into five sections with 16 chapters that progressively introduce you to computer concepts from the moment you hit the power button all the way through to using a variety of productivity software applications available in Microsoft Office 2013 and Microsoft Office for Mac 2011.

Section I is composed of six chapters that introduce you to the computer environment. In Section I, you will learn about hardware and software, including everything from turning on your computer to identifying its major hardware components, no matter which platform you are using. Here you will also learn about using the Web and email functionality on a variety of platforms.

Section II is composed of three chapters and introduces you to word processing software that includes Microsoft Word for both the Mac and Microsoft environments. Here you will learn to develop basic word processing documents, as well as add advanced functionality.

Section III is composed of three chapters and introduces you to presentation software that includes Microsoft PowerPoint 2013 and Microsoft PowerPoint for Mac 2011. In this section, you will learn how to plan your presentation as well as how to build advanced presentations that incorporate a variety of media elements.

Section IV is composed of three chapters that introduce you to spreadsheet software. Just about any type of organization uses spreadsheet software to transform data into useful information that adds value to the organization. In this section, you will learn how to manipulate data by developing useful spreadsheets and to present data visually using graphics and charts.

Section V is composed of a chapter which introduces you to the world of databases using Microsoft Access 2013 (which is only available for the Microsoft operating system). Databases are much different than spreadsheets, although at first you might think they are similar. By using Access, you can establish complex relationships between data sets, populate a database with data, and develop powerful queries that produce useful information.

The appendices of the textbook have information on other common computer applications, including Adobe Reader (for reading PDF files) and Microsoft OneNote for Windows (for managing files). Additional productivity tools like OpenOffice.org are presented here as well with some instruction on how to complete the chapter projects using this software suite.

Chapter Structure

Each chapter is structured to provide an overview of the key concepts in order for you to demonstrate mastery at the completion of the chapter project. The sections on productivity software include a project for each chapter with detailed descriptions of how to use the various tools, functions, and commands in the respective software packages. In addition, we include the theory and history of how these applications have evolved and information on how these applications can be used to accomplish multiple tasks. Finally, chapter review questions and "Knowledge Checks" are provided to test your comprehension of the chapters.

Each chapter contains in-text activities that give you hands-on practice as you move through the chapter. You will also be given practice exercises for basic comprehension and challenge exercises to move you toward a higher level of mastery for the concepts presented in the chapter.

Companion Disc (Student Resource DVD)

The textbook provides a DVD inside the back cover that includes resources for the student. This DVD includes all of the files needed to complete the chapter exercises within the text. You will also find video tutorials, a repository of high-resolution images from the chapters, and samples of completed projects for comparison.

Instructor Resource DVD (Available Upon Adoption)

The instructor DVD contains the complete set of video tutorials, all the solutions for the Knowledge Check exercises, PowerPoint presentations for each chapter, high resolution color figures, and sample tests for each chapter to use in conjunction with the book.

Online Resources

Digital versions of the text and all of the instructor and student materials are available at *www.authorcloudware.com*. Electronic review and desk copies are also available.

Acknowledgments

I am so pleased to have been involved with this book. I have never seen anything like it on the market, and I want to thank David Pallai for taking the chance on publishing a book like this; his experience and guidance have shaped this into the book you hold in your hands. I want to thank my coauthor and friend, Charles Thies, for burning the midnight oil right along with me to see this through to completion. I also want to thank Katie Kennedy for her support, patience, and valuable assistance with the content of the spreadsheet chapters; she is a master of Excel, and her experience and expertise has allowed these chapters to be as user-friendly as possible for an otherwise daunting software. I also want to thank my grandparents, Leonard and Sylvia Ullom, and my parents, Dan and Deborah Richardson, for giving me such a wonderful upbringing and helping me to capitalize on the opportunities that have led to my lifelong dream of seeing a book of my own creation in print. Thank you to everyone who worked on this project to meet the tight deadlines, and thank you to the readers who chose this book over others.

—Theodor Richardson

This book has been an amazing endeavor and would not have been possible without the help of many people. I would like to extend my sincere appreciation to everyone involved in this work. Thank you to my beautiful wife, Lea, who patiently waited each night for me to finish writing another section and provided her words of encouragement; my sons, Matt and Will, for their patience and support throughout this process; and Ted, my coauthor and friend, for all of his guidance and support throughout the project. We certainly could not have completed this work without David Pallai, who worked tirelessly into the night to publish our book on schedule and provided the leadership to guide our project to the finish line; and Tim Anderson, who recommended our project to Mercury Learning and Information. Finally, a very special thank you to all of the people—some of whom we have never met—who worked to make this textbook possible.

— Charles Thies

CHAPTER 1

Introduction to Computer Concepts

IN THIS CHAPTER

This chapter is an introduction to foundational computer concepts. You will learn how to perform basic tasks on a computer and identify hardware interfaces on your machine. You will also learn about the essential components that allow a computer to function. Once you have completed the chapter, you will be able to:

- Discuss modern computer systems
- Choose and identify an adequate computer specific to your needs based on software requirements
- Explain how a computer works
- Identify input and output devices
- Identify modern operating systems
- Demonstrate basic tasks on commonly used operating systems

1.1 WHAT IS A COMPUTER?

Computers are widespread throughout today's world, whether for home or business use or in a handheld device. All of these devices are centered on the fundamental need to manage, store, and use information. On a personal level, you probably have information that is important to you and that you need to access on a regular basis. This can range from phone numbers and addresses of family and friends to account information for a variety of services.

Organizations have the same needs when it comes to information, as they must constantly innovate to maintain a competitive edge. Organizations have two very important assets that contribute to research and development, which in turn leads to increased profitability. The first important asset is the intellectual capital the organization maintains. Intellectual capital is the knowledge derived from ideas and innovation from its personnel. As a result, organizations develop large amounts of data that must be processed into useful information. To do this, they use the organization's information systems infrastructure, which is the second important asset an organization maintains. In this chapter, you will learn about the foundational component that helps to create, process, and store the information people need to operate as businesses or individuals in the world today: the modern computer.

Computers are used to convert data into useful information. They are absolutely everywhere in our daily life, and they come in many forms, such as desktop computers and laptops, and in cars, boats, airplanes, and phones. The desktop computer found in our homes and schools uses powerful applications that enable you to send email, develop professionally formatted documents, and process financial data for either personal or business applications.

A **COMPUTER** *is an electronic programmable device used to store, process, and manipulate data.*

If you are just getting started with computers, the actual thought of turning on the computer can be overwhelming, but there is no need to panic. This text will guide you to proficiency in both basic computer operations and productivity tasks. A computer system works with two elements: software and hardware devices. The following sections introduce you to these terms so you can get a better understanding of how your computer operates.

Computer Software 1.1.1

A software program is also referred to as an *application*. Applications are developed by computer programmers and are used to perform a series of tasks that

An **APPLICATION**, *or software program, is an executable piece of code that runs on computer hardware to perform a specified task. Applications can be automated to run without user interaction or they can be interactive, requiring input from the user to perform some task.*

process data in some way. One of the most important software programs on your computer is the operating system (OS). The OS can be viewed as the manager of the other software on your machine; this program takes the commands you input and translates them into actions in the computer, such as running other applications or storing information. Some other software programs you may recognize are the Microsoft® Office suite; this is an example of productivity software, which typically contains word processing, spreadsheet, and presentation applications.

There are two types of common software applications with which you should become familiar. The first type is the client-based program. These programs are installed with a disk or downloaded from the World Wide Web (or Web) and installed on the computer. These types of applications assist a user in performing common tasks. Microsoft Office is an example of a client-based software program.

The second type of application is the Web-based application, and it is accessed via the Web. Examples of Web-based applications are a Web portal, such as the one you use to access your bank checking account balance, and an online store, such as www.amazon.com, where you can safely shop and conduct secure financial transactions. As connections among computers have become more common and more robust, the number of applications that are available on the Web has increased dramatically.

Computer Hardware

1.1.2

Hardware is any physical device that is attached to the computer. Hardware devices come in many forms, such as input, processing, data storage, and output devices. Common input devices are the keyboard, mouse, and video camera (or Webcam). An input device is any physical interface that accepts information from the user and translates it for use inside the machine. For instance, you press a key on the keyboard and the code for the key you pressed is translated for the computer to understand.

HARDWARE *is a physical device that performs some function in allowing the computer system to run. Common types of hardware are input devices, processing devices, data storage devices, and output devices.*

Processing of input data happens through a microprocessor. The microprocessor that controls the overall operation of the computer is called the *central processing unit* (*CPU*). Computers can have one processor or multiple processors that comprise the CPU. Other devices, such as video cards and sound cards, which provide enhancements to the computer system may also contain their own processors.

In addition to processing information for use, the computer needs somewhere to store the information. A data storage device is a hardware device that saves data and information to a location where it can be accessed later. A common example is a hard drive (also called a hard disk). There are also attachable devices such as flash drives or

external drives that can be added for additional storage space.

Output devices translate information back to the user. The most common example of an output device is the computer monitor; this translates the internal information of the machine into a viewable output signal that you can understand. Additional examples of output devices include printers and speakers.

1.2 HISTORY AND BACKGROUND OF COMPUTING TECHNOLOGY

Now that you have some understanding of the different elements of a computer, you may be wondering where and how computer technology came about and how you know it works. It is important to note that the principles that drive a computer system have been around for a very long time. Ancient civilizations as long ago as 4000 B.C. in Sumer began to try to organize data into useful information on clay tablets. The abacus, one of the earliest forms of a calculating device, was developed in Babylonia in approximately 3000 B.C.

These early computing tools were not electronic but rather were mechanical instruments that assisted in computation. It was not until 1943, after much research on the theory of digital circuits and other developments in computing, that Colossus, a British computer, became operational. Because this was a wartime project, it remained classified for a number of years.

Colossus was used by the British military to successfully break the famous German Enigma cipher. For its time, this was a massive achievement that was partially responsible for the defeat of Germany in World War II. The development of Colossus and the construction of the vacuum tube computer ENIAC in the United States around the same time were important stepping stones toward the modern computing model. While these early computers were big enough to fill an entire room, they could only perform limited calculations.

In the 1970s, silicon chips, the foundation for today's high-speed computing devices, were developed. These chips allowed computers to become faster, smaller, and less expensive, leading to the computing devices you see today. Today's mobile devices, such as smartphones, have millions of times more capability than early computers because of the advent of silicon-based chips. The advancement in computing technology continues. For the foreseeable future, computing devices will continue to get smaller, faster, and more powerful with increased processing and data storage capabilities.

1.3 PURCHASING A NEW COMPUTER SYSTEM

Now that you have learned about some aspects of a computer system, how do you know which system to buy? You may have gone to the local computer store and been tempted to purchase the most expensive system, but that may not be the best solution for your needs. Purchasing a computer can be accomplished most effectively by

knowing what to look for and by conducting a little research. A computer purchase must be made based primarily on the requirements of its use. If you were to buy the most expensive system, you might just be spending money on processing power and storage space you will never need.

The first question to ask is: What tasks do you need to perform on the computer? You may simply want to surf the Web and perform basic functions like word processing and email. Or you could require the much heavier processing power associated with computer gaming applications. The next question is: What system requirements does the software have? One way to begin your research is to simply take a look at the processing requirements of the applications you intend to use. For example, you can find the system requirements for Microsoft Office on the outside of the packaging for the application or look for the information on the Web at the Microsoft TechNet site *(http://technet.microsoft.com/en-us/library/ee624351.aspx)*. Finding the correct hardware requirements for the software you intend to use and taking the largest value in each category will give you a good idea of the minimum requirements for your system.

Activity 1.1— Computer Needs

For this activity, you will identify the primary reasons why you need to use a computer. You can make the list as extensive and detailed as you want, but the main goal should be to identify the daily tasks you will perform on the machine. This will help guide your computer purchase or direct your concentration as you go through the rest of the text. Be sure to focus on the areas of computing in which you have the greatest need.

There are many other questions to answer. For example, what size and type of monitor do you need? Smaller monitors can be strenuous on the eyes, so a bigger monitor is usually better; in a laptop environment, however, a larger monitor means a heavier machine. Memory is another factor to consider. There are two types of computer memory: random-access memory (RAM) and read-only memory (ROM). RAM is volatile memory; this means it is temporary. Anything stored in RAM is lost once the computer is turned off. You can run multiple applications more smoothly when you have more RAM, as an increase in RAM can improve performance. ROM, on the other hand, is not volatile. This means that when you shut down your computer, the last set of instructions and the data you have saved to ROM are not lost.

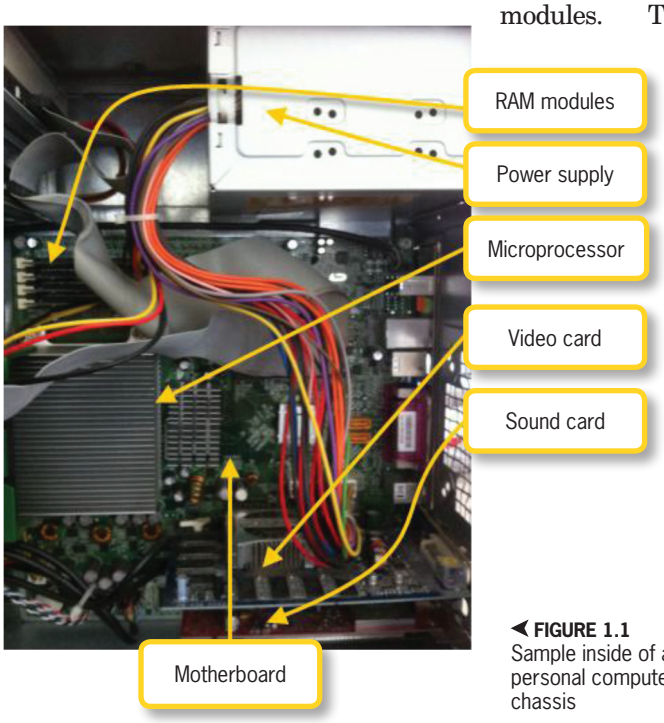
Other options to examine include data storage capability such as hard drive space. The growth of technology in data storage solutions has made hard drive technology affordable to most users. Hard drives have two aspects to consider: storage space and speed. The faster the hard drive speed, the faster data travels. Normally faster and higher performance applications benefit from the increased speeds, however, these speeds are not generally required for the average user.

Storage space allows you to keep more data in your hard drive, such as pictures and

video. If you take lots of digital pictures and video, then a larger hard drive is essential. Most computers today have hard drives in the range of 500 GB (gigabytes) to 1 TB (terabyte) of storage space.

Figure 1.1 shows the inside of a personal computer (PC). Note that this is an older model and could be classified as a midrange system. The layout is similar to many of the systems you find today. Notice the motherboard in the background of the picture; this in essence is the heart of the computer chassis in every system out there today, as it provides the connections between the various hardware components and disseminates electrical power. The item in Figure 1.1 labeled "Microprocessor" has a silver slotted appearance; this is the heat sink that keeps the small CPU cool enough to operate safely.

You can also see the power supply that powers the motherboard and the memory modules. This entire environment should be kept free of dust to enable a long life for the system. Dust is one of the biggest enemies of electronic components. Note that this particular motherboard has a video card and a sound card that fit into its expansion slots.



◀ FIGURE 1.1
Sample inside of a personal computer chassis

Sound and video options can also be a factor in your selection of a new system. Many computer systems include an integrated sound card. These sound cards are more than adequate for the average user. Video cards also come integrated to deliver information to the computer monitor but can be upgraded to much higher quality cards that improve video output. If you are the average user running office applications and email, you may not need a very high-quality video card. If you like to edit video or play performance-intensive computer games, then a more expensive and capable video card is most likely necessary.

Other factors to consider include operating system. These more advanced topics are discussed in the next sections, but it is important to realize that there is a difference between operating systems and how they perform. While the Windows® 7 and Windows® 8 operating system are more widely used, there are other operating systems to consider, such as the Apple® Mac® OS X® and Linux®. Macintosh® operating systems are generally considered to be more secure than some other brands of OS.

Ergonomics are also a consideration when deciding on a computer purchase. Ergonomics include your posture, how you sit, and how your hands rest on the keyboard. Keyboards and computer mice, along

The power button is located in different places depending on which system you purchase, but it is usually at the front of the computer as shown in Figure 1.2. It looks like a *1* character inside of a *0* character. This was originally two separate characters signifying on and off, respectively. However, as technology evolved, it became easier to use the same pushbutton switch for both powering up and powering down a computer. Finding the power button should be your first task on any computer system.

with special office furniture, are sometimes included with a computer purchase. Ergonomically correct computer equipment can be helpful, but you should always test any products under consideration to be sure you have the right product for you.

Additionally, there are a number of options for purchasing a computer. You can find equivalent value on a new system either online or in a physical (brick and mortar) store. Whether you purchase a Mac or PC, there are several steps to take before getting started. Most systems provide quick-start guides that guide you through the process of unpacking and installing your new system. One of the first steps after connecting the external hardware as instructed is pressing the power button. If you have purchased a new system, you will be guided through system setup when you first start the machine.

1.4 HOW THE COMPUTER WORKS

So far you have learned that a computer can accept data, process data, store data, and output data. There are several hardware components and software that help modern computers complete this series of tasks. At the center of the modern desktop computer is the CPU that is attached to the motherboard. The motherboard is the interface that allows the user to connect physically attached hardware devices to the computer. When a power button, like the one shown in Figure 1.2, is pressed, the computer power supply converts the 120 volts of electricity it receives from the outlet to 12 volts, which moves into the motherboard at the speed of light.

▲ **FIGURE 1.2**
iMac power button

This process happens practically instantly as the electrons travel at approximately 186,000 miles per second. The instant power enters the motherboard, it powers up the *BIOS*. The BIOS, or the basic input/output system, is the *firmware* (or software built into the computer) of the machine and is the first software that loads from the ROM (which as you might remember is nonvolatile, meaning that it does not go away when the computer is turned off). The BIOS handles all input into the computer when it is first turned on and handles all of the hardware attached to the motherboard, including everything from the keyboard to external disk drives.

The BIOS signals the hard drive to spin up and load the operating system, which is the user interface you see when you turn on the computer, such as the Windows 7 operating system. The BIOS also manages the boot order; this is the order in which the hard drive or disk drive loads up during the power-up operations. The process of initial startup where the motherboard is powered

With most systems, you can usually hit one of the function keys at the top of your keyboard, such as *F8* or *F11*, to enter the BIOS system menu. Through this menu you can check such things as the microprocessor temperature (either one or multiple processors if equipped) and system fan operation. Computer operations produce a great deal of heat and require the use of fans to keep the system cool.

up, hard drives spin, and the operating system loads is known as the *booting process*.

Once the computer has booted up, it continues to load any required default applications and hardware. Another important hardware device that starts up during boot up is the video card. The video card transmits data to your monitor so that you can see the user interface or the operating system screen. The BIOS also runs initial system checks such as verifying that the memory chips are all working and functional.

The BIOS is also responsible for loading up system drivers that allow compatibility between the motherboard and the hardware. For example, you may have purchased both a computer and a printer. Proper installation of the printer requires installation of the system drivers. Each individual computer platform (whether Mac or Windows) requires system drivers for effective compatibility with associated hardware devices.

Proper care and safety procedures are important for any computer. It is important to understand the basic operation of hardware and basic maintenance activities, especially if you ever want to open your machine chassis. It is also important to routinely use an air can, available at computer stores, to blow dust out of the inside of the computer chassis. Dust should be blown from all components, the power supply, and system fans.

A **DRIVER** *is software code written by a hardware manufacturer that tells the hardware device how to communicate with the operating system.*

Always keep in mind that the motherboard contains capacitors that can discharge dangerous or even potentially deadly voltage several minutes after the computer has been shut down. It is imperative that you not open the cover of the computer until the capacitor has discharged after the computer has been shut down and unplugged from the power supply. The time frame of discharge and the danger level of the capacitors will vary by computer; generally, the smaller the machine the less time it will take and the less you need to worry about the capacitor voltage. You can assure your safety by wearing an anti-static wrist strap and keeping the computer and its components off of external metal surfaces when working with the internal components of the machine. Always check the system documentation to determine how to open your computer chassis cover for maintenance and how long you should wait for the capacitors on the machine to discharge. This is not an activity for novices.

Input Hardware Devices 1.4.1

Input hardware devices are responsible for providing input to the computer system. For example, a mouse, a keyboard, a video camera, and a microphone are all considered input devices. In order to use all of these hardware devices, the computer must have the proper drivers installed so that the devices all work correctly.

The keyboard is the most common type of input device and is used to type instructions to the computer. The keyboard plugs into the desktop computer using a USB port and transmits a signal for further processing. The keyboard can also be used to execute shortcut key instructions such as *Ctrl-C* (which is a shortcut for copying text or an object from a document).

The mouse is also a very common device and is used to move the cursor (which by default looks like an arrow) along the screen. The mouse also has two buttons (a *left-click* button and a *right-click* button) and an optional scroll button. You can use the mouse to point at an application and then *double-left-click* to execute the application. You can examine the properties of a file or folder by pointing and selecting the *right-click* button on the mouse. The scroll button can be used to scroll through pages in a document that contains a scrollbar.

A microphone is another example of an input device that can be used for many purposes when properly installed with the assigned drivers on the computer. The microphone is generally plugged into the back of the desktop in the sound card audio input jack or one of the USB ports. This signal can then be used in many ways. For example, the signal can simply be stored on the hard drive and the file can then be processed using some other application, or you might create a PowerPoint® presentation and want to add narration so that a viewer can listen and view slides simultaneously.

Video cameras are used extensively for Web conferences and to record video. Companies can use them to monitor security and provide training events. The data stream for a video camera can be saved in a digital format on the computer's main hard drive or even an external hard drive.

Output Hardware Devices

1.4.2

Output devices are used to process output data feeds from the computer. This is usually done as a result of data that has been processed through the computer in some fashion. The most common output device is the computer monitor screen; this provides a visual interface between the user and the computer. Most monitors today are liquid crystal displays (LCDs), which provide a sharp image and transmit video data streams to the user. Additionally, there are overhead projectors that can display your computer screen directly on a wall; this is useful for showing multimedia presentations to large crowds.

Another example of an output device is a printer. A printer produces printed pages that contain output from an application. Some printers can also be used as input devices; for example, you may have seen printers that are referred to as all-in-one devices that have built-in fax machines (which can both send and receive faxes) and scanners (which convert an object or text into a digital image). Some printers have document feeders that allow you to make copies of important documents.

Your computer's speakers are another common output device. The speakers are integrated devices within a laptop but are

externally attached to the desktop computer. On an iMac, the speakers are integrated output devices. External speakers are connected directly to the sound card toward the rear of the desktop computer via the output sound jack that connects to the computer's sound card. Other output devices include headphones that allow you to hear sound privately rather than through the speakers. Most sound cards have an output jack for headphones.

Activity 1.2—Hardware Identification

Using your computer and the information in this chapter, identify what ports your computer has available. All computers will have a port for a power cord to attach. Most modern computing systems will include one or more USB ports and an audio jack for speakers. Visit a computer store to identify several hardware devices that are compatible with your computer. For instance, does your computer come with a DVD or Blu-Ray player? Which model would you be able to attach externally to your computer? Which printer model would work for the port that you have available? Identifying these will help you determine compatibility when you are making a purchase for a new component for your computer system or network.

1.4.3 Processing Hardware Devices

The main functions of the CPU are to process instructions, manage the flow of information, and perform calculations. The CPU is considered the brain of the computer and communicates with the output, input, and storage devices via the BIOS firmware that resides in the ROM. The motherboard is the circuit board where the CPU and memory attach.

All of these devices help to process and produce results based on the instructions received from the input devices. The CPU receives data transmissions as you have already learned, but what does the computer actually see? It is actually simpler than you might think. When you type a letter or number into your computer, the computer does not actually read or understand the character you typed.

What the computer is really processing are ones and zeros. In the world of mathematics, they refer to this number scheme as the *binary* system. For example, the decimal number 1 is interpreted as the 4-bit binary number 0001. Each digit in a binary number system refers to a power of two based on its position (beginning with 2^0 for the rightmost binary digit); each binary digit is called a *bit*.

The binary system is a base two system in which each bit is double the value of the previous bit, following the pattern of 1, 2, 4, 8, 16, 32, 64, and so on. The pure mathematics are beyond the scope of this text, but a 1 in any of the positions for the bit indicates that particular power of two should be included in the sum of the value to convert it to the decimal system with which you are familiar. An example of this is the binary number *0101*, which converts to the decimal value 5. Even if you do not fully follow the logic of this, you should understand that the computer processes information using this

binary system, which equates everything to a yes or no value (or equivalently an on or off value).

1.4.4 Data Storage

You have already learned about computer memory that stores nonvolatile and volatile memory on your computer. In order to store large amounts of data, though, you must have a hard drive. This is typically located inside your computer. The hard drive has a disk inside that can be rewritten repeatedly to store documents, video, multimedia presentations, and photographs. This internal hard drive is also where your operating system resides, along with all of your system settings and preferences.

Data on a hard drive is stored in a binary format of ones and zeroes using a magnetic storage technique. Hard disk data can last a very long time and information is rarely completely erased. Most people mistakenly assume that pressing the *Delete* button or emptying the *Recycle Bin* or *Trash* folder on your machine automatically deletes information forever, but this is not the case; while the information is removed from the operating system's repository, the data still exists on the drive until something else overwrites it. It is important to note that although sometimes hard drives fail or become damaged, much, if not all, of the data can be recovered using special techniques.

You may have heard someone mention their computer breaking and losing their information. There are two important things to remember here. First, all of the data can probably be recovered by a data recovery technician, even in cases of fire or water damage. Secondly, you should always use a secondary storage device, such as an external hard drive, to back up all of your important files and photographs so you do not lose them. External hard drives are readily available and can be used to store or back up all of your system files and preferences. External hard drives usually come with either USB or FireWire® connections. Most hard drives come formatted to be used in either a Windows or Mac computer.

Disk formatting is the process of preparing a disk or hard drive for use with a particular operating system. This process installs the filesystem or structure compatible with the particular operating system. The Windows OS uses the New Technology File System (NTFS) filesystem format which is configured on your hard drive or disk at the time of formatting. On a Mac, you would need either a Mac OS (Journaled) partition if the disk is to be used for booting purposes or a Mac OS Extended (No Journaling) partition if you will just be using the partition to store files, pictures, and video.

A *partition* is a block of storage in a particular file structure that allows it to be accessed by the chosen operating system. You can set up multiple partitions on your hard drive at the time of formatting to allow for multiple purposes. For example, if you want to use an external hard drive on both a Mac and a Windows PC, you would create a Mac partition and an NTFS partition.

There are other types of data storage devices that you can use to store either backup copies or important files. Flash

▲ **FIGURE 1.3**
Western Digital My Passport 1 TB external hard drive

drives (commonly called thumb drives), DVDs, and CD-ROMs are all commonly used for data storage. In any case, all data storage devices must be formatted for the correct operating system or media format desired. Figure 1.3 shows an example of a USB attached Western Digital® My Passport® 1 TB external hard drive.

1.4.5 What Computers Can and Cannot Do

Computers are not devices that can actually think or make decisions unless you program them to give you specific facts based on predetermined rules. In other words, computers are not self-aware. Despite the fact that they contain lots of processing power, computers are not able to make their own decisions nor do they have any feelings or morals. Computers must be programmed to complete every single task they perform.

Some technologies specific to the decision support field use advanced algorithms to help humans make the right decisions based on data that has been collected over time. Although these types of decision support systems continue to improve, they are far from being able to think or act like humans without human direction. All computers, no matter how advanced they are, must be programmed to complete their assigned tasks.

This also means that the results a computer provides are only as good as the data put into the system. You have probably called a bank, the human resources department at your employer, or a utility company, only to find they have incorrect information about you. This is an example of where a human enters incorrect data in the system and the computer system provides that same incorrect data back to the user. The computer lacks the ability to correct mistakes made by humans. There is no telling what the future holds as far as technology goes, but for now, computer output is only as good as the input provided by its user.

1.5 INTRODUCTION TO THE WINDOWS OPERATING SYSTEM

The Microsoft Windows OS is a graphical interface used to interact with the computer and applications that reside on the hard disk. The new OS comes with many features that make working in the environment easy and convenient. Microsoft currently has two versions of its Windows Operating System that are still widely used in the market: Windows 7 and Windows 8. While most of the differences are cosmetic, the shift in Windows 8 is significant

if you are familiar with previous versions of Windows. The next two sections will detail the basics of each of these versions.

1.5.1 Windows 7

You can see the basic desktop environment in Figure 1.4. This is the view you will see after you login to your computer. You can see the layout is similar to previous versions of Windows, but there are some differences that increase the ease of use.

The taskbar at the bottom of the screen has a new *Aero Peek* feature that lets you view thumbnails (preview images) of running applications. You can place your mouse over the icon for the application to see a larger image as shown in Figure 1.5; this action displays a grouped image with a preview of all of the open windows for that application. By using the *Aero Peek* feature, you can also close files from the thumbnails themselves by holding your mouse over the application group and selecting the *Close* icon (which looks like an *X*).

The *Show Desktop* button on the bottom-right corner of the taskbar (shown in Figure 1.4) can be used to quickly alternate between the applications that are open by minimizing them with one click (of the left-mouse button) and maximizing them with a second click.

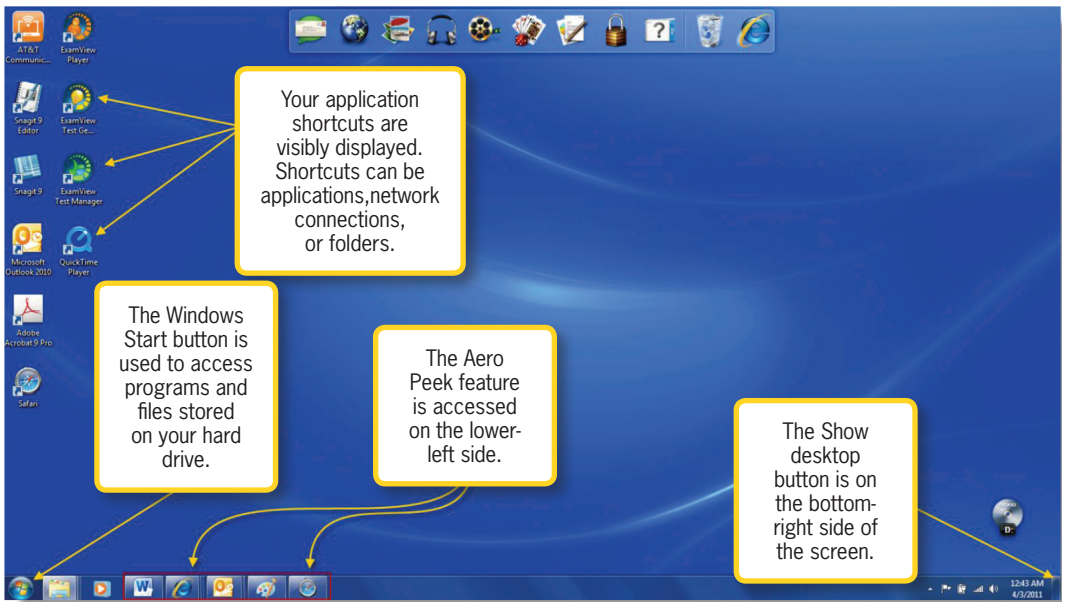


FIGURE 1.4 Windows 7 desktop

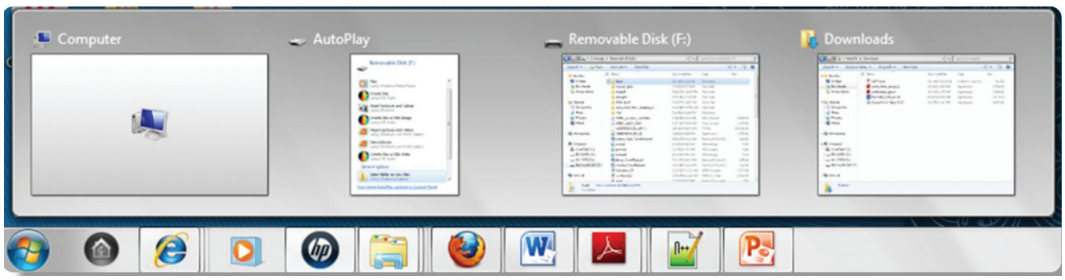
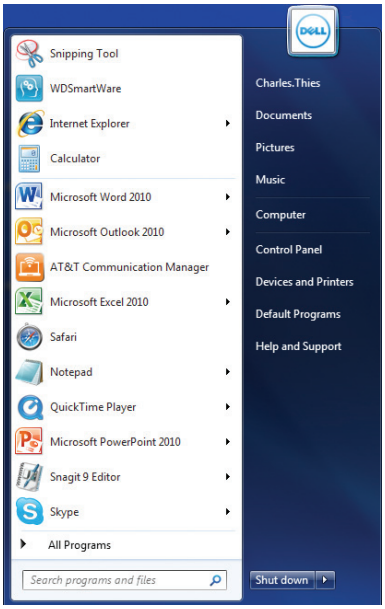
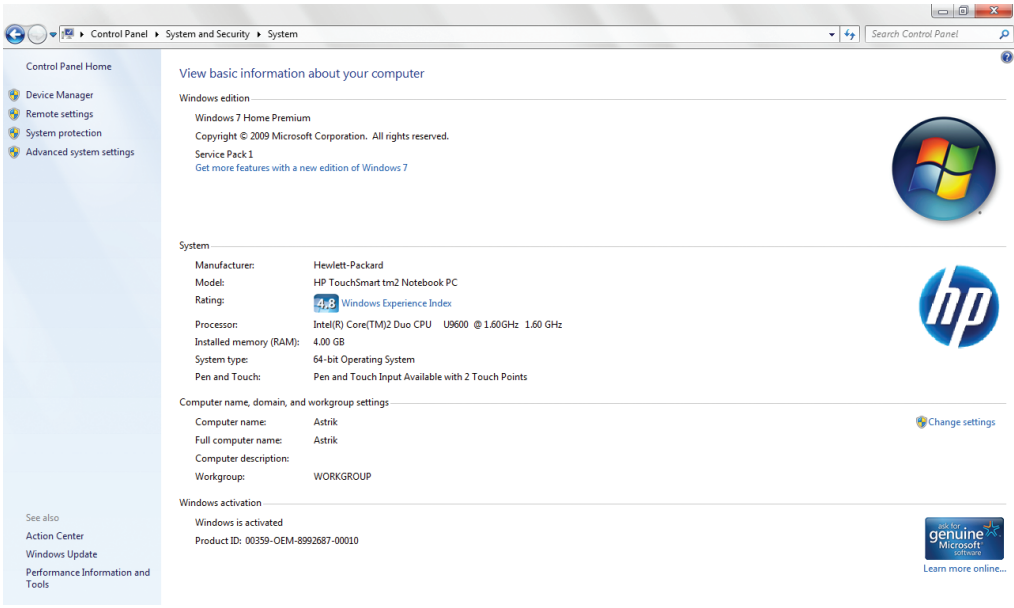


FIGURE 1.5 Using the Aero Peek feature



▲ **FIGURE 1.6**
The Windows 7 Start menu



▲ **FIGURE 1.7**
System properties for Windows 7

By clicking on the Windows *Start* button in the lower-left corner, you will see the menu shown in Figure 1.6. You have several options here, including customizing the way listed applications appear. You can add programs to this initial menu list by right-clicking the mouse on the application you want to add and selecting *Add to start menu*. If you hold your mouse cursor (which looks like an arrow) over one of the applications, you will see all of the most recent files used within that particular application. In Chapter 2, "Navigating and Using the Computer Environment," you will continue to learn more of the features available with Windows 7 and how to perform additional tasks with the operating system that will help you to refine your skills and become proficient with the Windows 7 OS.

Another important task on an operating system is to identify the system information, including the software that is running on the machine and the hardware components of the system. In Windows 7, you can find the system information by selecting the *Start* menu, choosing Computer, and then selecting System properties in the window that opens. When you have followed this process, you will see a screen similar to the one shown in Figure 1.7.

Windows 8

1.5.2

Instead of going straight to the desktop view, Windows 8 uses a Start screen which has icons for your installed applications and apps from the Windows store. The Desktop is one of the apps that is shown in the lower-right corner of the screen. You can click this icon to go the traditional Windows desktop view. You can see an example Start screen for Windows 8 in Figure 1.8.

The desktop environment for Windows 8 is very similar to Windows 7 in appearance. The Aero Peek feature is included in

◀ FIGURE 1.8
Windows 8 Start screen

Windows 8 as well as the full file and folder structure common to Windows 7, so you can create shortcut icons on the desktop and use Windows Explorer to view folder contents. You can see an example desktop for Windows 8 in Figure 1.9. To get back to the Start screen, you would simply click the Windows logo that appears in the lower left corner of the interface. If you click and hold on the Windows logo, you will be prompted with a menu that includes the *Shut down or sign out* option to close down your computer from the software. You can also hold the power button to cycle through the shutdown procedure.

▼ FIGURE 1.9
Windows 8 desktop environment and swipe menu

Because Windows 8 is made primarily for touch screen computers, most of the system activities you can perform are based on swiping left or right from the outside of the screen. Swiping in from the right to the center of the screen will open the menu for settings and customization. You can see an example of this in Figure 1.9. To get the system information, you would swipe the right menu into view and choose *Settings* and then *PC info*. This will display the system information for the computer.

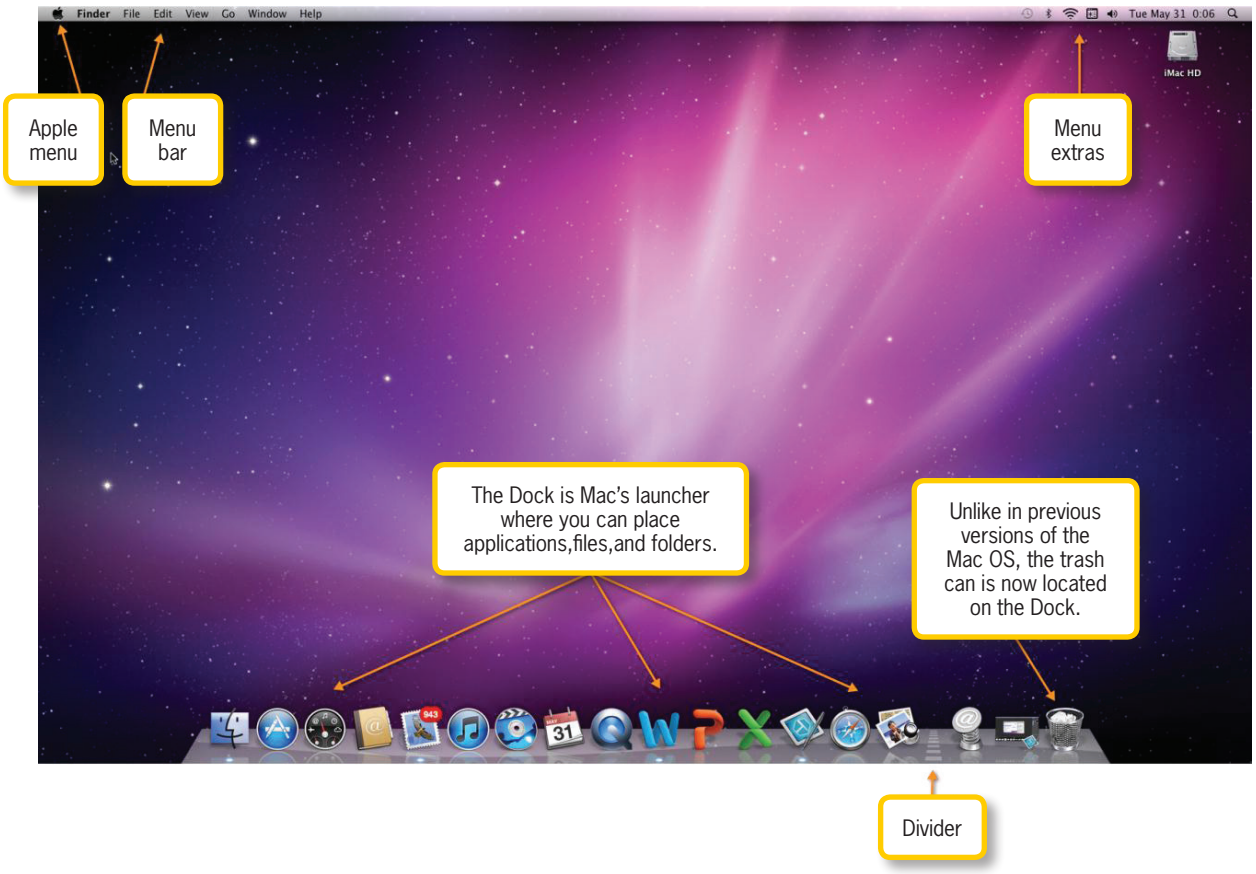
1.6 INTRODUCTION TO MAC OS X

This section is an introduction to the elements of the Macintosh OS X desktop. The Mac OS X platform is a graphical interface used to interact with the computer and applications that reside on the hard disk and works in a manner similar to the Windows platform. When you first log into your computer, you are in the *Finder* window as displayed in Figure 1.10; this is the equivalent of a PC desktop or workspace.

Menu extras are located on the top right hand portion of the Mac OS window and let you control system volume or manage your Internet connections as illustrated in Figure 1.10.

The Mac platform is credited with being one of the most user-friendly operating systems, as well as an operating system that faces far fewer security threats than the Windows platform. If you are new to the

FIGURE 1.10
The Mac OS X Finder window



Apple platform and are used to Microsoft's products, there is a significant learning curve involved.

The Mac platform can perform the same tasks that a Windows machine can, although sometimes different procedures are necessary to achieve equivalent functionality. The iMac desktop shown in Figure 1.10 contains display features you might not recognize, but you must learn about these as a first step toward building proficiency with the Mac OS X platform.

Along the right side of the screen you will find the *Macintosh HD* icon. It is important to note that Apple prefers users to keep their desktops clear of any icons. If you are using the Mountain Lion or newer version, you should not have anything on the desktop at all unless you upgraded from a previous version and you kept those icons on your desktop.

The *Dock* is the launcher for all of your programs and files; it is located along the bottom of the interface. The *Dock* has a *divider* line designed to keep applications on the left side and files and folders on the right side. You can easily drag new programs to the Dock or remove them by dragging them off of the Dock. The *Apple* menu, shown earlier in the chapter, is used to shut down the computer or put it in sleep mode. You are also able to initiate software updates and adjust system preferences here.

The *Sidebar* (shown in Figure 1.11) is located on the left-side pane of every Finder window. The sidebar has four sections: Devices, Shared, Places, and Search For. A double left-click (hereafter referred to simply as a double-click) on an application's icon opens that application. Minimizing applications is a matter of clicking on the yellow button at the top left of any application window; the application minimizes to the right side of the Dock. Chapter 2 will continue the exploration and use of the Macintosh OS X interface. As of OS X Mavericks, tabs are allowed in the Finder windows as well.

The *Apple* menu (as shown in Figure 1.10 on the upper-left corner of the interface) is where you can shut down or restart your system. Choosing the *About This Mac* selection provides information about system specifics such as operating system version and basic capability. Choosing *Restart* gives you the ability to restart your system, which is often necessary after system updates or software installation. It is important to save all of your important files prior to restarting your system to avoid losing important information.

▼ FIGURE 1.11
The Mac OS X sidebar in the Finder window

Activity 1.3—System Information

For this activity, you will follow the process for getting the system information for your computer. This should include the version of the OS that is in use along with the profile of hardware included on your machine. Follow the instructions provided for your OS in the previous sections and describe the information that is presented. When would this be useful or necessary information to have?

1.7 SHUTDOWN PROCEDURES

It is important not to treat the power button as a light switch; it does not simply shut down the computer. Although holding down the power button for immediate shutdown might be your only option in some cases, it should be avoided whenever possible. There are several shutdown options available to you depending on which system you purchase. It is important to follow the proper shutdown procedure to prevent problems with your computer, such as data loss or corruption. Failing to properly shut down your computer can create issues with your system, which include the following:

- Systems with system restore software can fail during restoration if the system was in the process of saving important files supporting a restoration point.
- Losing files not saved due to improper shutdown.
- Damage to hardware (on a Macintosh).

You can see an example *Start* menu (accessed through the icon in the lower-left corner of the computer screen) for a Windows 7 machine in Figure 1.12; choosing *Shut down* will close all applications and then terminate power to the machine. A closer look at Figure 1.12 reveals that there are a few other options available to you such as powering down your system. *Sleep* is a power-saving measure that places your computer in a state in which you can save energy, yet quickly bring your computer back up to where you left off so you can resume any activities you were performing. Windows 8 has a similar menu when the Windows logo in the lower-left corner of the interface is held down for a few seconds.

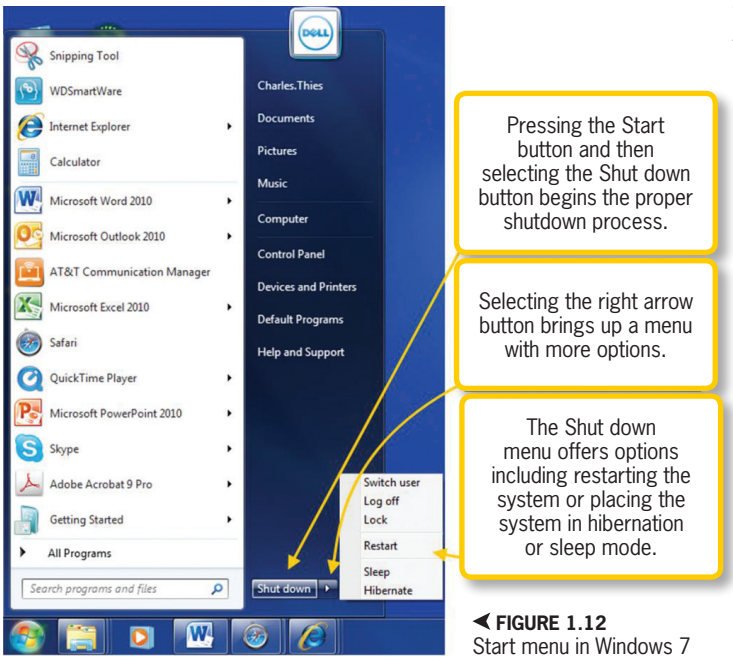
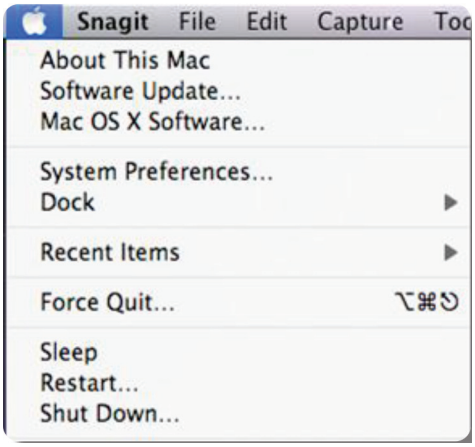


FIGURE 1.12
Start menu in Windows 7

Hibernate is primarily used in laptops. During hibernation, your laptop can be brought back up for use much more rapidly than from a completely powered-down state but slower than when in sleep mode. Hibernation mode is the setting that draws the least amount of power of all the power-saving modes available. Hibernation actually places your open documents and files on the hard drive and then shuts down; this enables your laptop battery to last longer.

The *Shut Down* menu offers additional options, including locking your computer. During computer setup you will be asked to create a username and password for your system. Many people mistakenly leave the password blank, making their computer vulnerable to security threats by unauthorized users. Always be sure to set up a strong password that uses a combination of letters, numbers, and special characters. It is also important that you avoid using static passwords. A *static password* is a password you use for many systems. For example, some people will use the same password to log into their bank checking account system, school portal, and favorite shopping site. It is important that you develop unique passwords (known as *dynamic passwords*) for each system.

You can power down your Mac by selecting *Shut Down* from the *Apple* menu (accessed by clicking the apple icon at the upper-left corner of the computer screen as shown in Figure 1.13) is the safest way to shut down your computer to avoid causing hardware damage. Sometimes you cannot avoid improper shutdown, such as during a power outage. You can avoid this problem by using an *Uninterruptable Power Supply* (*UPS*). A UPS is basically a system that plugs into the wall and keeps a battery inside charged; it contains a power strip that not only protects the power source, but also stabilizes the power level to keep your electronic equipment from being damaged during a power surge caused by lightning or some other event. In most cases, UPS systems will detect the power outage and automatically shut down your computer in a predetermined amount of time.



▲ **FIGURE 1.13**
Mac OS X Apple menu

The default Macintosh OS X operating system uses energy saver preference features that place your Mac in sleep or idle mode when it detects a lack of activity. If you are using a Mac laptop, your computer will enter sleep mode automatically when you close the lid to your laptop. When a Mac is in sleep mode, three things will transpire:

1. The computer microprocessor reduces the amount of power consumption.
2. The video card turns off.
3. The hard disks turn off.

To place your Mac into sleep mode, select *Sleep* from the *Apple* menu, as shown in Figure 1.13. You will notice that the *Apple* menu contains several other options aside from *Shut Down* and *Sleep*.

Activity 1.4—Shutting Down and Restarting

For this activity, you will cycle through the shutdown procedure for your computer. Shut the computer down using the procedure for your operating system. When it has finished the process, press the power button again to start the computer and log back into the operating system. This whole procedure can be done in one step by selecting the Restart *option instead of the option to shut down the machine completely.*

CHAPTER SUMMARY

This chapter provided an introduction to computer concepts and covered the hardware and software components used in modern personal computers. Additionally, you reviewed a brief historical basis for computer systems and pointed out the basic elements of both the Windows and the Mac platforms. This text is designed so that both Mac and Windows users are able to acquire enough knowledge to successfully start their computer and navigate the desktop. The next chapter will cover how to successfully manage files and folders. Users will develop proficiency in all of the basic tasks needed to successfully manage a personal computer at the operating system level.

CHAPTER KNOWLEDGE CHECK

1 What was the earliest device used for mathematical calculations?

- ○ **A.** Abacus
- ○ **B.** Clay tablet
- ○ **C.** Bean counter
- ○ **D.** Both A & B

2 The Colossus was the first vacuum tube-based computer used to crack the Enigma code.

- ○ **A.** True
- ○ **B.** False

3 _____ options can also be a factor in selecting your new system.

- ◯ **A.** Sound and video
- ◯ **B.** Video and battery
- ◯ **C.** Monitor and video card
- ◯ **D.** Hard drive and ROM

4 The power button on a computer is always located on the back of the monitor.

- ◯ **A.** True
- ◯ **B.** False

5 A _____ is a system that plugs into the wall and keeps a battery inside charged. It contains a power strip that not only protects the power source, but also stabilizes the power source to keep your electronic equipment from being damaged during a power surge.

- ◯ **A.** Power outage
- ◯ **B.** Brown out
- ◯ **C.** UPS
- ◯ **D.** Lightning

6 Computers are devices that can actually think and make decisions without you having to set any predetermined rules.

- ◯ **A.** True
- ◯ **B.** False

7 The _____ feature lets you view thumbnails of applications that are running.

- ◯ **A.** Aero Peek
- ◯ **B.** PC Peek
- ◯ **C.** Finder View
- ◯ **D.** Presentation View

8 The Mac platform can perform all of the same tasks that a Windows machine can.

- ◯ **A.** True
- ◯ **B.** False

9 The _____ is located on the left side of every Finder window.

- ◯ **A.** Sidebar
- ◯ **B.** Dock
- ◯ **C.** Color icon
- ◯ **D.** None of the above

10 The _____ is the launcher for all of your programs and files on the Mac platform.

- ○ **A.** Menulet
- ○ **B.** Dock
- ○ **C.** Finder window
- ○ **D.** Both A & B

CHAPTER REVIEW QUESTIONS

1 Are there employment fields which could benefit from computer technologies that do not already utilize computers? Give examples to support your conclusions.

2 What are the differences between client-based and Web-based software applications? Are there benefits to using one over the other? How are the different types of applications utilized in organizations?

3 What types of hardware devices can provide enhancements to a computer system? What type of enhancements do they provide and who can benefit from them?

4 Consider the differences between a Mac and PC. Describe your current or projected career field. Would one of these two systems be more functional than the other in performing your duties? Why or why not?

5 Many people often experience data loss. To protect data you can perform regularly scheduled backups. Which storage device would you choose to backup all of your school assignments? How often should data be backed up?

6 Explain the difference between the *Start* menu in Windows 7 and the Start screen in Windows 8. Which of these is more useful for accessing programs quickly? Justify your answer.

7 Describe an element of your operating system that was not covered in this chapter. This could be a menu, feature, or application. What function does it serve or what information does it provide?

8 Using the information in the chapter, explain two differences between a Mac and a PC. Do these differences affect how the computer is used and what it can do? Justify your answer.

9 Explain in your own words how the Aero Peek feature of Windows is beneficial and how it assists productivity on the computer. Give examples to support your conclusion.

10 In your own words, explain the difference between shutting down a computer and restarting it. Give at least two examples of when you would use each one.

PRACTICE EXERCISES

1. This exercise requires you to conduct some basic research using the World Wide Web to learn about various aspects required to select and purchase the right personal computer to meet your needs. Because you still have yet to cover the Web, complete this assignment by visiting your local library and working with the librarian. (Optionally, if you do have some computing experience, you may use the Web on your own to complete this assignment.) Begin by thinking about which category of user you fall under, such as student or gamer. The student user usually needs a computer that is able to run Microsoft Office applications or some variant. A gamer or high-performance computer user requires more memory, faster processors, and a high-performance graphics card. Using the Web, find additional research supporting facts required to purchase the right system. For this exercise, research the minimum system requirements for the software you will be using or would like to use. Once you have the system requirements, go to the Web and use three online shopping sites to find the three best prices for a PC that meets your specific needs. List the system requirements and the PCs you chose and provide a substantive explanation for your decision. You do not have to use any computer applications to write this assignment.

2. In this exercise, you will be researching different types of software applications. First, choose the operating system you prefer. Then research at least ten different applications available for that system not already listed in this chapter. List the ten different applications you found. Then, choose the application with which you are the most familiar and write a 500 word research paper about that application. Make sure to include the following information in your paper: its purpose (entertainment, professional, financial, etc.), system requirements, price, where it can be purchased, and any other pertinent information about the application you chose. Be sure to cite all of your sources in a reference page.

3. For this assignment you will need to do some field research. Locate a local business, library, or educational institution that utilizes computers. You will need to make a visit to your chosen location to gather information about the various hardware devices they utilize. Make a list of all the input and output hardware devices for one of their computers. Then take this list home and outline how each device was being used by that organization. Include how the device helps the business, library, or other organization to function efficiently.

CHALLENGE EXERCISES

1. Use the Windows PC to create a detailed instruction manual for the startup and shut down process. Describe all of the options included in the shut down menu along with when to utilize each feature. In your manual, be sure to include a section on computer login security.

2. Go to the local library or use the Web to develop a historical time line that explains the development of computing technology. Optionally, if you have some computer skills you may use the Web on your own to complete the assignment. Write out a time line on paper that explains important milestones and lists the contributors responsible for each achievement.

3 Briefly explain the login process for your operating system. Include the steps that are needed and the security in place for accessing the computer. When you restart the computer, is it necessary to log into it again? Explain if this is a good setup for logging back into a computer from shutting it down.

CHAPTER
2

Navigating and Using the Computer Environment

IN THIS CHAPTER

This chapter will teach you how to navigate and use the computer desktop environment. You will learn how to work in the computer environment using files and folders you develop from client applications available on your computer. You will also learn about navigating the environment by searching for files and folders as well as by using keyboard shortcuts to traverse the desktop environment. Once you have completed the chapter, you will be able to:

- Describe and identify elements of the user interface
- Navigate the desktop and locate applications, files, and folders
- Demonstrate the use of folders to organize files on your computer
- Construct and save files from basic applications

2.1 NAVIGATING THE DESKTOP

Whether you are using a Mac or a Windows-based computer while working your way through this text, navigation is done by interacting with the computer's *graphical user interface* (*GUI*). The user interface is the visual (graphical) display provided by the computer's operating system that allows the user to visually interact and issue tasking commands into the BIOS. By interacting with the user interface, software applications can be started, closed, installed, and uninstalled.

2.1.1 The Windows Desktop

In the previous chapter, you were introduced to the Windows desktop environment, which is the computer's user interface. One of the primary functions of a user interface is to help humans visually interact with the computer and utilize the software programs available for various activities. Accessing the software programs on your computer can be done in one of two ways: by using the *Start* button in Windows 7 (or the *Start screen* in Windows 8) shown in Figure 2.1 or by *double-clicking* on a particular shortcut icon on the desktop or in the folder in which the application is installed.

▲ **FIGURE 2.1**
Windows 7 Start button

The *mouse* is the hardware device you use to move the cursor on the computer screen over the desktop to interact with programs and files. You can begin your exploration by moving your cursor (by moving the mouse) to the *Start*

The **GRAPHICAL USER INTERFACE** *(or* **GUI***) is the graphical display that allows the computer user to see the computer output and interact with the core components of the computer in a visual manner.*

The **DESKTOP** *is the primary workspace for a graphical user interface; it is the digital equivalent of a physical desk. It typically contains menus to perform system functions and icons that represent applications or files on the computer system.*

An **ICON** *is a small graphical representation of a program or command; clicking it usually starts a program or performs an action, depending on what the icon represents.*

A **WINDOW** *is an area of the screen acting as a standalone user interface to an application. A single application may use multiple windows (commonly one window per open file).*

A **MENU** *is a selection of commands and options that are similar enough to form a group; the title of the menu is generally indicative of the type of commands it contains. Common examples of a menu are the* File *menu and* Help *menu.*

A **TOOLBAR** *is a collection of icons that acts like the visual equivalent of a text menu, typically providing shortcuts to common commands and actions.*

A **PANE** *is a section of a window with a specific purpose.*

A **DIALOG BOX** *is an encapsulated version of a user interface that is typically used for minor data entry or configuration. In most applications, an open dialog box has to be closed or otherwise dealt with to perform other tasks in the application.*

button and pressing the left button on the mouse one time. Performing this action will activate the *Start* menu, shown in Figure 2.2.

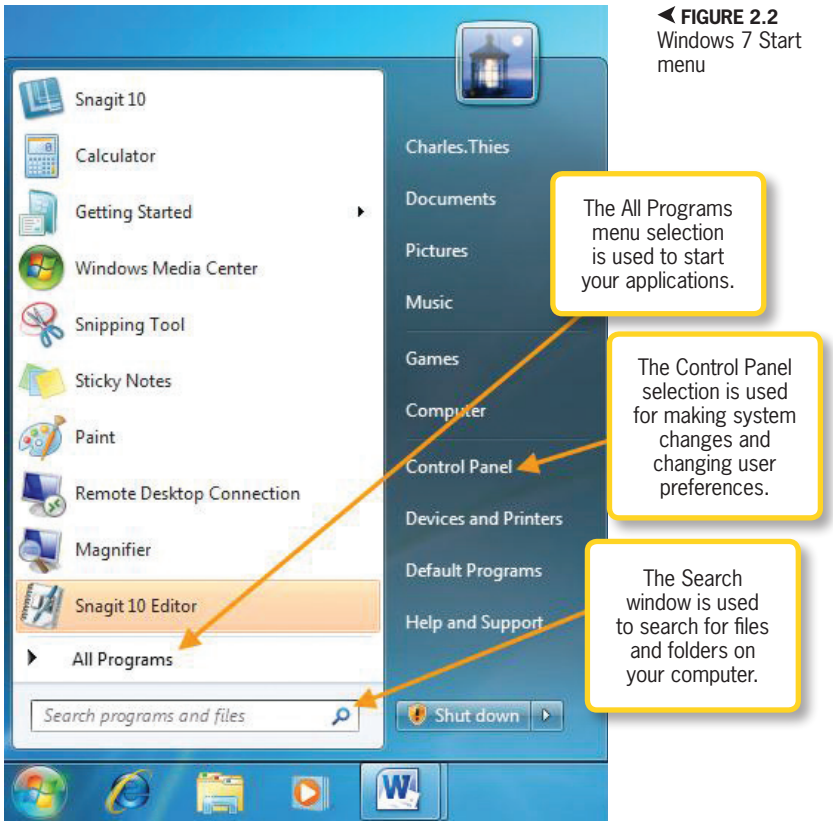


FIGURE 2.2
Windows 7 Start menu

2.1.1.1 The Control Panel

The right side of the *Start* menu in Windows 7 has several fixed options, one of which is the Control Panel option. The Control Panel (shown in Figure 2.3) gives the user the ability to make system setting changes. This includes hardware and software installations and uninstallations (uninstalls). The Control Panel in Windows 8 is accessed by swiping in the right side, choosing *Settings* and then selecting *Control Panel*. This will activate a window similar to the Windows 7 Control Panel.

Notice the *Appearance and Personalization* submenu in the Control Panel. Selecting this option brings up several options available to customize your desktop environment, as shown in Figure 2.4.

Notice in the *Appearance and Personalization* submenu in Figure 2.4 that you can personalize your desktop by changing the desktop theme, colors, and background. This submenu is also where you will find the display properties where you can adjust your graphics card's properties such as its screen resolution and whether you use one screen or two screens.

2.1.1.2 Jump Lists

Another feature to help you navigate the desktop more efficiently is a Jump List. *Jump Lists* allow a user to quickly open a recent file from an application on the taskbar or a pinned application on the *Start* menu, as shown in Figure 2.5. You can also pin items to Jump Lists on the taskbar, which is available in Windows 8 as well.

2.1.1.3 Task Manager

Sometimes a program on your computer may lock up and cease to function. Most of the time Windows will automatically send you a warning and either restart the program or close it completely. If for some reason the program does not close, you can open the *Task Manager* and end a process that has stopped working by pressing the *End Task* button at the bottom of the window shown in Figure 2.6.

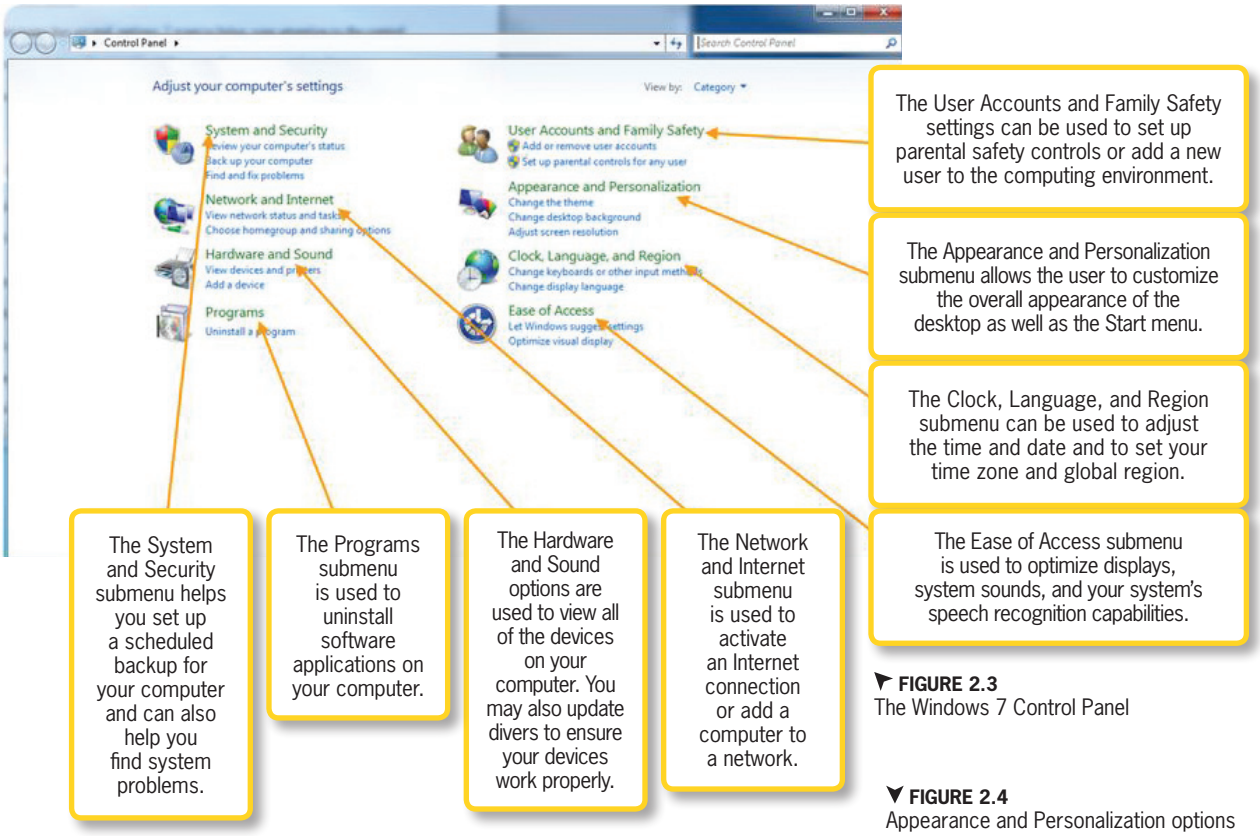


FIGURE 2.3
The Windows 7 Control Panel

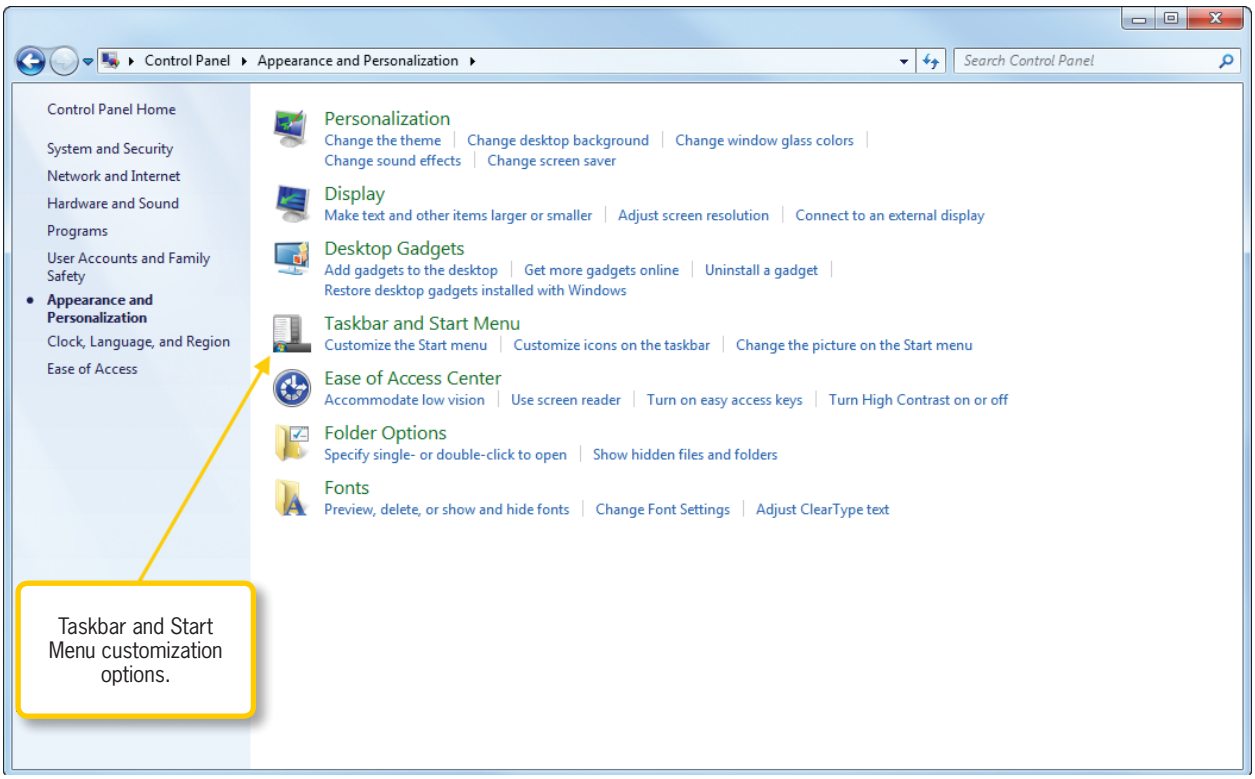


FIGURE 2.4
Appearance and Personalization options

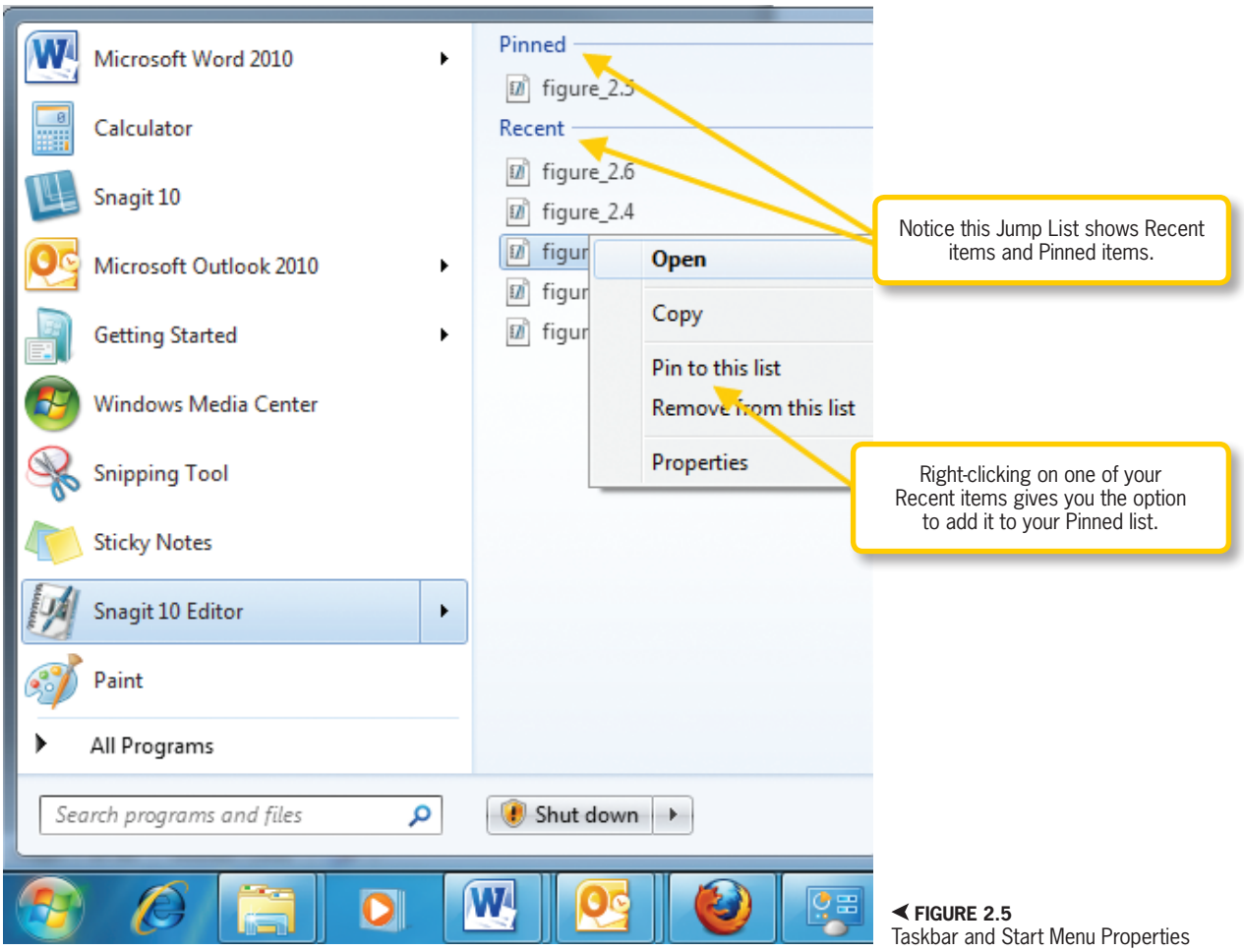


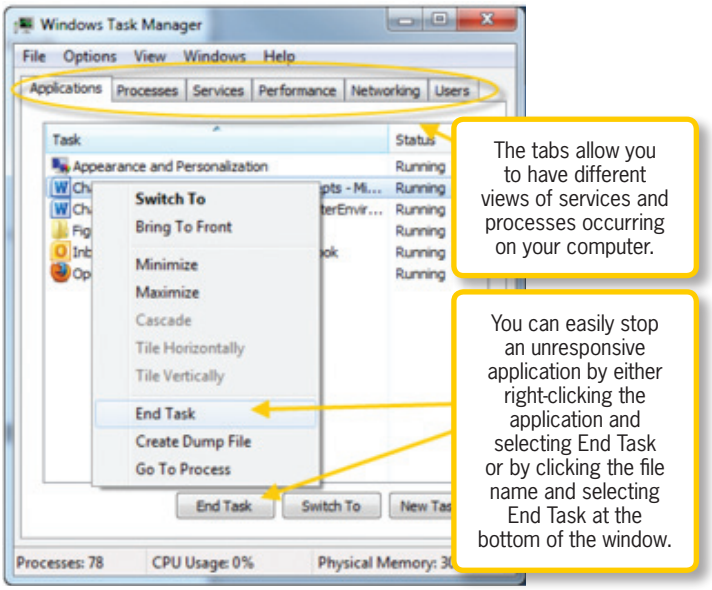
FIGURE 2.5
Taskbar and Start Menu Properties

You can open the Task Manager in two ways. First, you can simply move the pointer to the taskbar, right-click, and select *Task Manager* from the menu that appears. The second way to get to the Task Manager is to use the keyboard shortcut by pressing *Ctrl+Shift+Esc*. The Task Manager displays programs and services that are running on your computer at the time you open the window. You can also use the Task Manager to view network processes or users logged into your system. In Windows 8, a shortened Task Manager appears when it is first activated. You can view the full details by choosing the *More details* option.

A **KEYBOARD SHORTCUT** *is a particular combination of keys pressed at the same time and is used to access menus or other services efficiently without the use of the mouse.*

Libraries Feature 2.1.1.4

Over time you may accumulate a large number of files and folders on your desktop, which can make navigating the desktop difficult. Libraries are a feature in Windows that can help you find and organize your

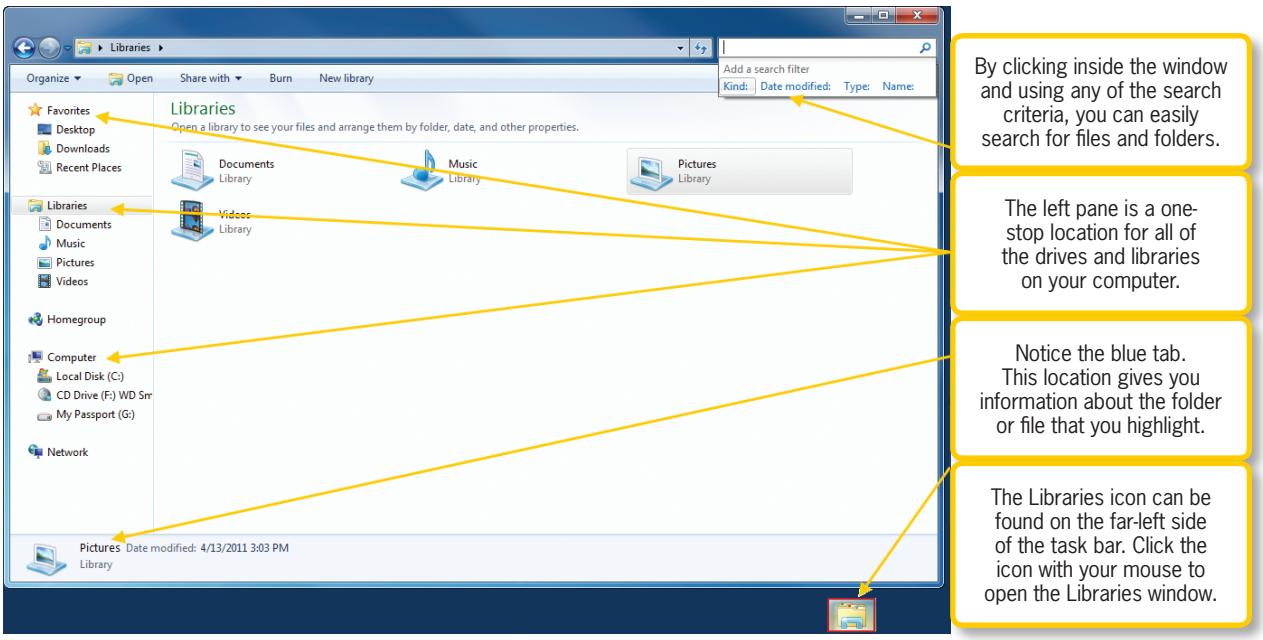


▲ **FIGURE 2.6**
Task Manager

files in one consolidated location. This allows you to save time by having one place where all of your files and folders can easily be located. To access the Libraries feature, click the *Libraries* icon on the lower-left side of the taskbar. A visual reference of the *Libraries* icon can be seen in Figure 2.7. The Libraries window has a search box that allows the user to search for files and folders using options such as Kind, Date modified, Type, and Name as search criteria.

You can see by looking at Figure 2.7 that there are four standard libraries: Documents, Music, Pictures, and Videos. You can also create new libraries to help you organize your collections of files and folders. To create a new library, highlight the *Libraries* selection at the left side of the window, as shown in Figure 2.7, and right-click. This will produce a new menu; select *New*, then *Library* and name the new library folder. For example, this might be a library for all of your schoolwork. You might name the library *Undergraduate* or give it the name of the school you are attending and then have subfolders in the library for each course that you are taking.

▼ **FIGURE 2.7**
Libraries window



2.1.2 The Macintosh OS X Desktop

Although the Mac has a similar appearance, it is different from a Windows-based PC. Unlike the Windows platform, many of the desktop settings on the Mac can be found in the *Apple* menu. As you might remember from previous sections, the *Apple* menu is accessed by clicking the apple icon (shown in Figure 2.8) at the top-left side of the menu bar.

▲ **FIGURE 2.8**
Apple icon to access the Apple menu

Starting an application also works much differently than on a Windows machine. In a Windows environment, you may have used the *Start* screen or Start button to access all of your settings and applications. On a Mac, all of the applications you use regularly reside on the *Dock* near the bottom of the interface (as shown in Figure 2.9).

To access applications on a Mac, you can start them either from the Dock or from the application's icon in the *Applications* folder. It is easy to add or remove applications from the Dock. You can simply click on a program icon and drag it away from the Dock to remove the application. To add an application to the Dock, you simply click on the application you want in the *Applications* folder and drag it to the left side of the divider (the dotted white vertical line) on the Dock. You can click and drag icons on the Dock to reorder them.

The **DOCK** *is the collection of program icons at the bottom of the Mac desktop screen used to quickly access the applications you use most frequently.*

The Finder 2.1.2.1

If you are using a new implementation of the Mac OS X system, there is nothing on your desktop and you might be wondering how you access applications because there is so much more available than what you see on the Dock. The applications on your computer are found in the *Applications* folder. You can use the Finder window to access the *Applications* folder by clicking on the *Finder* program icon on the Dock (see Figure 2.10).

▲ **FIGURE 2.10**
Finder program icon

If you do not have any applications running, you will notice that the *Finder* menu is available at the top of your screen. You can alternatively click on the background of the screen and the active application menu will be the Finder application. If a Finder window does not appear, you can select the *Go* option on the *Finder* menu, as shown in Figure 2.11.

The *Go* menu gives you the ability to navigate to different areas on your computer system. You will notice that to the right of the options are your shortcut keys. Mac has a wide selection of shortcut keys you can use to quickly navigate to areas within your system and perform common tasks.

▼ **FIGURE 2.9**
The Dock

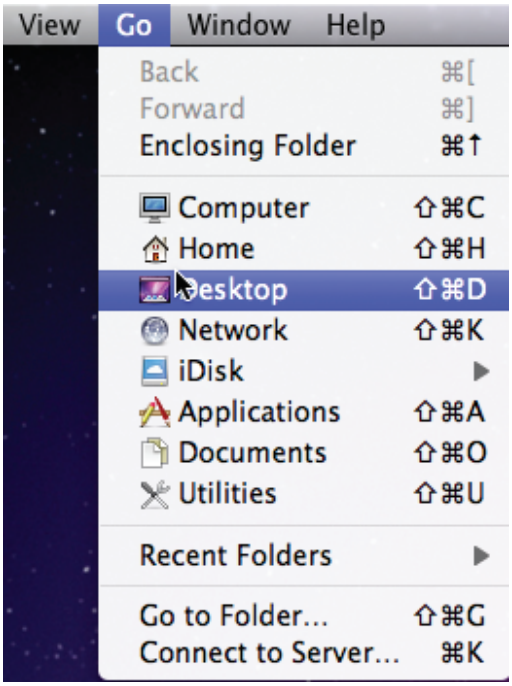


FIGURE 2.11
The Finder menu Go selection

2.1.2.2 The Dock

If the Dock is too small or too large for your personal preference, you can quickly and easily adjust its size by selecting the *Apple* menu, then the *Dock* selection, and finally *Dock Preferences* to open the window shown in Figure 2.12. Now you can simply move the Size slider to increase or decrease the size of the Dock.

One final feature on the Dock that you may need is the ability to view hidden menus. If you are simply taking a look at your program icons, it is not immediately apparent that there are more options available to the user. Simultaneously pressing the *Ctrl* button and clicking on a particular program's icon (the *Mail* icon in Figure 2.13) displays the hidden menu for that program.

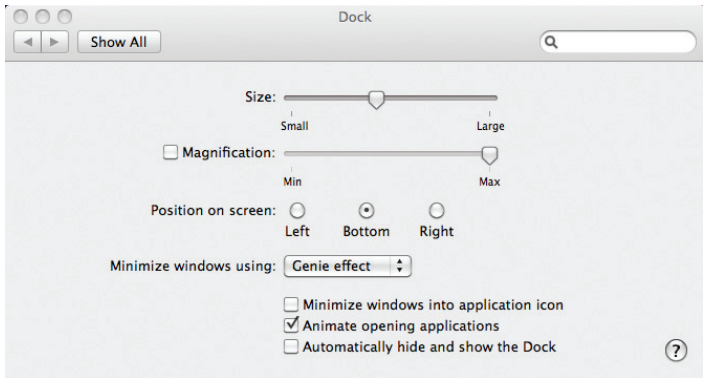


FIGURE 2.12
Dock Preferences window

FIGURE 2.13
Hidden menu for the Mail application

You can clearly see there are additional options in the hidden menu. At the top of the menu in Figure 2.13, you can see that there is an open associated file. Clicking on the open file labeled *TOC* brings up an email window. You can perform this action with any of your applications on the Dock or the OS X desktop to view hidden menus.

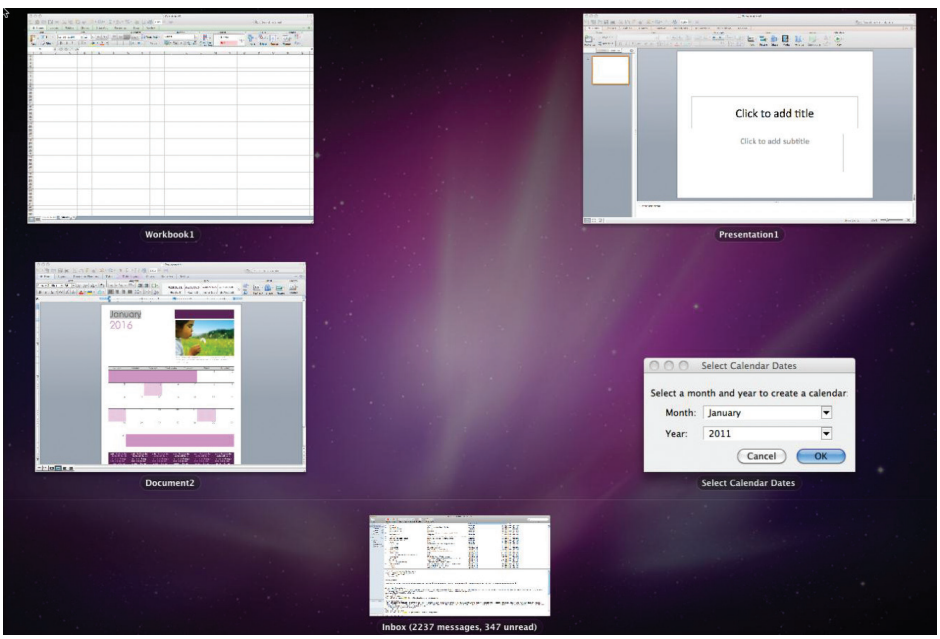
2.1.2.3 The Dashboard, Exposé, and Spaces

In the OS X environment, you have widgets available in the *Dashboard*. When you activate the Dashboard (which will then appear to float over your desktop), you will see that it contains a clock, calendar, calculator, and the weather. You can use the Dashboard's hidden menu to change your Dashboard settings or add new widgets you find online. You can also change your Dashboard settings by accessing the *Apple* menu and selecting *System Preferences*. System Preferences is also where you can adjust settings for Exposé and Spaces.

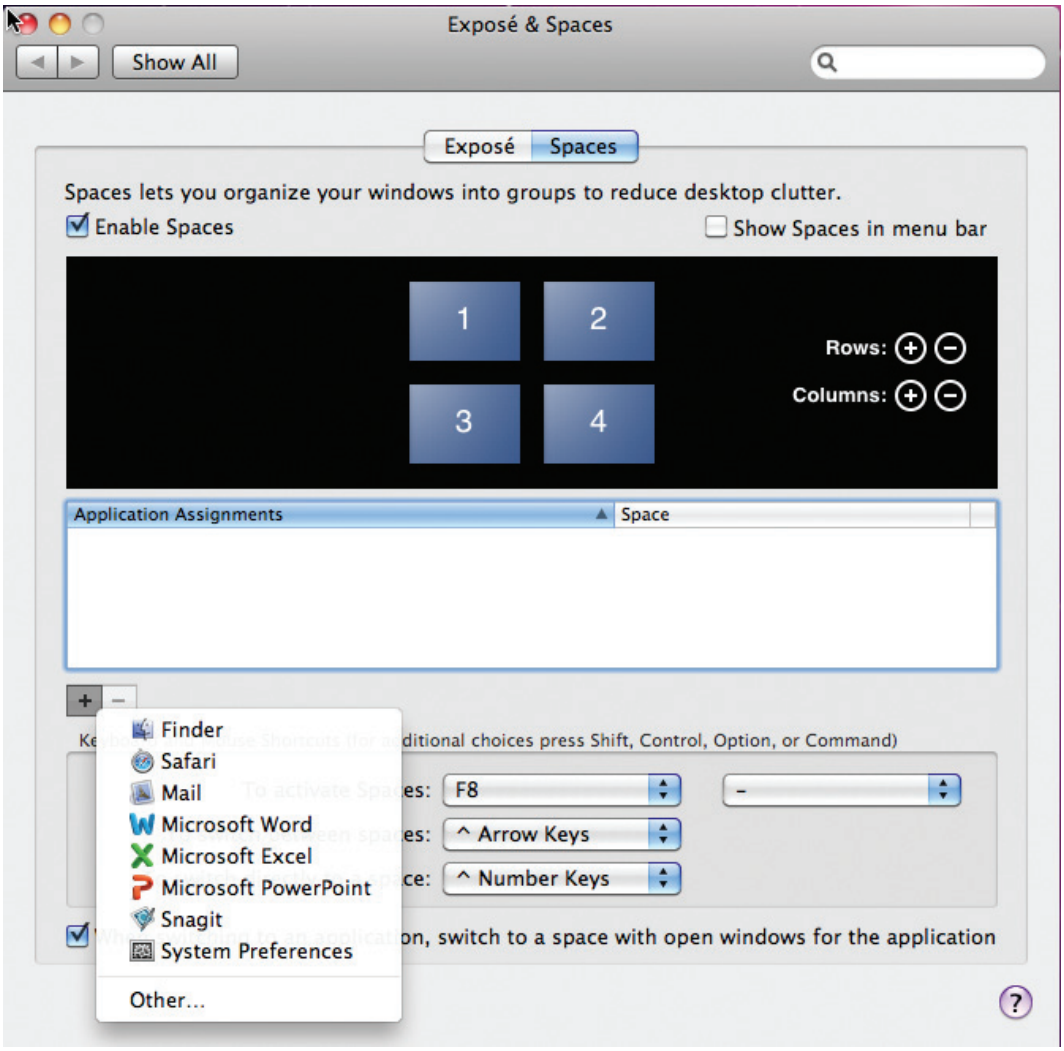
▲ **FIGURE 2.14** Dashboard displaying widgets on desktop and hidden menu snippet

Exposé and Spaces are features within the Mac OS X environment that make desktop navigation and organization a breeze. Exposé is similar to the Aero Peek feature in Windows 7; both of these give you a preview of the applications you have open and let you open one by moving your cursor to it and clicking. With most keyboards, you simply press the *F3* key to view the Exposé of active applications.

Rather than placing a preview at the bottom of the taskbar for minimized applications, Exposé places your open and minimized application windows in small preview windows laid out so that you can see every application you have open at once as shown in Figure 2.15. Clicking on one of the application windows maximizes the window and brings you to the desired application.



◀ **FIGURE 2.15** Active Exposé view



➤ **FIGURE 2.16**
Spaces configuration settings

Spaces is the other tab on the Exposé & Spaces configuration window. The Spaces feature lets you organize the applications on your desktop in a way that is efficient to the way you work. This feature allows you to assign applications to one of four spaces on your desktop. In Figure 2.16, you can see that if you select the + symbol you can add desired applications to a particular quadrant. This way, each time you open an application on the Dock, it appears in the quadrant you have selected.

Force Quit 2.1.2.4

If you want to stop an unresponsive application when using the Macintosh OS, you must use the *Force Quit* option. It is important that you only use the Force Quit option if you are absolutely unable to work with the application and it is unresponsive. Using this option will cause the application to close without saving any work. You can Force Quit out of an application by selecting the *Force Quit* option from the *Apple*

menu. As an alternative, you can press the *Command+Option+Esc* keys simultaneously. You must then select the unresponsive application from the menu that appears.

Activity 2.1—Process Monitoring

Use either the Task Manager in Windows or the Activity Monitor in Mac OS X (located in the Applications/Utilities *folder under the hard drive). Identify the processes and applications that are running on your machine. Describe the information about each process or application that is being presented to you. How is this information useful for managing the computer system?*

2.2 ORGANIZING FILES AND FOLDERS

Organizing files and folders is an essential task on a computer. By organizing your files effectively, you can quickly find documents you need. Part of this organization process is the use of folders to group similar content. These work just like real folders that you can use to organize paper documents. The fundamental principles are the same, regardless of the operating system you use. Each folder can contain subfolders in a hierarchical arrangement. Ultimately, all of your folders will stem from one source, such as your hard drive (typically labeled C on a Windows machine); the folders within that are subfolders, and each of those can contain subfolders. Even your desktop is a subfolder of the hard drive on which your operating system is stored.

Files and Folders in Windows

2.2.1

Organizing files and folders on Windows is a common task, and there are many features that can be quite helpful if used properly. One of the first things to start off with is storing files in appropriate folders. Think of organizing files and folders on your computer as similar to organizing a filing cabinet at your home or office. Assume you wanted to use your filing cabinet to store all of your homework assignments for your first semester of undergraduate education. If you are taking four courses, you might make four folders. For this example, pretend you are taking Biology, Math, Sociology, and Business Ethics.

Creating your folders with categories is the first step to help you sort all of the documents you will quickly begin to accumulate during the semester. If your courses are eight weeks long, you might want eight subfolders to store assignments by week. This might require that you now create 8 subfolders for each course category for a total of 32 subfolders. Once you have your filing cabinet categorized with folders and subfolders, you can begin to populate them with assignments, tests, and quizzes for each week of the semester. Each one of these documents you collect is part of the set of files that will populate your filing cabinet.

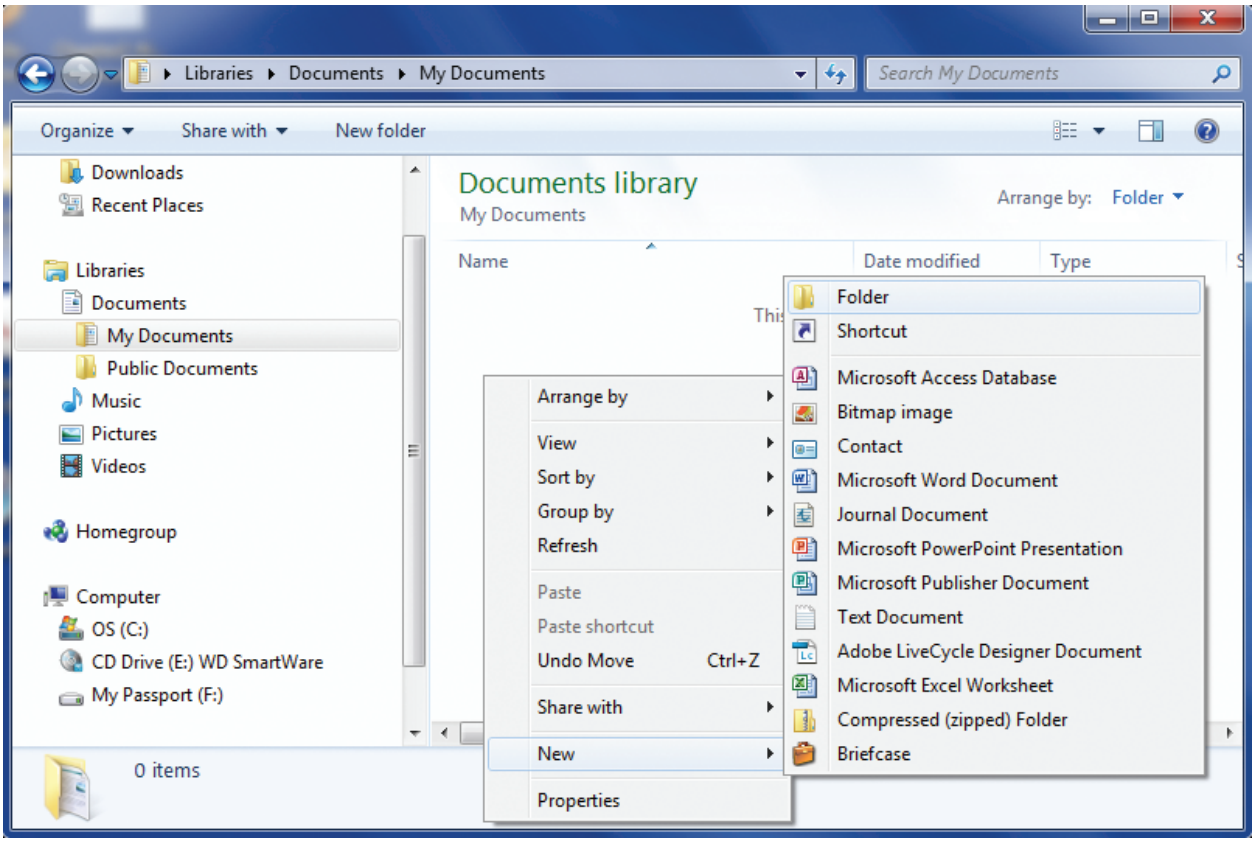
To translate this to the environment of the computer, the filing cabinet on the computer is located in the chosen storage location on the media you select. Recall from the previous chapter that media can be the computer's internal hard drive, an external hard

You can create a folder anywhere on your hard drive, external media, or desktop. Windows contains a default folder you can use for this purpose called *My Documents*. The problem, though, is that if you just drop all of your documents in there, over time it can become a mess. Imagine having to scroll through 75 files. It is not as hard as you might think to accumulate that many files in a short amount of time. A great place to start the project of organizing your documents is to create your folders in the *My Documents* folder for each category of organization you want to have, such as folders for Home, Work, and School.

drive, or a thumb drive that you use to store all of your important data. In the following example, you will use the *My Documents* folder (accessible via the Libraries functionality) to create a file structure to store your school documents.

You can see in Figure 2.17 that the Libraries and Documents selections on the left have been expanded and the *My Documents* folder is highlighted. The *My Documents* folder shown here does not have any files in it. Highlighting the *My Documents* folder opens the folder for you to view its contents. In this case, the folder simply has a title at the top of the window indicating the *Documents library* in green letters and *My Documents* in black letters. Now simply right-click with your mouse pointer in the window and a menu appears with New as an option near the bottom. Selecting *New* gives you many options, as shown in the menu at the right; one of them is the creation of a new folder.

▼ FIGURE 2.17
Using the Windows Libraries feature to create a new folder



Selecting *Folder* creates a new folder as shown in Figure 2.18 with the title *New folder* highlighted in blue. This indicates you can proceed to type a desired name for the new folder. You should always take care to title your folders immediately, or you may forget what they contain or what their original purpose was supposed to be.

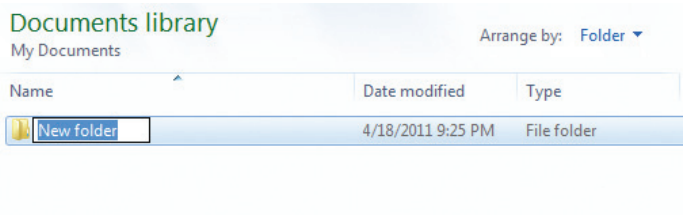


FIGURE 2.18
A new folder in the My Documents folder

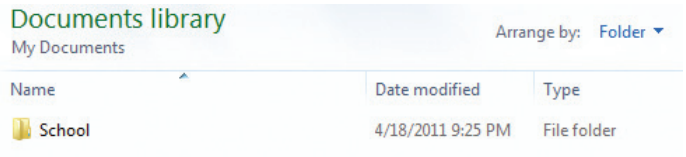


FIGURE 2.19
The new School folder in the My Documents folder

Now take a look at Figure 2.19 where the newly created *School* folder resides in the My Documents location of your computer; you can think of this as your School category. Now you can add subfolders that reside within this *School* folder. For example, you might create a subfolder within the *School* folder titled Biology, indicating a storage location for all of the work you complete and collect for the science course you are taking, and you can create a subfolder within that for each week during the term.

In Figure 2.20, you can see there are now four subfolders within the main *School* folder. Each subfolder represents a course you are taking. You could further develop each subfolder by adding subfolders representing each week in your *school* term.

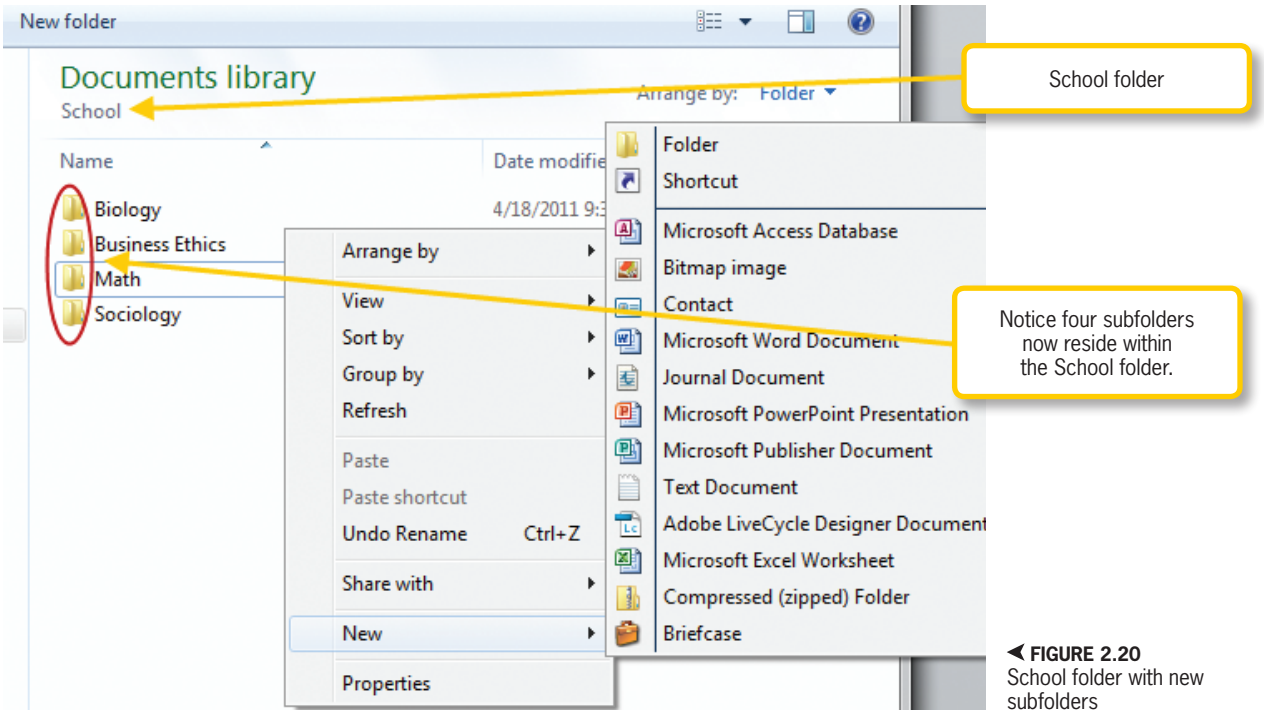


FIGURE 2.20
School folder with new subfolders

Activity 2.2—Creating a Folder

Create a new folder on your computer named Activity2_2. Move the folder to the proper location on your machine for saving documents. Describe the process of creating the folder and the process of navigating to the proper location for documents to reside on the computer.

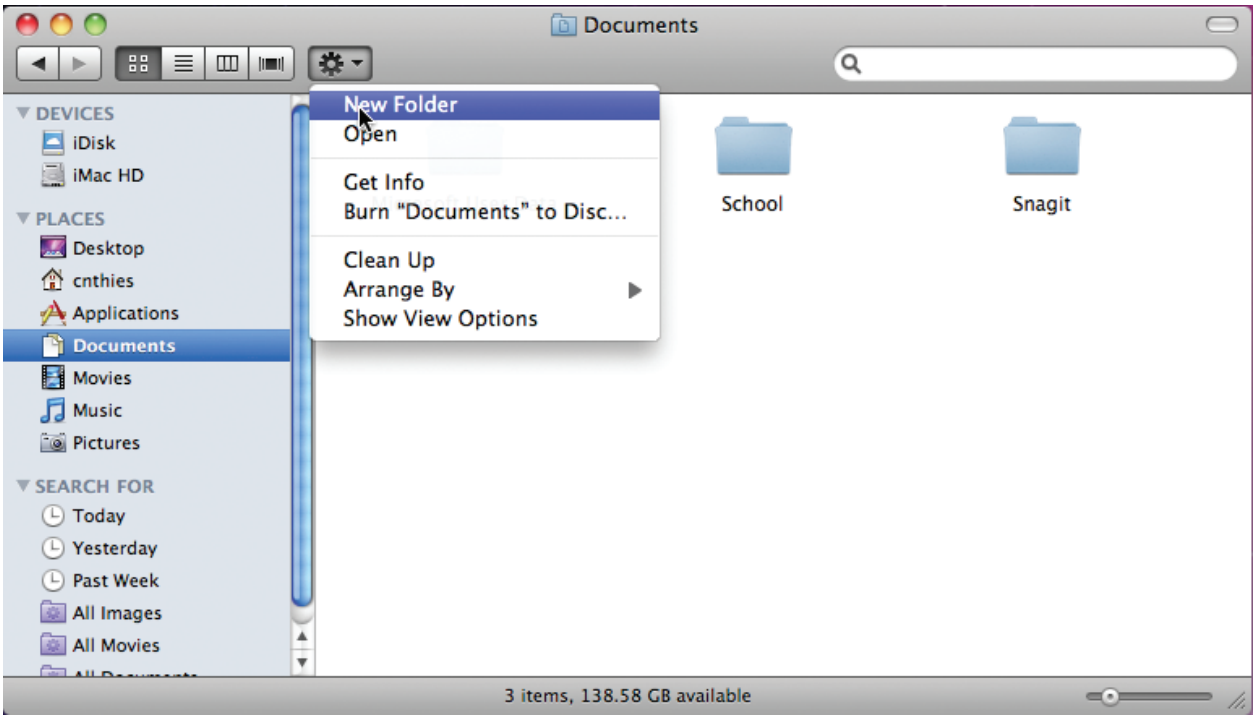
2.2.2

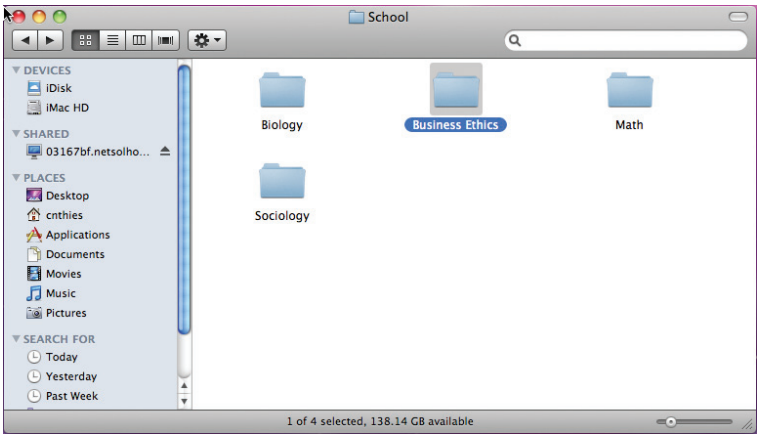
Files and Folders on a Mac

Organizing files and folders on a Mac is essential. If you have read the previous sections relating to the Mac environment, then you have already been introduced to the place where you will start. Your starting point is the Finder window, where you can access all of the applications and folders on your computer. You can actually create folders anywhere on the Mac including the desktop, but the current Mac culture encourages users to keep the desktop clean. For this example, you will begin by creating a filing system for your school documents in the *Documents* folder, as shown in Figure 2.21.

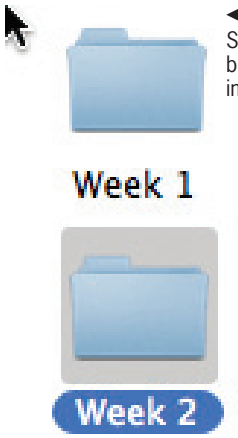
To create the main folder titled *School*, double-click on the *Documents* folder to open it. The *Documents* folder in this instance contains only a *Microsoft User Data* folder that stores the preference settings for the Microsoft Office 2011 suite of applications. (The *Snagit* folder stores images for a screen capture application). The *School* folder will be used to file schoolwork. Notice in Figure 2.21 how the button with a gear and a drop-down arrow is activated. A new menu has appeared beneath it. Select *New Folder* to create a folder.

▼ FIGURE 2.21
Finder window





▲ **FIGURE 2.22**
School folder in Finder window



◀ **FIGURE 2.23**
Subfolders broken down into weeks

The **SUBFOLDER** *is simply a folder that resides within another folder.*

Once the new folder appears on the desktop, you have the option to name the folder. In this case, name it *School*. Now if you were to dump all of your assignments in the *School* folder without any further organization, the folder would quickly become very cluttered and disorganized. The next step is to create subfolders for each subject that will reside in the *School* folder. Open the *School* folder and create four subfolders, as shown in Figure 2.22. Subfolders are created in the same way you created the *School* folder.

Because you do not want clutter in your subfolders, you can create additional subfolders within your course subject for the weeks of the course as shown in Figure 2.23. You can name these new subfolders by week so that you can categorize and store each week's assignments in an organized fashion. Once you have finished creating this new structure, you will notice that this filing method matches a hierarchical structure. Following a similar format for data storage of all types will help you stay organized as you work with your computer.

Activity 2.3—Creating a Folder

Navigate to the Activity2_2 *folder you created. Once you have found it, create two subfolders within it named* Activity2_3_1 *and* Activity2_3_2. *Remove the folder* Activity2_3_1. *Describe the process of creating the subfolders and the process of removing one of them.*

2.3 WORKING WITH FILES ON YOUR COMPUTER

Now that you have learned about getting around on your system and developing a filing structure to organize application files, you can begin learning about files. A *file* can be an application document or image that can be stored on digital media, either externally or internally (such as on your computer hard drive). You have already learned about applications on your computer system, so it is time to put them to use.

You are probably reading this text to learn to use productivity software to construct professional presentations, databases, and other professional documents. Before you approach that task, you should get started with one of the basic applications that came with your personal computer to introduce you to the concept of a file. There are a couple of things you need to know about files. You may recall an earlier discussion on the concept of storage space on your computer in both the forms of available space on your hard drive and other media devices you use to store files. Before saving a file, you need to know where you will save it and the type of file it will be saved as. All files are associated with a file extension, which is usually a period (or decimal point) followed by three letters. For example, the name *mytext.txt* is a valid filename. You get to define the part to the left of the period, but the part to the right should come from a list of existing file types so your machine can recognize it and know how to process the information.

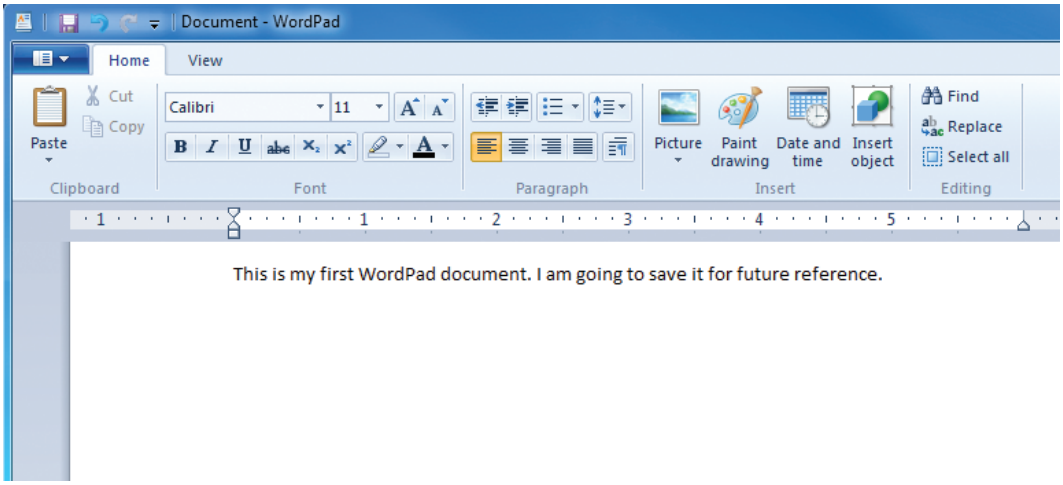
WordPad on Windows

2.3.1

WordPad is a basic word-processing application on the Windows platform. To start WordPad in Windows 7, click with your pointer on the *Start* menu and select *All Programs* and then the *Accessories* folder. Within the *Accessories* folder, you will find the *WordPad* icon. Click on the *WordPad* icon to start the application. In Windows 8, you can access WordPad by swiping in the menu on the right, selecting Search, and typing "WordPad" in the search box.

Enter the following message in the WordPad interface: *This is my first WordPad document. I am going to save it for future reference.* (See Figure 2.24.) If you are following along with your own version of WordPad, then congratulations, you have just created your first WordPad document.

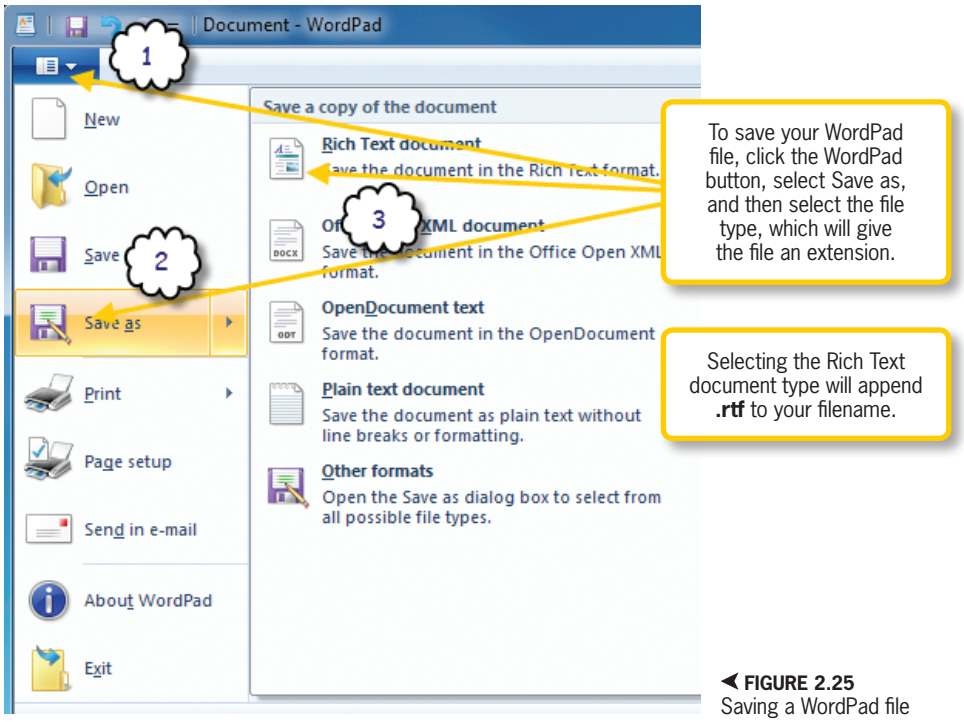
We will not go into a lot of the functionality of WordPad here because you will be learning about more advanced Office applications in the next several chapters; just keep in mind that there is a lot you can do with it. If you have no other alternative,



➤ **FIGURE 2.24** WordPad document sample

you can use WordPad to type documents and then open them later in the Microsoft Word application by using a file extension that Word understands.

Every application file needs to be saved with a file extension. Every application opens files based on the file extension with which it was saved. Now that you have created your first WordPad document, you must save it to avoid losing the information. Saving the document will allow you to reopen it at a future date.



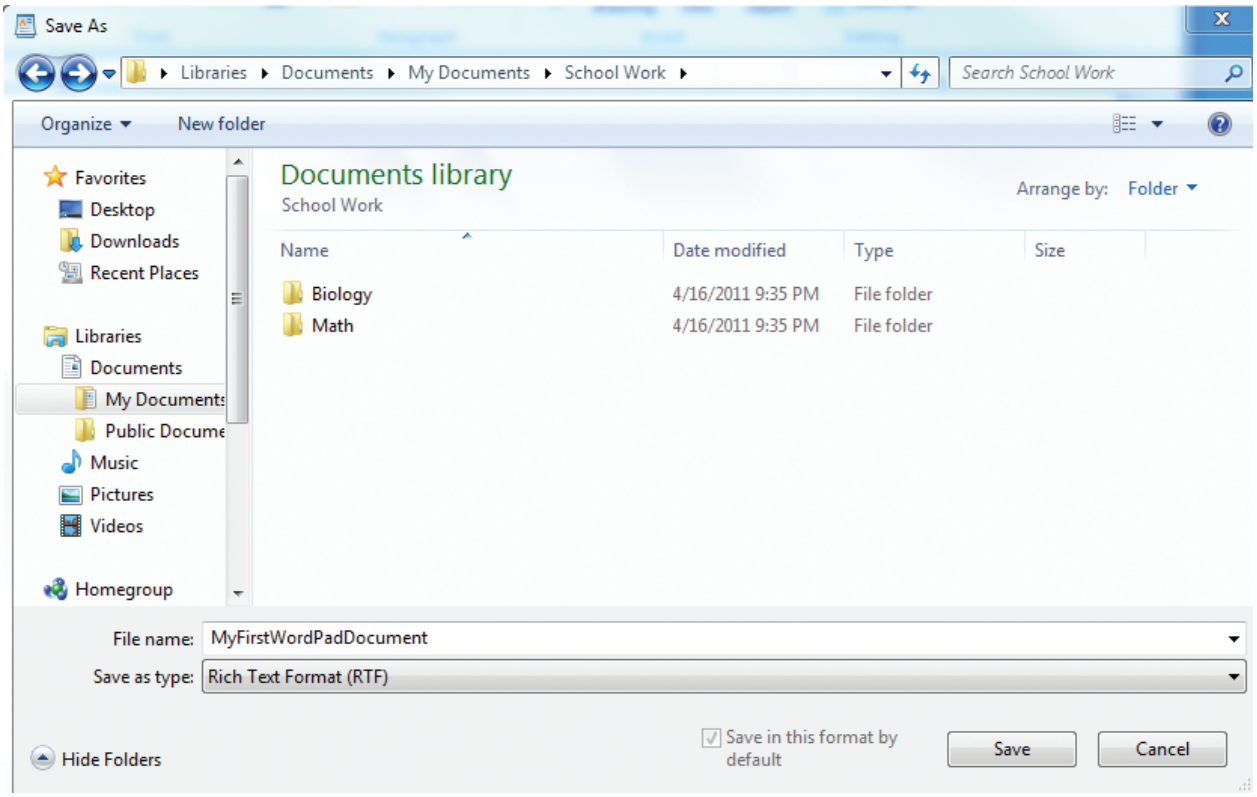
◀ FIGURE 2.25
Saving a WordPad file

To save your new WordPad file, select the *WordPad* button shown at the top left of Figure 2.25, and then select *Save as* and *Rich Text document*.

The file extension associates your new file with the applications that can open your file. It is important to keep in mind that sometimes more than one application may have the capability to open your file but may not be set as the primary application. In such cases, you should open the application you wish to use and open the file manually from within that application.

Now that you have selected to save your new WordPad file as a rich text format (RTF) file, the *Libraries* menu comes up on your desktop. You may remember that earlier you created the folder structure for your school folders, which you developed inside your *My Documents* folder.

In the *Libraries* dialog that appears on the desktop, as shown in Figure 2.28, expand the *Documents* library and open the *School* folder you created. Once you have the location selected, place your cursor in the *File name* text box and type the name for your new file, which in this case is *MyFirstWordPadDocument*. Be sure the correct file type extension, *rich text format (RTF)* in this case, is selected in the *Save as type* text box. Finally, press the *Save* button to save your new WordPad file to your chosen location. To view the properties of the file, select the file location, right-click on the icon for the file, and select Properties. This will open a new window with the file properties, such as size, date created, date modified, and the program that is assigned to open the file.



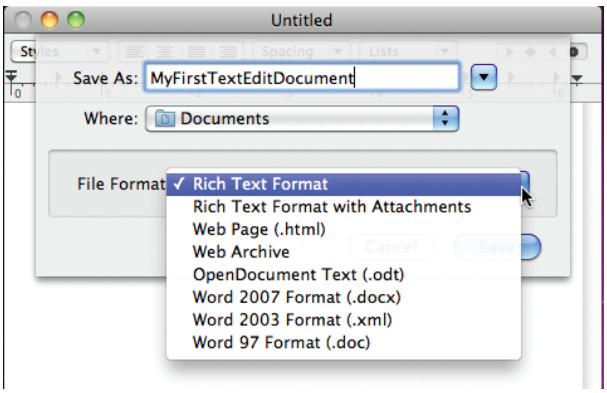
▲ **FIGURE 2.26**
Using the Libraries feature to select the location for your new file

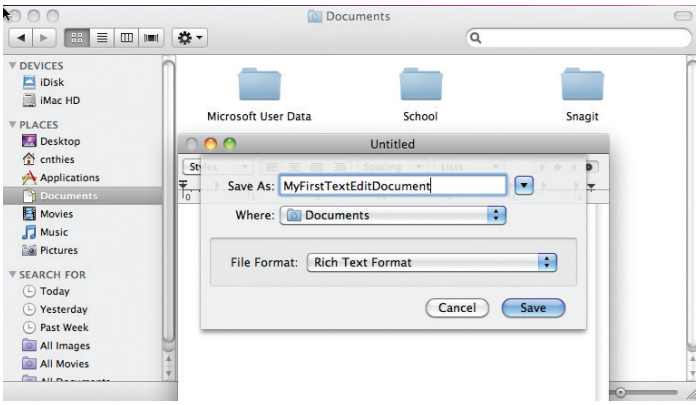
2.3.2 TextEdit for Macintosh

It is important to note that with any operating system you will use file extensions. Every time you save a new file, you have the opportunity to select the file type, which gives the file a new extension to associate it with an application that is able to open it. On the Macintosh, you have an application similar to WordPad called TextEdit. The TextEdit application also enables you to develop documents and even save the file as a Microsoft Word document. Notice in Figure 2.27 that the File Format options include some of the older Microsoft Word formats.

The TextEdit application can be found in the *Applications* folder on your Macintosh computer and can be located using the Finder application in the Dock on your desktop. Once you have the application open, type the following in the main document pane: *This is my first TextEdit document. I am going to save it for future reference.*

▼ **FIGURE 2.27**
Choosing the file type for a sample TextEdit document





▲ **FIGURE 2.28**
Sample Documents view

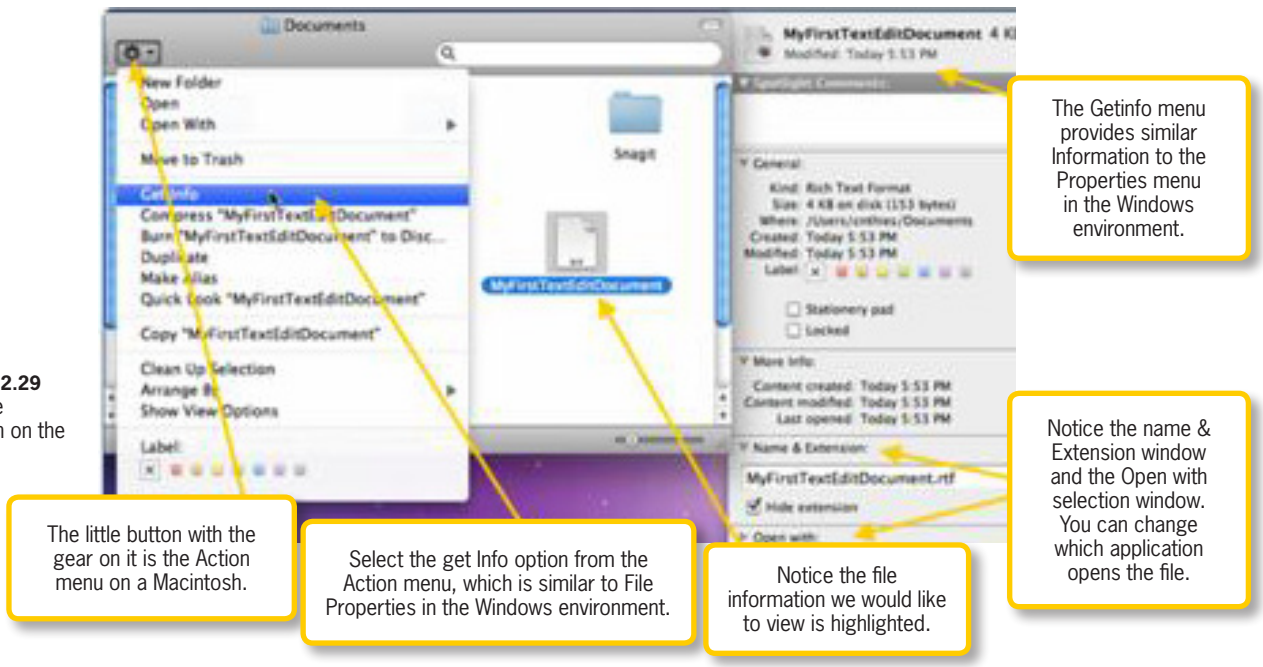
Locate the *Documents* folder in the Finder view, as shown in Figure 2.28, and save the file to the *School* folder you created earlier when you developed a file structure for all of your schoolwork. Notice the *Untitled Save as* window gives you the option to save the file with a name that you choose, which in this case is *MyFirstTextEditDocument*.

After selecting where to save the file (the *Documents* folder) and the file format (*Rich Text Format*), it's time to save the file by pressing the *Save* button. To examine the properties of the file you created in TextEdit, simply return to the folder where you stored it in the *Documents* folder, as shown in Figure 2.29.

Click on the file named *MyFirstTextEditDocument* and click on the Action menu. From the *Action* menu, you can select *GetInfo*; the menu appears very similar to what you would see in the Windows environment showing the file properties. From this menu, you can change the file extension type and even the program that opens the file.

Activity 2.4—File Properties

Using the file you created in the text editor, follow the process to examine the file properties for your OS. Explain the information that is presented and the options you have to change the file or its behavior. When would this be useful in managing documents?



➤ **FIGURE 2.29**
Viewing file information on the Macintosh

CHAPTER SUMMARY

This chapter provided an introduction to navigating the Windows and Macintosh desktops in an efficient manner. It covered the user interface on both operating systems and gave users an introduction to modifying system preferences and managing documents. Managing files and folders are an important part of using any computer system. You should now be able to create folders and subfolders to effectively organize your personal computing filing system. The next chapter focuses on the use of the Internet as a productivity tool; this will help you tremendously as you learn to use the different productivity software applications covered in this text.

CHAPTER KNOWLEDGE CHECK

1 The _____ is the graphical display provided by the computer's operating system that allows the user to visually interact with and issue tasking commands to the Basic Input/Output System.

- ◯ **A.** User interface
- ◯ **B.** iPad2
- ◯ **C.** Visual display
- ◯ **D.** Both a and b

2 The mouse is the hardware device you use to move the pointer over the desktop to access programs and files.

- ◯ **A.** True
- ◯ **B.** False

3 To remove a program from the *Start* menu, simply right-click and then click _____ from the *Start* menu.

- ◯ **A.** Delete
- ◯ **B.** Unpin
- ◯ **C.** Rename
- ◯ **D.** None of the above

4 The Spaces feature allows you to assign applications to one of four areas on your desktop.

- ◯ **A.** True
- ◯ **B.** False

5 Exposé places your open and minimized application windows in a small window laid out so that you can see every application you have open.

- ◯ **A.** True
- ◯ **B.** False

6 _____ are a feature in Windows that can help you find and organize your files in one consolidated location.

- ◯ **A.** Libraries
- ◯ **B.** Shelves
- ◯ **C.** Folders
- ◯ **D.** My Documents

7 Most Mac keyboards allow you to simply press the F3 key to view your Exposé of active applications.

- ◯ **A.** True
- ◯ **B.** False

8 The Windows desktop is almost identical in Windows 7 and Windows 8, with the *Start* menu and Start screen being the primary difference.

- ◯ **A.** True
- ◯ **B.** False

9 It is possible to change the desktop appearance on both a Windows PC and a Mac.

- ◯ **A.** True
- ◯ **B.** False

10 The *Apple* menu and the *Start* menu contain all of the same options.

- ◯ **A.** True
- ◯ **B.** False

CHAPTER REVIEW QUESTIONS

1. Of the two user interfaces, Windows and Mac OS X, which do you see as the most user-friendly? Consider the accessibility, features, and functions of the GUI.

2. Consider your daily activities, both personal and professional, performed using your computer. What applications should be stored in a Mac OS Dock for maximum efficiency? What is the equivalent of this quick access on Windows?

3. What means are available for managing an unresponsive program? When should you apply each method?

4. What are the drawbacks of having multiple levels of subfolders in a filing system?

5. Why is it important to have the functionality for the Task Manager or Force Quit to close an application? Are there any risks that it poses to the system?

6. Explain in your own words the process of locating a file on your computer. Is there any difference between this and locating an application?

7. Compare the Windows Jump List and the Mac OS X Dock. How are these similar and how do they differ?

8. Why is the construction of appropriate folders necessary for organizing files on your computer? Give examples to explain your answer.

9. Explain the two most important elements of the desktop environment in either Windows or Mac OS X. What influenced your decision to choose these two?

10. Explain the purpose of changing the screen resolution on your computer for either a Windows PC or Mac.

PRACTICE EXERCISES

1 Think about a category of files you would like to organize on your computer's hard drive or an external media device. It could be any set of files on your computer, such as digital images or documents. Plan and develop a filing system to help you organize these files. Write a short document that describes the folder and subfolder setup you would develop to organize files stored on your computer system. You can complete this assignment in either the Macintosh or Windows environment.

2 Use the Appearance and Personalization selection within the Control Panel to change your Windows desktop theme. If you are using the Mac use the System Preferences to modify your desktop. Briefly explain the process you used.

3 Conduct basic research on the different types of file extensions. Make a list of at least five different types of file extensions. Each file extension associates a stored file with a certain application. Construct a table that displays the types of file extensions you listed and their compatible applications.

CHALLENGE EXERCISES

1 Becoming Familiar with the Control Panel:

Fill In The Blank:

- **A.** The User Accounts and Family Safety settings can be used to set up _____ controls or add a new user to the computing environment.
- **B.** The _____ and Internet submenu is used to activate an Internet connection or add a computer to a network.
- **C.** The Programs submenu is used to _____ software applications on your computer.
- **D.** The Ease of Access submenu is used to optimize _____, system sounds, and your speech recognition capabilities.
- **E.** The Hardware and Sound option are used to view all of the devices on your computer. You may also _____ drivers to assure your devices work properly.

2 Define the following terms:

- **A.** Toolbar
- **B.** Dialog Box
- **C.** Desktop
- **D.** Menu
- **E.** Pane
- **F.** Window
- **G.** Icon
- **H.** GUI

3 Construct a Venn diagram that compares and contrasts the Macintosh and Windows interfaces. Next, write a brief paragraph explaining which interface you prefer for your daily use and why.

CHAPTER
3

Using the Internet

IN THIS CHAPTER

This chapter will teach you how to navigate the World Wide Web (often referred to simply as the Web). You will learn about the various aspects of the Web, including the differences between the Web and the Internet. You will also learn about navigating the environment using a Web browser and conducting effective searches on the Web. You will also learn about online privacy and the legal aspects and concepts of fair use. Once you have completed the chapter, you will be able to:

- Describe and identify the background and historical context of the Internet and the Web
- Discuss how the Internet and Web operate
- Describe the types of available Internet connections
- Demonstrate the use of different Web browsers to navigate the Web

3.1 BACKGROUND AND HISTORICAL CONTEXT OF THE WEB

Whether you are using a Mac or a Windows-based computer, you have the ability to access real-time information from a variety of sources. You need nothing more than an Internet connection and your computer to access this world full of possibilities. This is because Internet technologies open up a vast and global library full of information for anyone with access the Web. The Web is an application of the Internet. It is a powerful and evolving tool that can be used for the quick exchange of data and information.

Before going any further, it is important to give you some background and historical information about the Web and Internet. You may have heard your friends or colleagues use these terms synonymously, yet the two entities actually have different roles. First, the *Internet*, also known as the information superhighway, was developed during the 1950s by an organization known as the Advanced Research Projects Agency (ARPA), which was created by the U.S. government to conduct research and development in hopes of countering threats from the former Soviet Union. This endeavor was triggered by the Soviet Union's launch of the first satellite into space, called *Sputnik*.

It was soon after, on April 23, 1963, that Dr. Joseph Carl Robnett Licklider, a computer scientist working on a command and control research project at ARPA, first proposed the idea of a network interconnected by hosts. Dr. Licklider did not develop the actual Internet (an abbreviation of interconnected network) that connected computers across the globe, but his ideas led to the development of ARPANET, which later led to the development of what today we call the Internet. ARPANET in those early days had been developed as a way to interconnect computers so that they could be used to support military command and

DATA *is simply a collection of unprocessed facts (such as the number 10 or the letter A or the number 3.2756).*
INFORMATION *is the association of data with the context of its meaning; it is typically in a form that has been processed to a level where it becomes useful to an individual or organization. An example of information is: The ratio of the length to width of a particular rectangle is 3.2756.*

NETWORK *is the term used to identify a situation where two or more computers connect to share resources.*
The **INTERNET** *is a global interconnection of networks made up of hardware devices, such as your personal computer, that supports communication between different computing devices using an addressing scheme known as Internet Protocol (IP).*
The **WORLD WIDE WEB** *(or* **WEB***) is a service that runs on the Internet to provide access to documents, audio, and video and allows for the interconnection of these documents through the use of hyperlinks.*

control operations in defense against what was seen as an emerging threat to national security at the time, specifically in the event of nuclear war.

For the purposes of this text, what you should know is that the development of ARPANET led to the development of the Internet, which is the fundamental infrastructure used to support the Web. It was in the late 1980s that research support from ARPA (now known as DARPA, or the Defense Advanced Research Projects Agency) ended and the Internet became available to the public for the first time. The Internet then was nothing more than a high-tech superhighway used to transfer data between universities and research centers by using complex techniques leveraging a unique addressing system known as Transfer Control Protocol and Internet Protocol, or TCP/IP.

The Internet was not known to the average computer user at the time and those that did know about it needed significant skills to conduct any type of data transfer. In 1989, Tim Berners-Lee, a physicist working as a contractor at CERN (Conseil Européen pour la Recherche Nucléaire, which translated from French means European Organization for Nuclear Research), developed what today we call the World Wide Web.

Berners-Lee had a grand vision for a system that could link information through a web of interconnections between computers using hyperlinks as a way of managing and sharing information between individual nodes or machines. Berners-Lee used a NeXT™ computer (which was the foundation for the modern-day Macintosh) running a computer programming language called Objective-C® (which the Macintosh still uses to this day under the name Cocoa®). He developed the Hypertext Transfer Protocol (HTTP) that would essentially allow a user to click on hyperlinks to easily navigate from one Website to the next using a Web browser; the early Web browser that he wrote was called *WorldWideWeb*. Essentially this required Websites to reside on a Web server to work properly. A *Web server* is a computer that manages HTTP connections to allow the hosting of files, Web applications, and Websites.

Not long after Tim Berners-Lee's efforts at CERN, when the Web had essentially been operational for some time within the confines of the organization, Web servers began to emerge at research facilities and universities. This interconnected network of Web servers that hosted Websites gave users the ability to quickly navigate from one Website to the next by simply clicking

A **WEBSITE** *is a collection of Web pages, documents, audio, and video that is stored in a location such as a Web server and can be accessed by a unique address determined by a Uniform Resource Locator (URL) value.*

A **WEB SERVER** *is a repository that contains all of the files and folders for a Website and provides remote access to them via various protocols such as HTTP and File Transfer Protocol (FTP) over the Internet.*

A **WEB BROWSER** *is a software application used to search, navigate, and retrieve information and data from the Web.*

on a hyperlink using any of the available Web browsers.

Popular Web browsers today include Microsoft Internet Explorer® (IE), Apple Safari®, and Mozilla® Firefox®. Web browsers can be used to search the Web for information relating to nearly any subject, access Web applications such as those used in banking, and purchase products from a variety of vendors. One of the earliest companies providing user access to the Web was Netscape®; its most popular browser was Netscape Navigator®. Netscape was purchased by AOL® in 1998, the same year Communicator was released as an open source product as part of a new Mozilla project.

This source code has evolved into Firefox. Firefox is a popular, free Web browser available from Mozilla, which manages changes to this open standards-based browser. Mozilla is the open standards group that emerged when the browser technology was released to the public. Firefox is one of the browsers whose icons is shown in Figure 3.1.

Figure 3.1 shows three icons representing the three most common Web browsers in existence. Windows Internet Explorer is in its ninth version and is available for use on operating systems available from Microsoft. Both Apple Safari and Mozilla Firefox can be installed on a variety of operating systems.

▲ **FIGURE 3.1**
Icons for common Web browsers

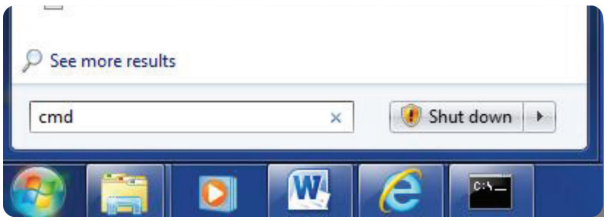
An **OPEN SOURCE** *product is one where the creator freely distributes the source code to the public, allowing changes for improvement and customization.*

How the Web Works 3.1.1

Now that you have a basic understanding of the differences between the Web and the Internet, you are in a better position to understand how it all works. Recall that a Website is a collection of files and Web pages that span across the globe; each of these Websites is stored on Web servers as a collection of documents called Web pages, along with the supporting media files that enrich the user experience. All of these documents are linked and transported using the HTTP protocol.

A *Web page* is a plain text document formatted using Hypertext Markup Language (HTML) and can be part of a larger Website. *HTML* is a formatting language that is used to organize and present text and multimedia files for presentation in a Web browser (note that this is not a traditional programming language that issues logic arguments). A Web page can include embedded images, video, and audio to enhance the look and feel of the overall site. Now you might be wondering how the computer gets you to a Website or Web page on the Internet.

The steps that follow for this activity are some of the more complex actions that you have done on your machine so far. If you cannot understand all of the pieces here, it is okay to skip this. Familiarity with these topics will help you become more adept at using the Internet and the Web, but it is



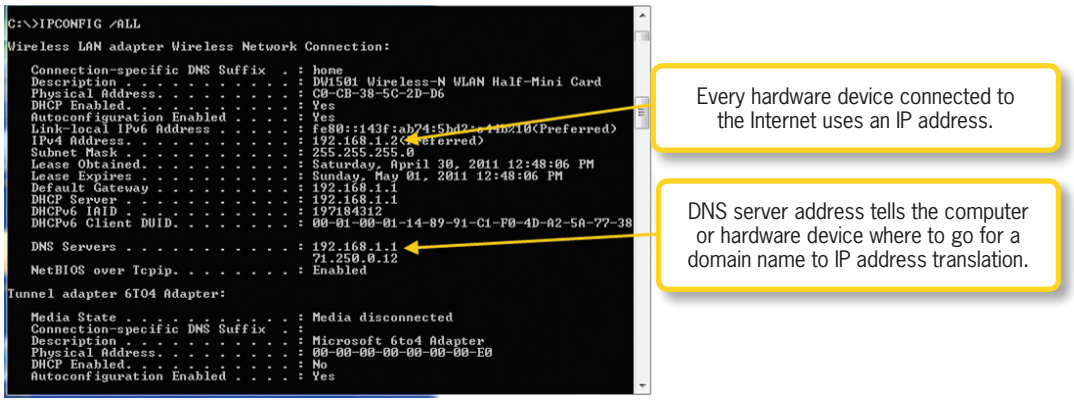
▲ **FIGURE 3.2**
Accessing the Command Prompt window

not required for basic proficiency in Internet literacy.

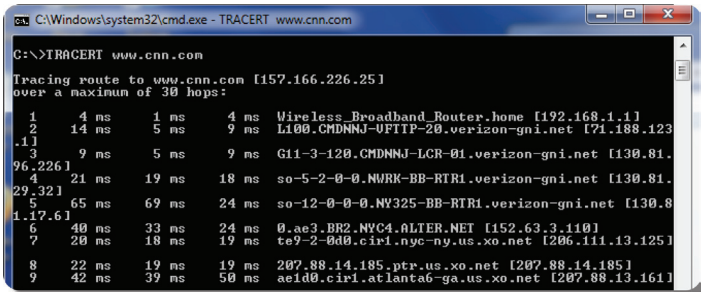
Recall that the Internet works using an addressing scheme called TCP/IP. Every hardware device on the Internet has an IP address. Your computer uses a network adapter (called a Network Interface Card) to connect to the Internet using your IP address to manage data traffic. The network adapter on your computer can be either wireless or wired; both options typically come standard on modern machines. You can find the IP address on a Windows 7 machine by simply clicking the *Start* menu and then typing the command *cmd* in the search window, as shown in Figure 3.2. Once you hit the enter key, the Command Prompt window appears. In Windows 8, you can access a Command Prompt by swiping in from the right side of the screen and choosing Search. Type "command prompt" in the search box and the icon for a Command Prompt should appear in the list of apps available.

In the Command Prompt window, you can type the command *IPCONFIG/ALL* to view all of your network adapter properties. In the Command Prompt window shown in Figure 3.3, take specific notice of the IPv4 (Internet Protocol version 4) address; the example here is 192.168.1.2. The address listed here is what your home network will use to keep track of your computer on the network and provide you with access to the Internet. The second setting you should notice is the DNS Servers address. A *Domain Name Server* (DNS) address is used for name resolution on the Internet.

Every single computer on the Internet uses an IP address, but this simple numerical address makes it difficult to immediately recognize a Website you might want to visit. DNS servers help your computer translate humanly readable domain names used to identify Websites on the Web. A *domain name* (also known as a hostname) is used to identify a Website, such as www.cnn.com or www.401k.com. The Command Prompt in Figure 3.4 displays how this domain name to IP address translation actually occurs.



◀ **FIGURE 3.3**
Computer network adapter properties



▲ **FIGURE 3.4**
Domain name translation

A **LOCAL AREA NETWORK** *(***LAN***) is a local network limited to a small geographical area. Your home network or the network at your workplace can be considered a LAN.*

A **WIDE AREA NETWORK** *(***WAN***) is a network that can span to global proportions. For example, an international shipper could use a WAN to manage shipments in multiple countries.*

If you were to type the Website address www.cnn.com into your Web browser, the actions shown listed in Figure 3.4 are what really happens on your computer. The *TRACERT* command is used to see what route your computer is taking to reach the Website www.cnn.com. Every line in the figure represents a hardware device used for routing (called a *router*) that helps direct you to the CNN Website servers where the documents for the Website reside. In this instance, by using the TRACERT command you can see that the Web server address for the CNN site is actually 157.166.226.25.

It is important to realize that there are many types of networks (such as LAN and WAN) that can include business networks and home networks. The important point to remember is that all of these networks can connect to the Internet to share and disseminate information using the Internet as the superhighway for navigation. The Web provides the service on top of this infrastructure to enable you to view and navigate documents and media on the Websites you want to visit.

Uniform Resource Locaters (URLs) are the addresses you type into your browser to connect and navigate to the Website you want to see. For example, www.amazon.com is the domain name that is registered with the Internet Corporation for Assigned Names and Numbers (ICANN), but to actually navigate to that Website, you would type www.amazon.com (which is equivalent to the full address http://www.amazon.com that includes the name of the protocol). This is the site's URL, which brings you to the site's homepage. The *homepage* of a Website is the very first page you come to when you type the URL into your Web browser (the filename for this is typically *index.htm* or *index.html*). The prefix of the URL is the protocol that is used to access the site; in this instance, it is the HTTP protocol.

If you want to acquire a domain name for your own purposes, you can do so by registering the name with ICANN. However, you never directly contact ICANN; you must register your domain name by using a third-party organization called an *Internet Service Provider* (ISP). ISPs are companies that lease service lines used to access the Internet to residential and business customers. ISPs also can also register domain names for customers and can determine whether your chosen domain name is available for lease.

3.1.2 Connecting to the Internet

ISPs are used to connect to the Internet. One of the first things you'll want to do when you acquire your computer is connect to the Internet so you can utilize the Web. Your local ISP is usually the same company that provides access to cable TV or phone services in your local area.

If you decide you would like to connect to the Internet, you need to know about the different services available. Most ISPs have service offerings that are significantly different from each other, so it is important to shop around to be sure you sign up for a service that provides the features you desire. Some ISPs simply provide a cable router that provides high-speed access to the Web. Comcast and Verizon are the typical service companies available in the United States. Sometimes your service provider can also be your cell phone company.

The specifics to understand as a user are the speed of the services provided versus the cost of the service; a higher connection speed is typically a more desirable scenario, but it also costs more. There are several types of services offered by ISPs with which you should be familiar before signing any long-term agreements. Most ISPs will require a service agreement for a period of time, usually from 12 to 18 months. Research is essential because all of these factors can vary with time requirements and price of the connection. When you are investigating options, you should also consider the connection speed, which includes a download speed and an upload speed.

The **CONNECTION SPEED** *is the rate at which information is transmitted between your computer and the network. Connection speeds are measured in the number of bits transmitted per second, particularly kilobits per second (thousands of bits per second) or megabits per second (millions of bits per second). This is determined by two rates: download speed and upload speed.*
The **DOWNLOAD SPEED** *is the speed of data reaching your computer from the network.*
The **UPLOAD SPEED** *is the speed of information reaching the network from your computer.*

The following are the different types of Internet connections:

- Dial-up—This type of connection is an old technology that has been around for many years and uses an analog telephone connection to connect to the Internet. This connection operates at 56 Kbps (kilobits per second), is extremely slow, and requires that the user dial a phone number to access the Internet.
- Cable high-speed Internet—In most instances, your cable TV company also can provide you with an Internet connection. The speed range depends on the price you are willing to pay.

Digital phone service is usually in the form of VoIP (or Voice over IP), which is basically a communication service accessed using Internet infrastructure. VoIP uses servers and computer systems to manage phone calls between users. The disadvantage to VoIP services is that they are susceptible to power outages and other types of computer system downtime issues. Analog telephone lines through your phone company are usually considered more reliable than VoIP lines.

Some ISPs can provide speeds that promise 12 Mb (megabits per second) of download speed and 1.5 Mb of upload speed. These speeds can be higher or lower, depending on the plans that are available for your area. Cable high-speed Internet is significantly faster than dial-up.

- DSL—Also known as a Digital Subscriber Line, these connections use copper wire provided by the phone company and are capable of speeds up to 128 Kbps; they can transmit voice and video at a relatively fast speed. They are considered slower than cable modem connections, yet faster than dial-up services.
- Wireless 3G/4G networks—Your cell phone company can provide relatively fast service that enables a third-generation (or 3G) speed around 800 Kbps for uploads and 600 Kbps for downloads, depending on your geographical location. These speeds are faster than dial-up and DSL but significantly slower than cable modems. Figure 3.5 shows a common portable 3G device that plugs into your laptop using one of its USB ports. With this device, you can surf the Web on your laptop from any location. The next iteration of these standards, the 4G (fourth-generation) network is becoming widely available through most cellular phone companies, allowing faster connection rates for a better experience on the Web.

▲ **FIGURE 3.5**
3G USB connection mini modem

3.2 USING A WEB BROWSER

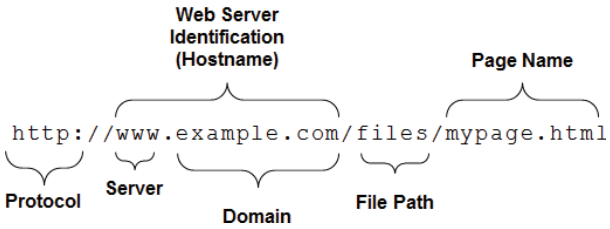
Now that you understand how the Web and Internet work and how to acquire a connection that suits your needs, it is time to go back to the topic of navigating the Web. You already know that you can navigate the Web by using a Web browser. The following sections will teach you the anatomy of a Web browser and expose you to three of the most common Web browsers available.

Addresses on the Web 3.2.1

Web resources are identified by a Uniform Resource Locator (URL). This is a pathway that establishes the server and file that the Web browser is attempting to access on behalf of the user. You can see an example breakdown of the pieces of a URL in Figure 3.6. The URL is entered into the address bar of the Web browser to establish a connection to the specified resource. URLs cannot include blank spaces (whenever you see a `%20` in a URL it is the browser attempting to reconcile a blank space in the path).

The individual pieces of the URL http://www.example.com/files/mypage.html are as follows:

- First, ***http*** is the protocol. A protocol is a set of messages coupled together



▲ **FIGURE 3.6**
Example Breakdown of a URL

to transmit information in a way that both the sender and receiver can understand. The common protocols you may see for Web use are *http* (used for connecting to a Web resource), *ftp* (File Transfer Protocol for uploading and downloading files), and *mailto* (which is used to invoke the default email program). You may also see *https*, which indicates a secure connection to a Web page.

- Next, the colon (**:**) separates the protocol from the input command. The input command is the rest of the URL information after the colon.
- The double slashes (//) signify that contact to a server should be established.
- The next section is the Web server identification information (which is also called the hostname); in this case it is ***www.example.com***. This specifies a unique Web server to which the Web browser will submit a resource request. Alternately, you may see a set of numbers separated by period characters such as *128.163.1.1*; this also uniquely identifies a server by its Internet Protocol (IP) address. The humanly readable text is a convenience for users that connects to a numerical server address.
- Inside of the Web server identification, the ***www*** signifies the server that should be listening for a request from the protocol. The www can be omitted in almost all cases because it will be assumed by default. Other text may precede the domain name which represent subdomains (such as *videos.example.com* where *videos* would be the subdomain).
- The text ***example.com*** is the domain name. This is uniquely bound to a preset folder on a Web server.
- The text ***com*** is the Top-Level Domain (TLD). These are the top level in the domain hierarchy and assist in uniquely identifying server names. There are only a limited number of these in existence, though more are being created as the old ones are exhausted. Common TLD names include *com* (for commercial use), *org* (which is typically for nonprofit organizations), *edu* (for educational use), and *gov* (for government Websites).
- The rest of the address is used to locate local resources on the specified Web server. The ***files*** portion of the address represents the file structure (called the file path) past the main folder of the Web server connected to the Web server identification. Multiple subfolders can be identified as part of the file path (such as *media/videos* where *videos* is a subfolder of *media* and the *media* folder resides in the main folder identified for the Web server identification).
- The final portion of the URL is the filename. In this case it is ***mypage.html***. This identifies the specific resource that the Web browser is requesting from the Web server. Most of these filenames will be HTML files with an extension of *.htm* or *.html*.

When there is no filename specified, the server will look for either *index.htm* or *index.html*. When you see only a domain name or folder, the site is using this feature to automatically find the page you are viewing.

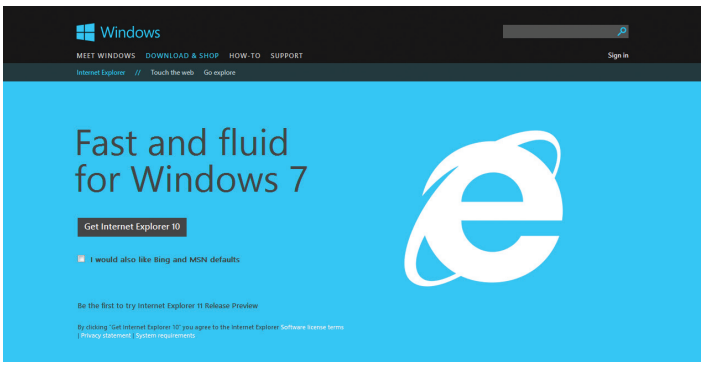
3.2.2

Microsoft Internet Explorer

Microsoft provides Internet Explorer (IE) with all of the Windows operating systems it offers. In its tenth version, IE is very common and rather easy to use with some practice. The Web browser is what helps the user download files from the Web and access information on Websites and conduct secure e-commerce transactions.

E-COMMERCE *(short for electronic commerce) is the act of purchasing and selling products using electronic transaction technologies over the Internet. There are a wide range of technologies available to safely conduct e-commerce transactions.*

The icon for Internet Explorer is shown in Figure 3.1. You should locate this icon on your Windows machine with an active Internet connection to launch the Web browser. If you do not have Internet Explorer installed or you do not have the latest version of Internet Explorer (currently version 10), you can download it from: *http://windows.microsoft.com/en-us/internet-explorer/download-ie*. You should see a screen similar to Figure 3.7. From here, you should click the link to download the software (in this case "Get Internet Explorer 10").



▼ **FIGURE 3.7**
Download page for Internet Explorer 10

Once you have downloaded and installed the browser, you can view any Web address using its interface. An overview of the elements of Internet Explorer is shown in Figure 3.8. Here you can see the address bar where you will enter the URL of the page you want to view. The window can have multiple tabs in it to switch quickly between pages. You can add tabs by pressing *Ctrl+T* or by clicking in the blank space to the right of the last tab in the window. To the left of the address bar are the *Back* button and *Forward* button to navigate through the history of the currently selected tab. You can also press the *alt* key to open a more detailed menu of options.

The Web browser itself has a significant amount of functionality for managing sites that you use regularly. One basic function you should learn to use is the ability to save the addresses of the sites you visit on the Web. There are two common terms used to refer to this type of activity. On Internet Explorer, your favorite sites are referred to as *favorites*, and on Safari and Firefox Web browsers, these are called *bookmarks*. The selection for managing these favorites is shown on the right side of the interface. Clicking this icon will open a new window to navigate through your favorites or add the current page to your list of favorites. In Internet Explorer, the default view only shows you the *Home* button, *Favorites* button, and *Tools* button on the top-right side of the browser, as shown in Figure 3.8.

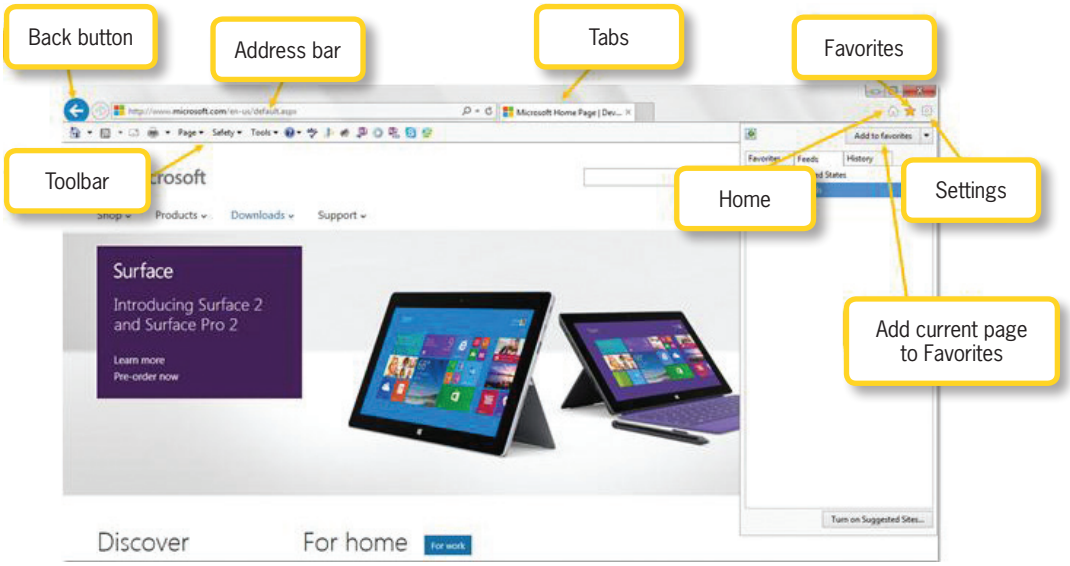


FIGURE 3.8
Anatomy of Internet Explorer

Internet Explorer also gives you the ability to monitor and manage downloads with the Download Manager. Any time you click on a file link in a Web page and choose the *Save* option, it will be added to your list of downloads. The Download Manager can be activated by either using the shortcut key (*Ctrl+J*) or pressing the *Tools* button and selecting *Download Manager*. You can see the Download Manager in Figure 3.9.

From the Download Manager, you can select a file to open or use the *X* icon to remove the file from the list. Note that this does not delete the file from your computer; instead it just eliminates it from the display. You can select Clear list to remove all files from this listing.

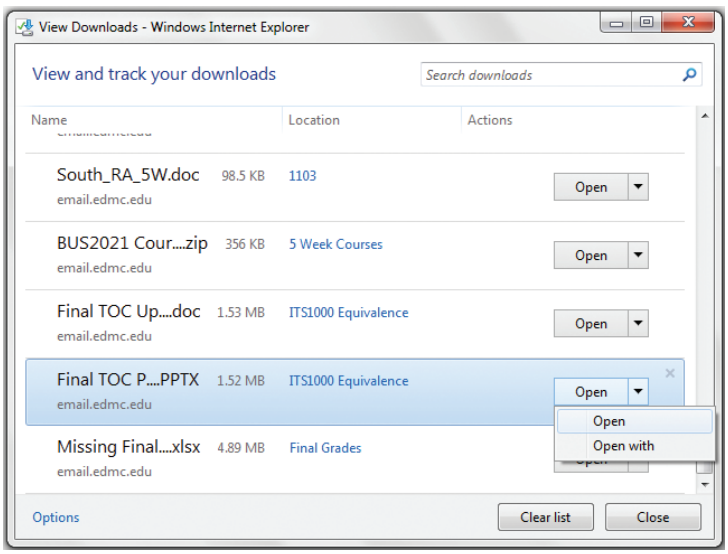


FIGURE 3.9
The Download Manager in Internet Explorer

Activity 3.1—URL Practice

Using the pre-installed browser on your computer, enter a URL in the address bar from an advertisement or organization you trust. Document the different parts of the final address that appears in the browser's address bar. Is the final address that appears when the page loads the same as the one you typed? If not, why might this be the case? What elements remain the same?

3.2.3 Mozilla Firefox

The next browser you will learn about is Mozilla Firefox. The Firefox browser originated from the early Netscape Navigator browser technology in the early 1990s. Firefox is a very popular browser that can be downloaded for free on either the Macintosh or Microsoft operating systems. You can download Mozilla Firefox from: *http://www.mozilla.org/en-US/firefox/new/*.

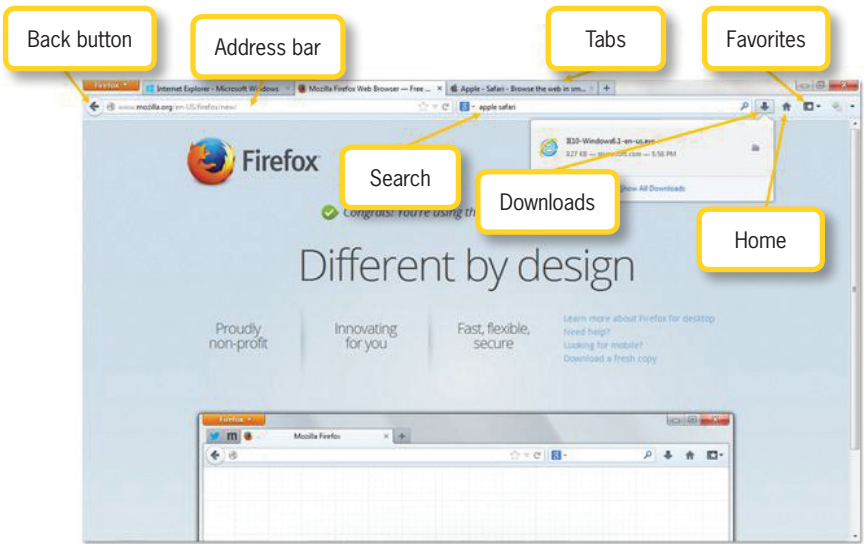
You can see the interface for Mozilla Firefox in Figure 3.10. The display is similar to Internet Explorer. Each window in the browser can contain multiple tabs for displaying Web pages. New tabs can be added by clicking the + icon to the right of the last tab within the window. The icon for accessing bookmarks is on the right side of the interface; from here you can add the current page as a bookmark or visit other saved pages. There is also a direct link to the file downloads you initiated from within the browser, also shown in Figure 3.10. Similar to Internet Explorer, the *Back* button is located to the left of the address bar to navigate through the history of the current tab.

> If you visit the homepage for Mozilla Firefox (at *http://www.mozilla.org/en-US/firefox/new/*), it will let you know if you are running the latest version of the browser or if you need to update your software.

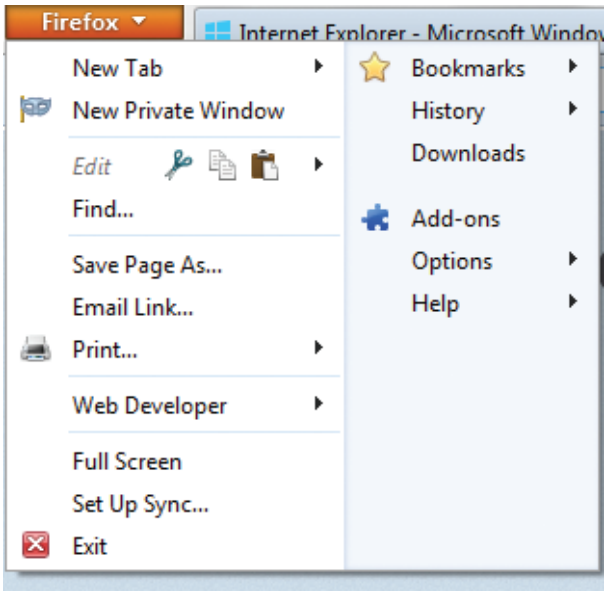
To manage your downloaded files, Firefox has a Downloads window that you can access at any time by either using the *Ctrl+J* keyboard shortcut or simply selecting the *Firefox* button and then Downloads from the menu. The Downloads window, shown in Figure 3.10, helps you determine the status of any file you download to your computer.

In addition to keeping track of application and file downloads, you can pause or cancel any of your downloads at any time. You can also open files or folders and save files to specific locations from the Downloads window. Once you have downloaded your file, you can remove the file from the list or retry a download from the Downloads window.

▼ FIGURE 3.10
Anatomy of Mozilla Firefox



The configuration options are located within the *Firefox* menu, shown in Figure 3.11. This dropdown menu allows you to create a new window, set options for the browser, and even create a private window where your history and usage will not be recorded. This is an important tool for protecting your privacy online. From here, you can also access your



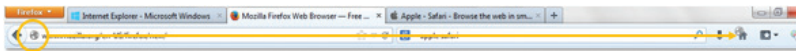
▲ **FIGURE 3.11**
Firefox Menu

Bookmarks, History, and Downloads just as you can with the interface icons on the right side of the interface.

Setting your homepage on Firefox is a quick task. As shown in Figure 3.11, you can just click and drag the icon for the site you want to be your homepage over to the *Home* button—and that address is now set as your homepage whenever you open Firefox. You can also click on the *Home* button and you will immediately be redirected to your homepage.

Activity 3.2—Installing a Second Web Browser

Using the pre-installed browser on your computer, enter the URL listed in this chapter for downloading Mozilla Firefox. Follow the steps for accessing the file and installing the software using this chapter and the general instructions in Chapter 2 as a guide. When you have completed the installation, open Mozilla Firefox on your computer to make sure the installation worked correctly.



▲ **FIGURE 3.12**
Setting your homepage in the Firefox browser

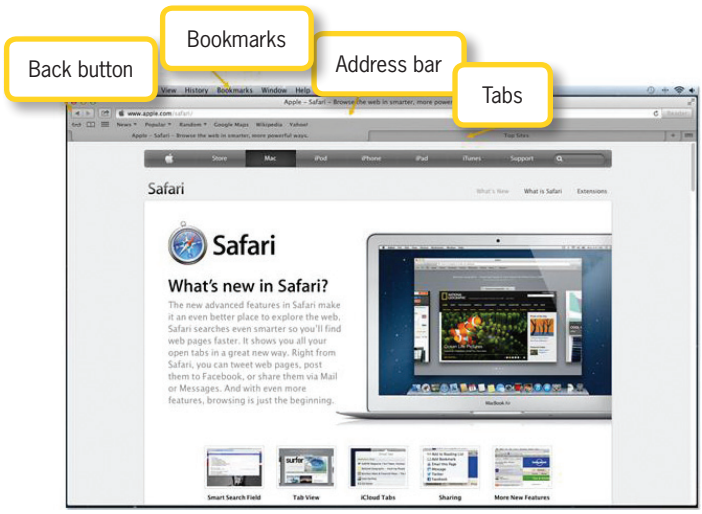
Apple Safari

3.2.4

The final browser covered here is the Apple Safari Web browser. The Safari browser, shown in Figure 3.13, comes pre-installed on all new Macintosh computers or can be downloaded from the Apple Website at *www.apple.com/safari*. You will notice that there is a lot of similarity in the basic elements of the interface in Safari. You can add tabs beneath the main address bar. The *Back* button and *Forward* button are located to the left of the address bar. The *Bookmarks and History* have their own dedicated menus in Safari. You can also see the downloaded files by selecting the *View* menu and then choosing *Downloads*.

Each browser has a variety of tools and options unique to it. Safari on Mac is a good choice because it has a minimal chance of infecting your machine. Firefox has a good set of tools for showing how secure a page is

▼ **FIGURE 3.13**
Anatomy of Apple Safari



that you are viewing, and Internet Explorer allows for the most functionality on a Windows machine due to its more robust integration with the core operating system.

3.3 USING WEB BROWSER PLUG-INS

A Web browser *plug-in* (sometimes called an *add-on*) is a special software program that attaches to a Web browser and enhances its functionality; plug-ins are required to access certain content on the Web. For example, some sites include video clips. Many times these sites will ask you to install a plug-in, such as Adobe® Flash® Player. Flash Player (available from www.adobe.com) is a browser plug-in that allows the browser to run dynamic video, image rendering, and quicker graphics while accessing Web content that is only obtainable through the use of this plug-in.

It is important to realize that there is a difference between plug-ins and media players. Media players can run specific video formats and work independently from the browser. Some examples of media players include Microsoft Media® Player, RealNetworks® RealPlayer®, and Apple QuickTime®. All of these can be used to play back video or music as long as the player supports the file format that the file was created and stored in.

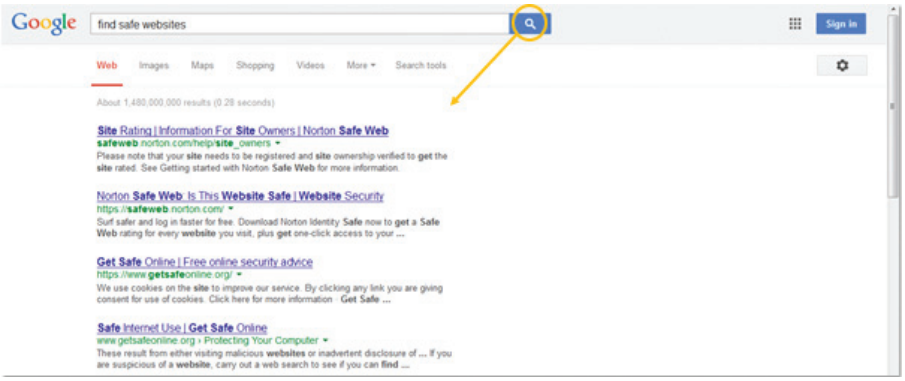
You will typically be prompted to install plug-ins for your Web browser when you attempt to access certain content for the first time online. You should review the type of content that is being added to be sure you want it installed before you agree to download and use it. Plug-ins can provide additional services or helper functionality, but they can also make your browser less safe or secure, such as with certain ActiveX libraries for use on Internet Explorer.

In Internet Explorer, you can select the *Tools* menu and choose *Manage Add-ons*. In Firefox, the *Add-ons* option is located under the *Firefox* menu. For Safari, you can select the *Help* menu and choose the default option of "Installed Plug-ins" to view them in the main window.

3.4 USING SEARCH ENGINES TO FIND INFORMATION ON THE WEB

Unless you already have the address of the site you want to visit, you may be at a loss for how to use the Web effectively to find information. A search engine can help you quickly navigate to a page that contains information relevant to your topic. Search engines like Google™ (www.google.com) and Bing™ (www.bing.com) can help you locate official Websites for companies and products as well as provide suggested resources for topics you want to explore.

A *search engine* is a software program that uses the text you enter into a search field to find matching keywords. The information on the Web is not a database but rather a repository of semistructured data that does not have any real organization such as what you might find in a database. Most Websites are categorized by using a *Web crawler* service. A Web crawler service ranks Websites based on the frequency of searches



▲ **FIGURE 3.14**
Example search using Google

and indexes the sites for future searches. If you want your Website to appear on search engine results, you would need to register your site with a service.

Search engines typically have a simple interface with a search box for the text you want to find and a button to initiate the search. You can see an example of this in Figure 3.14. When reviewing the results provided by the search engine, it is important to be sure that the site you are opening is a safe site or even the intended site.

Activity 3.3—Practicing Internet Searches

Using either the Google or Bing search engine, type keywords for a topic that interests you. Examine the results of the search. Open a new tab and navigate back to the homepage of the search engine you used for the first search. Enter the same keywords from your first search and add a few extra keywords on the topic. Does this narrow the focus of the results as compared to the first search? How do the results compare? Are any of them the same between the two searches?

Even if you recognize the site, be sure you are going to the correct address. There are hackers who will create fraudulent Websites with names similar to well-known companies and products to entice unsuspecting computer users to quickly navigate to the site without realizing it is not valid. Privacy and security are a high concern on the Web and you should always be cautious of these aspects of information sharing.

Not everything on the Internet and Web is true information. It is very inexpensive to create and host a Website, so you need to be careful about what sites you visit and what information you trust. Consider the reputation and credibility of the source and the legitimacy of the domain you are visiting.

3.5 PRIVACY AND SECURITY ON THE WEB

Searching the Internet can be an enjoyable experience, but it also can present some challenges if you do not carefully watch what you are doing. You should never just click on a Website simply because the link looks interesting on the search engine you are using. One thing to remember is that all modern browsers will warn you if you are going to a Website that is not a trusted source. Never ignore the warnings issued by your browser. Many times the warnings are valid, and proceeding to an untrusted site could bring you to a site loaded with *malware*.

MALWARE *is malicious code or scripts that can be used to acquire privacy information from your computer and make it available to a computer hacker who may use the information inappropriately or resell it to someone who will.*

You should be very careful to verify that a site is safe and valid before providing any information to the site, including your name, email address, and especially passwords, credit card information, or your social security number. Unless you are required to use this for a government site (such as for paying taxes) and the site is secure, you should never give your social security number over the Internet.

Always search the Web for information that might give you warnings about a potential threat. It is important that you never give your privacy information to anyone. For example, many hackers use a scam in which they send you an email purporting to be from your bank that asks for personal information. Remember that no one in a banking institution will ever ask you for your passwords or other personal information via an email message.

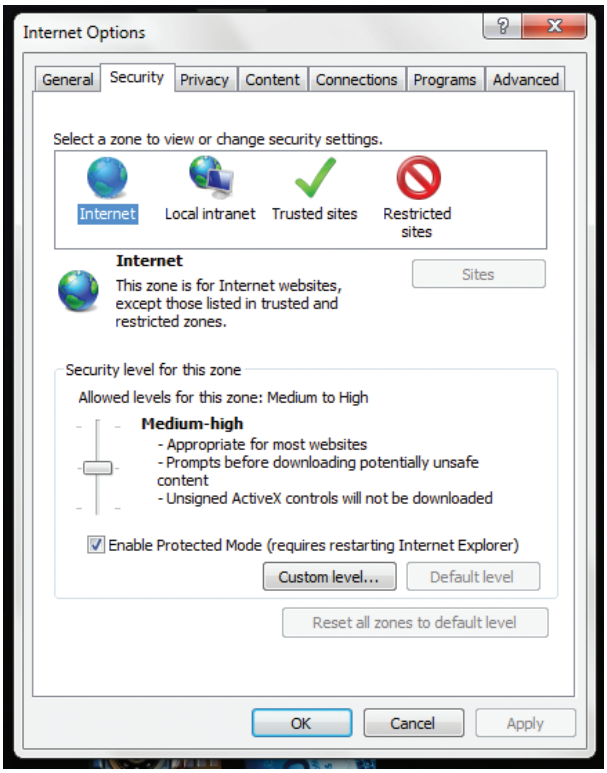
3.5.1 Browsing and Search History

Most browsers track your history of sites you have visited, and they store files and information about the sites so they can load them faster when they are sites you use often. Similar to bookmarked (or favorite) sites, you can view this history to quickly load a page you have already visited.

You should be aware that this information can be used to track and profile you based on your usage, especially through small apps called adware that load onto your machine as part of advertisements on different Web pages. If you find your browser running slowly, it may have too much history stored along with temporary Internet files. All browsers allow you the option to clear your history.

For Internet Explorer, selecting the *Tools* button and then *Internet Options* lets you adjust a series of settings including deleting your browsing history and changing default options for deleting history automatically. You can also change your default search settings and how Web pages appear in your browser, as demonstrated in Figure 3.15. The Internet Options dialog box gives you the ability to change many more settings

▼ FIGURE 3.15
Internet Options window in Internet Explorer



related to security, privacy, and other areas; these are accessed by using the tabs at the top of window. Advanced settings are not covered here, as the goal is to expose you to the basic settings that will help you search and navigate the Web at an introductory level.

A similar option is available in Firefox for configuring privacy and security. Use the *Firefox* menu, choose Options, and then select Options again. This allows you to modify settings for Firefox just like you did with Internet Explorer.

Activity 3.4—View your Browser History

Using the Web browser of your choice, follow the instructions for accessing the history stored for your browser. If you need help with this, feel free to consult the online help guides for the specific browser you are using. How are visited sites organized within the browser? How would you find the address of a specific site that you visited previously?

3.5.2

Secure Sites

Safe e-commerce transactions are conducted using HTTPS. The easiest way to check to see if you are conducting a secure shopping transaction over the Web is to look at your Web browser URL window. If the URL is preceded by "https" in the address bar, your transaction is using the HTTP protocol with an encryption standard called Secure Sockets Layer (SSL) to protect your password and personal data while transmitting to and from your computer. *Encryption* is the use of an algorithm to change the text of your message to a code that is unreadable without the use of a special key to unlock the code.

Digital certificates are used in the information technology field specifically to identify the identity of the transaction or email message. Digital certificates must be purchased from a trusted Certificate Authority (CA). A CA can be a private or public organization. One you may have heard of is VeriSign; you can read more about VeriSign at *https://www.verisign.com*.

Notice the little lock that is highlighted in yellow at the top left of Figure 3.16. Clicking on the lock brings up a small window that provides further Website identification, such as any information about digital certificates and the valid dates for the certificates. The Website identification window also tells you whether the information transferred on the site is encrypted.

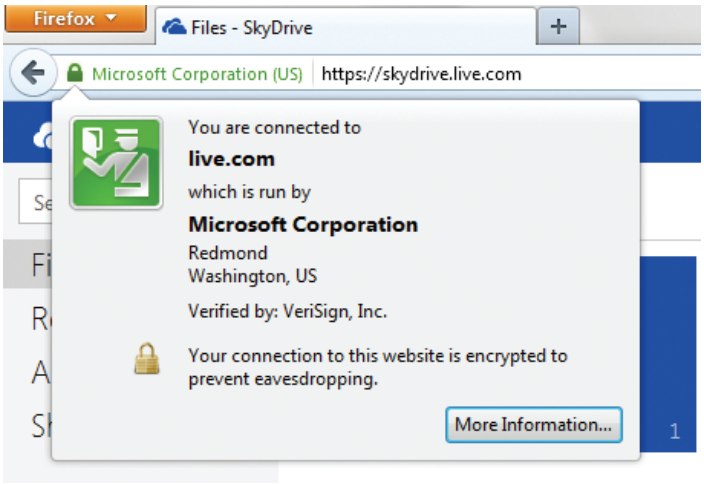
You have probably observed by now that most Websites use a lock symbol to indicate whether the site is using encryption, such as the one shown in Figure 3.16. There are actually three elements in Figure 3.16 that immediately let you know that the Website you are viewing is secure:

- The site uses HTTPS in the address field.
- There is a lock at the right side of the Smart Address (URL) field.
- There is green text verifying the name of the company who owns the Website. Clicking on either the text or the lock lets you view the digital certificate that verifies the site, also shown in Figure 3.16.

Safe Sites

3.5.3

The picture in the dropdown box of Figure 3.16 shows the passport officer for Firefox in green. Passport officer icons provide information on Websites and notify the



▲ **FIGURE 3.16** Using Secure Sockets Layer for an encrypted connection in Mozilla Firefox

user whether a particular site is encrypted or unencrypted and whether it has a valid digital certificate guaranteeing the identity of the site owner. There are three color codes to help you identify the level of authenticity of a Website:

- *Green*—The Website is completely verified and uses an Extended Validation (EV) key. An EV is a new type of digital certificate that requires the Website to go through a more rigorous process for identification.
- *Blue*—The Website is identified and the connection is encrypted; it is safe from eavesdroppers who could be trying to intercept privacy information.
- *Gray*—The Website is not verified, not encrypted, and does not have a valid digital certificate.

You should never enter your personal information into any Website that does not have a valid identity or a secure connection. These features can be identified in the address bar of all modern browsers. Similar security metrics like the lock icon and green text are used to identify trusted sites in other Web browsers as well. Internet Explorer uses a lock and color coding in the address bar background. Safari also uses the lock icon.

THE WEB AND FAIR USE

3.6

It is exceedingly important that you understand how to handle information you acquire from the Web while conducting academic research. Section II, "Word Processing and Microsoft Word," will teach you how to determine the value of a source for research. Here, we want to specifically address how to handle information legally without violating copyright laws. You cannot under any circumstances simply copy and paste material from the Web to use for your own work without providing the source from which you acquired the material.

In some cases, you should acquire permission from the owner of a publication prior to using it for your own work. In the academic field, you have some protections that are referred to as the Fair Use doctrine. Title 17 of the U.S. Code, Section 107 sets the following conditions for which a published work may be considered fair use and used as part of your work as long as you cite the source appropriately:

- Teaching
- Scholarship
- Research
- News media
- Criticism

It is also important that you find out what the proper writing style is for your school and acquire a good writing style manual that will help you to properly use

and cite sources in your papers. Common publication manuals include:

- *Publication Manual of the American Psychological Association*, 6th ed.
- *The Chicago Manual of Style*, 16th ed.
- *MLA Style Manual and Guide to Scholarly Publishing*, 3rd ed.

When you begin using sources for research, you will likely find the prospect challenging. The most important part of all of this is to always remember to cite all of your sources properly by using the latest edition of a writing manual approved by your educational institution.

CHAPTER SUMMARY

The chapter provided an introduction to navigating the Web using the Internet to get you from one Website to the next. It covered the use of Web browsers, how to connect to the Internet, and how to conduct searches on the Web. It also covered the concepts of safety and security in your navigation of the Web. The next chapter will introduce you to the use of email and email clients, which are part of a group of applications known as productivity software.

CHAPTER KNOWLEDGE CHECK

1 Data is truly everywhere and can be identified most clearly as _____.

- ◯ **A.** Unprocessed facts
- ◯ **B.** Information
- ◯ **C.** Query result
- ◯ **D.** Both A and B

2 Information can be most clearly defined as data that has been _____.

- ◯ **A.** Processed
- ◯ **B.** Unprocessed
- ◯ **C.** Improved
- ◯ **D.** Deleted

3 A Website is a collection of :

- ◯ **A.** Web pages
- ◯ **B.** Documents
- ◯ **C.** Folders
- ◯ **D.** Both a and b
- ◯ **E.** None of the above

4 The Internet is a global interconnection of hardware devices, such as your personal computer, that supports communication between different computing devices using an addressing scheme known as Internet Protocol version 4 (IPv4).

- ◯ **A.** True
- ◯ **B.** False

5 The Web browser is the software application used to search, navigate, and retrieve information and data from the Web.

- ◯ **A.** True
- ◯ **B.** False

6 A Domain Name Server (DNS) address is used for name resolution on the Internet.

- ◯ **A.** True
- ◯ **B.** False

7 A _____ is the term used to identify a situation where two or more computers connect to share resources.

- ◯ **A.** Web pages
- ◯ **B.** Router
- ◯ **C.** Password
- ◯ **D.** My Documents

8 The TRACERT command is used to see what route your computer is taking to reach the host.

- ◯ **A.** True
- ◯ **B.** False

9 E-commerce is the act of purchasing and selling products using nonelectronic transaction technologies.

- ◯ **A.** True
- ◯ **B.** False

10 Digital certificates must be purchased from a trusted _____.

- ○ **A.** Corporate authority
- ○ **B.** Certificate Authority
- ○ **C.** Retail outlet
- ○ **D.** None of the above

CHAPTER REVIEW QUESTIONS

1 Describe the difference between the Internet and the World Wide Web. What is their relationship to one another?

2 What are the risks associated with e-commerce? What technologies are available to safely conduct e-commerce transactions as a customer?

3 How does the process of academic research separate it from everyday Internet browsing?

4 Are media players preferable to plug-ins? Why or why not?

5 Why is it important to verify a Website's authenticity? List steps you can take to verify its legitimacy.

6 Adobe Flash is one of the most popular plug-ins for Web browsers. What type of content does Flash allow on a Web browser that would not otherwise be possible? What are the limitations of Flash in terms of the type of browsers that support it?

7 Does the protocol *https* always mean that the connection is safe to use for personal information? Why or why not?

8 Document the steps necessary to set a homepage on one of the Web browsers covered in this chapter. What criteria should you use to decide on a homepage?

9 Define a set of general guidelines that would establish that a Website is safe to visit. Does this apply in all cases? Are there types of Websites that would require greater caution that what you have defined?

10 Does using a larger number of keywords always enhance the results of the Internet search you perform? Justify your answer with examples.

PRACTICE EXERCISES

1 Match the terms from the following list to the corresponding definitions. Not every term will be used. Word bank: Data, Information, Network, Internet, World Wide, Web, Website, Web Server, Web Browser, Open Source, Local Area Network, Wide Area Network

- ◯ **A.** A network that can span to global proportions.
- ◯ **B.** A collection of unprocessed facts.
- ◯ **C.** A repository that contains all of the files and folders for a Website and provides remote access to them via various protocols.
- ◯ **D.** A global interconnection of networks made up of hardware devices that support communication between different computing devices using an address scheme known as Internet Protocol.
- ◯ **E.** The act of purchasing and selling products using electronic transaction technologies over the Internet.

2 Make a list of Websites that you visit on a weekly basis. If you do not normally use the Internet, search the World Wide Web to compile a list of sites that you think are interesting or helpful. Now bookmark the sites from your list. Practice making folders and subfolders to organize your sites so you can easily return to them when necessary. Choose one of these sites and assign it as your homepage. Make a list of the detailed steps you used to complete this assignment.

3 Use the Internet to research the different companies that provide Internet connections for home use. Construct a table including four different service providers. You will want to include in the table the type of Internet connection they offer, the length of the service agreement and the connection speed (download and upload). Based on your table choose a service provider that best meets your needs. Explain your choice.

4 Use your preferred Web browser to locate a Web browser plug-in and follow the instructions on the site to install the browser. Document your findings and steps you took to complete the assignment in a written format.

5 Practice adding bookmarks (or favorites depending upon the browser you use) to your Web browser from sites you use frequently. What are the advantages of using bookmarks? Why is it important to keep these organized?

CHALLENGE EXERCISES

1. Choose one of the common publication manuals (APA, Chicago, or MLA). Choose a topic to research on the World Wide Web. To conduct your research you may use any one of the Web browsers and search engines. Formulate a 500-word paper about your chosen topic. Use your chosen (or assigned) publication manual style to properly give credit to the resources used in your paper. Then write a follow up paragraph that discusses why you chose your particular Web browser, search engine, and publication manual.

2. Describe in your own words whether a single text box and search button is sufficient for returning search results from a search engine. Consider in your analysis whether any other options or refinements would assist in the search and whether those could be integrated into the keyword entry. Justify your answer with examples.

3. Use a Web search engine such as Google, Bing, or Yahoo! to find three Websites of your choice. Using the skills you learned in this chapter, determine whether a site is using encryption or a digital certificate for security. Describe all of the steps used to determine your findings in a written format.

4. Visit the homepage for VeriSign (www.verisign.com) and use the content provided to describe the benefits of having a certificate for a Website. What guarantee does this provide to the site visitors? What assurances does it provide to the site owners? Use a Web search to find other companies that offer similar certificates for the Web.

5. Use a search engine to research how your computer can be infected by malicious software (called malware) when visiting Websites from a Web browser. List at least five things you can do to prevent this kind of infection. What can you do to make better choices on which sites to visit to reduce the chance of getting your computer infected online?

CHAPTER
4

Using Email and Email Clients

IN THIS CHAPTER

Electronic mail, commonly referred to as email, is one of the most essential tools for communication in the modern business environment. Learning to write email effectively is an essential skill for success in any organization. This involves the use of an email client to manage the incoming and outgoing mail for your account. Establishing a personal email account may also be necessary for communication outside of a business setting, such as with friends or family. Once you complete this chapter, you will be able to:

- Describe how email clients are used to read and organize electronic mail
- Set up and use a personal email account
- Navigate and use email clients
- Assess whether a message you write conforms to email etiquette practices

4.1 INTRODUCTION TO ELECTRONIC MAIL

Email is the digital equivalent of a letter or postcard and has become a preferred method for sharing information and resources in businesses and organizations. It is a fast and convenient form of communication that allows for quick transmission of information from one party to another. The benefits of email are its fast transmission speed, the ability to attach electronic files to a message, and the asynchronous nature of the communication.

Asynchronous communication means that both parties do not have to be online at the same time. Instead, the sending party connects at one time and the receiving party can connect at any time after the transmission has been sent to retrieve the message. This is also called the store-and-forward model of information transmission because the message is saved on an email server for the recipient and can be retrieved at a later time.

4.2 EMAIL STRUCTURE

Each email message that is written (such as the one shown in Figure 4.1) is housed inside an electronic structure called the *envelope*. This envelope is typically used by the Simple Mail Transfer Protocol (SMTP) to direct the delivery of the message to the intended recipient. Like any other transmission over a network connection, it may experience multiple stops in the routing between the sender and the recipient (or recipients); these are handled by an initial Mail Submission Agent (MSA) and passed through Mail Transfer Agents (MTAs) until

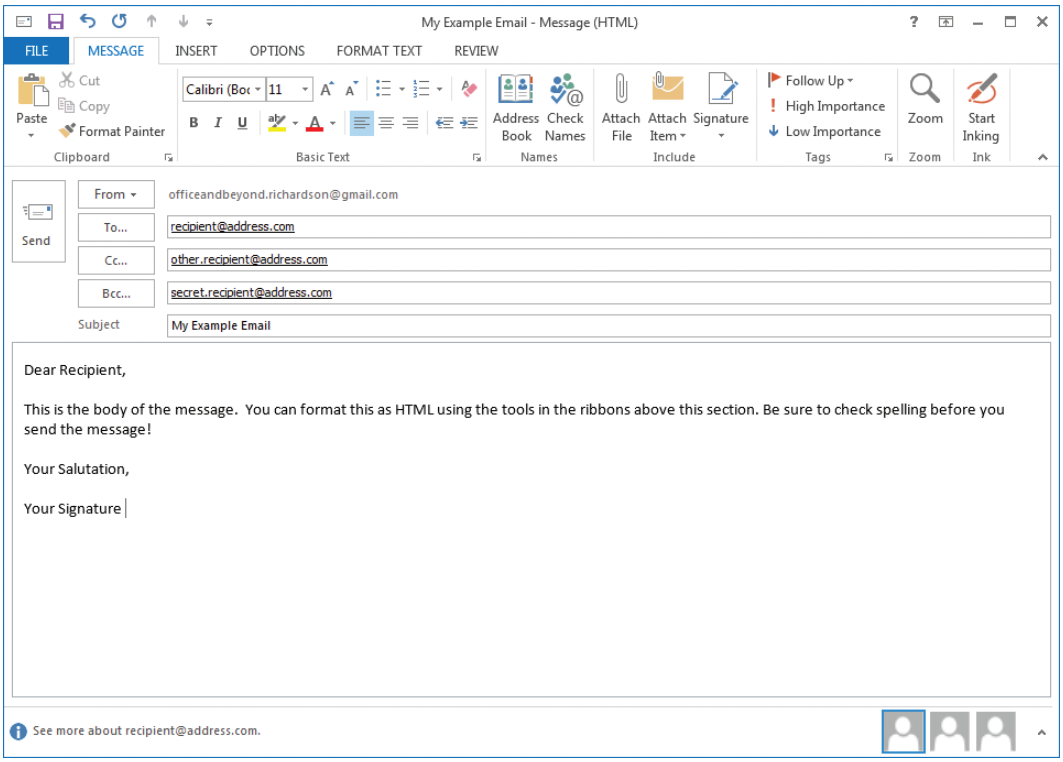


FIGURE 4.1
An example email message

it reaches the Mail Delivery Agent (MDA) of the recipient. The destination is controlled by the envelope as opposed to the contents, just as it would be with a letter that is sent through the postal service. The various agents in the system can be compared to the postal workers that deliver standard mail.

Within the envelope, an email has two components: the *header* and the *body*. The header contains the subject and addressing information for both the sender and the recipients of the message. Unlike a real letter, a single email can be sent to multiple recipients with ease; this is controlled by the information added to the header. The header commonly contains the following fields:

- *From*—This is the address of the sender. In most email clients, this is not an editable field.
- *Date*—This is the send date of the message. In most email clients, this is not an editable field and may not even be visible.
- *Message-ID*—This is an automatically generated identification value that is used to identify the email message.
- *To*—This field identifies the primary recipient or recipients of the email message; this field is composed of email addresses separated by a comma or semicolon.
- *CC*—This stands for Carbon Copy; this field is used to send email to someone who is impacted by the circumstances described in the message body but who is not directly involved or does not need to take direct action.
- *BCC*—This stands for Blind Carbon Copy; this will (in most email clients) hide the addresses of the person or persons listed in this field from other recipients. This option should be used for large groups to help protect email addresses and keep the message header size small.
- *Subject*—This is a short description of the contents of the message; it should be a preview of what is contained in the message body.

The header may also optionally contain the following fields: In-Reply-To, Content-Type, Received, References, and Reply-To.

The body of the message is where the relevant content is placed in an email message. In the actual email message format, the body is separated from the header by a blank line. Most email clients separate these two items entirely when viewing the message. The body contains the actual information that you want to send to the recipients. Email was once limited to plain text input, but most email clients now allow you to enter HTML tags and formatting into the body of messages, meaning you can perform most of the formatting operations of word processing in an email message.

You can also add attachments to an email message. These are external files that are enclosed in the envelope of the message along with the header and the body. There is no intrinsic size limitation on an email message, but the standard cutoff for most email clients is 25 MB per message including the

An **EMAIL CLIENT** *is a software program on an end user's machine that is used primarily to read and compose electronic mail messages. This is also called a Mail User Agent (MUA) in relation to the transmission of email messages to email servers that accept outgoing messages and deliver incoming messages.*

header, body, and attachments. This is actually a high limit considering the amount of traffic and documents that are passed via email in most organizations. Attachments are governed by the defined Multipurpose Internet Mail Extensions, commonly called MIME types. The *MIME type* is the format of the content that gives the information stored in the message context for interpretation just like file formats in an operating system.

You should never open an email message from a source you do not trust. If you have not requested the email and you do not know the sender from prior contact, you should not open the email message, no matter what the subject line states. There are professional scammers and attackers that excel at crafting subject lines to entice you to open harmful or deceitful messages. Any attachment that is contained in an untrustworthy email should be deleted; attachments can contain malicious software that could compromise or destroy your machine. This is particularly true when the attachment is an executable file (one that has the extension .exe on a Windows machine); you should never open an executable file from an email message unless you have verified by outside contact with the sender that the file is legitimate. It is possible to send email falsely from another person's account, so knowing the person from whom you received the email is not a guarantee that it is safe.

Email is considered a *push technology*, which means the sender controls the flow of information rather than the recipient. When you are using email, you are therefore subject to any messages that anyone wishes to send you. This is why unwanted messages (termed *spam*) are such an inconvenience; your inbox can be filled with these messages without your permission, and the range of possible email addresses preclude blocking them all. It is therefore up to the spam filter of your email client to try to determine which messages are legitimate and wanted and which messages are unwanted.

EMAIL ADDRESSES 4.3

Each individual email is routed via an email address. This is a unique identifier for a single account. An example of an email address is *officeandbeyond.richardson@gmail.com*. The information following the "@" symbol is the domain information; in this example, the host domain is *gmail* and the top-level domain name is *com*. The domain name in an email address must conform to the same rules as a hostname in a URL. The domain part of the email address is typically established by the organization hosting the email account and operating the MSA. Note that there can be only one @ symbol in an email address. The full stop character (also called a period or a dot) is used only to separate host domains in the domain part of an email address, but it can be used as a standard character (with or without repetition) in the left side of the address (which is the local part).

The local part of the email address is defined either by the user creating the account or the business establishing the account on the user's behalf, such as a work email account. The local part of the example email address is *officeandbeyond.richardson*. There are restrictions on the local part of the email address; this is particularly relevant if you are creating a new email account for your personal use. The local part of an

email address is limited to 64 characters; the combined length of the local part of the address and the domain part cannot exceed 253 characters. Additionally, the local part can only contain the following:

- Letters from the English alphabet (both uppercase and lowercase letters are permitted)
- Numbers from zero (0) to nine (9)
- The full stop (.) character (also called the dot or the period)
- The following special characters: ! # $ % & ' * + - / = ? ^ _ ` { | } ~

The local part of the address is case sensitive, but the use of different cases to distinguish different accounts is discouraged. Most email providers disable this option by default. Some email providers restrict the special characters allowed as well. For example, Microsoft Windows Live® Hotmail® only allows alphanumeric characters (uppercase English letters, lowercase English letters, and numbers), the underscore (_), the hyphen (-), and the dot (.).

4.4 CREATING A PERSONAL EMAIL ACCOUNT

Whether or not you have a professional email address, it is a good idea to have a separate personal email address for communications outside of the professional environment. There are a number of email account providers that allow you to create a free account with a fixed amount of storage space. While there are a number of providers that offer such services, like AOL (*www.aol.com*) and Yahoo! (*www.yahoo.com*), two popular options that are discussed in this chapter are Microsoft Windows Live Hotmail (*www.hotmail.com*) and Gmail™ by Google (*www.gmail.com*).

> If you do not have a personal email account already and you are using a Windows machine, using Hotmail instead of Gmail is worth serious consideration. A Hotmail account will give you access to the Microsoft OneDrive (discussed in the next chapter) and serves as a Microsoft account which integrates into the Microsoft Office productivity suite. The Hotmail account also integrates into the login for Windows 8.

In most circumstances, you will have the option of defining your own local part of the email address. While you can be creative with this choice, it is best to keep your email address at least semiprofessional in case you ever need to use it for professional opportunities or include it in a resume. Your email address is an identifier that tells someone information about you, so you should consider what the email address will tell them when they read it. You also need to keep the ease of remembering the address in mind in case you need to share it verbally. A good solution for both instances (though you do not have to do this) is to use your first name, then a dot or underscore character, and then your last name as the local part of an email address.

4.4.1 Email Account Types

There are different types of email accounts that vary based on storage and delivery. The common types of email accounts are POP (or POP3), IMAP, Webmail, and Microsoft Exchange accounts.

POP3 is the Post Office Protocol version three. With a POP3 account, your messages are stored on the email server of your domain until you access them. Once they are downloaded to your local machine, they are deleted from the server. This has the advantage of allowing you to read your mail when you are not connected to the email server. Some Webmail clients use the POP3 protocol to retrieve the messages but do not subsequently delete them; it is up to the individual ISP to determine this option. SMTP is used to send messages; the SMTP and POP3 servers are usually the same.

Port 25 is the standard port used for email traffic outside of custom applications and services.

The Internet Message Access Protocol (IMAP) uses folders to store email on the email server and allows the user to access them on multiple machines. The typical means of accessing IMAP allows the user to view the header information for each email and then select the ones for which the content should be displayed. The drawback of this protocol is that it requires you to be connected to the mail server to read your email.

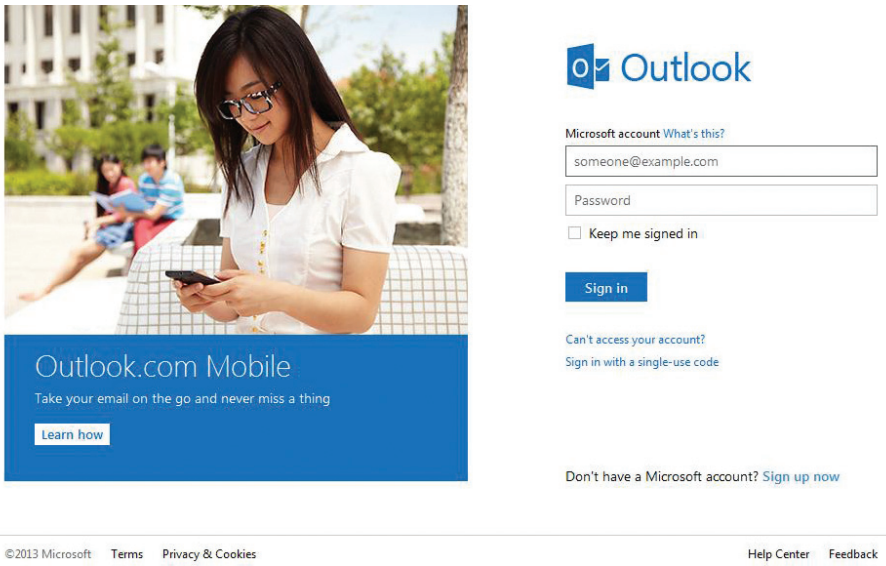
Microsoft Exchange accounts require a special server (a version of the Microsoft Exchange Server) and are typically only used by businesses. Exchange accounts specialize in collaborative communications across an organization.

Webmail accounts may use either POP3 or IMAP to provide you with access to your messages. Webmail service is typically provided by your email account provider and functions as a rudimentary client for reading and writing email, allowing you the convenience of performing these tasks online without additional software beyond a Web browser. Webmail is typically limited in storage space and provides you with advertisements in exchange for using the account services free of charge.

Microsoft Windows Live Hotmail

4.4.2

Microsoft Windows Live Hotmail is one alternative for creating a free personal email account. For Windows users, it is also



➤ **FIGURE 4.2**
Hotmail login portal

a convenient way to integrate with your system in terms of online access to Office documents and native Windows services. The homepage of Hotmail is www.hotmail.com. When you enter this address in your browser, the screen shown in Figure 4.2 appears. From here, you can either log in to an existing account or create a new account. To create a new account, click the *Sign up now* link.

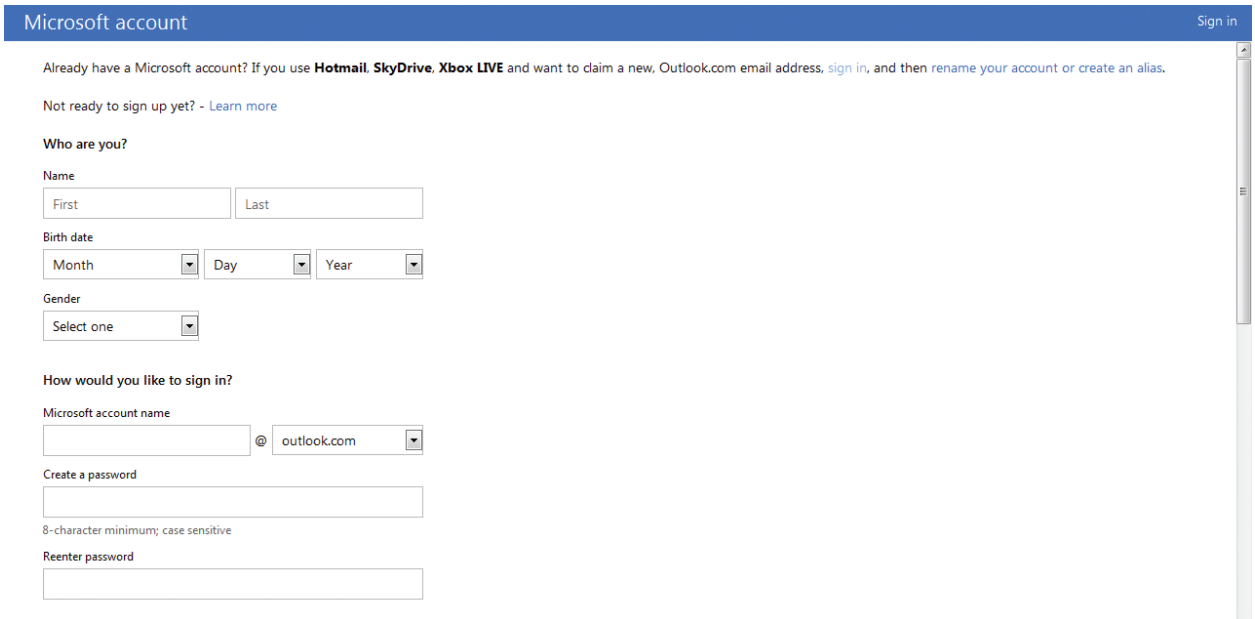
4.4.2.1 Creating an Account

To create a new account with Hotmail, you will need to complete the registration form shown in Figure 4.3. Note that you will have to scroll down the page to enter all required information and submit the form. The first thing you need to determine is the local part of the email address that you want to use. Once you have entered it, you can click the *Check Availability* button; this step will let you know whether the name is available. You can also select whether you want the domain to be *outlook.com*, *live.com*, or *hotmail.com*. All of these domains are accessed from the same portal; this choice only affects your resulting email address.

You need to create a password for your email account as well. The combination of the email address and the password you choose will be the information you need to access your account. Because your email address is public, you must carefully guard your password and with whom you share it. The registration form requires you to reenter your password for verification. You will also need to either enter an existing email address (which should not be your work email address) or a mobile phone number as a security measure and backup contact in case you get locked out of your account.

The next few entries in the form are for your personal information including your first name, last name, country, state, and postal code. The first and last name you enter will be used as your display name in

▼ FIGURE 4.3
Hotmail registration form



CREATING A PASSWORD

Choosing a password that is difficult to guess is incredibly important to the security of your email account or any account that uses passwords as authentication mechanisms. Your password should not be too short (many sites require a six-character password) and it should contain a mix of lowercase and uppercase letters, numbers, and symbols. Any password that is easy to remember is likely easy to guess. To get around this, it is suggested you use a short sentence (called a *passphrase*) as a password. An example of this would be "Charlie is 2 awesome!" which is easy to remember and meets all of the criteria for a strong password.

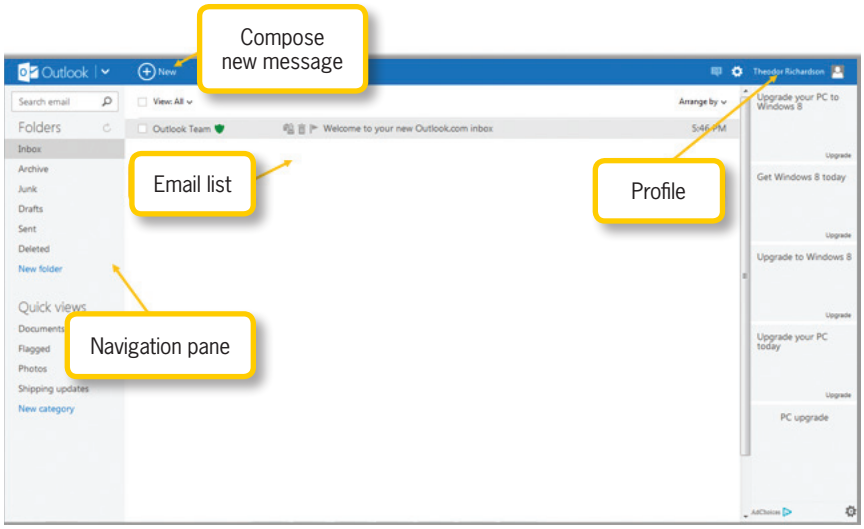
both the account and email correspondence. You must then select a gender and enter a birth year. The registration form requires you to enter information in these fields, but you are not required to provide your full name in conjunction with the account if you are concerned about privacy. The system will verify that the postal code is valid within the country and state you select.

The final text entry is for a *captcha*, which is an altered set of letters that can be read by a human but cannot be reasonably parsed by a computer. This is to prevent automated scripts from registering active email accounts within the system. You simply type the letters that are displayed in the image into the text box beneath it. The *I Accept* button at the bottom of the page will create the account; clicking this button means you agree to abide by the terms and conditions of use for Hotmail. You can read these terms and conditions by clicking on the links provided. Once you click this button, your account will be verified and created if there are no issues with the data you entered. If there are any errors, you will be prompted to correct them. If there are no errors, you will be taken to the verification screen for your account. Here, you will verify an alternate contact that you entered for the account where you will receive a security code which must be entered to activate the account. This is typically done via text message on your phone. Once you receive the code, you will enter it on the verification screen before your account can be accessed. You can bypass this step for seven days after you create the account, at which point it will be required to access your account again. It is best to complete this step immediately. Once your account is verified, you will be taken to the Outlook.com interface for your account. The first time you access your account, you will be prompted with a welcome message and an overview which you can review or dismiss.

Navigating and Opening Email 4.4.2.2

When you are logged into your account, you will be taken to your account's dashboard by default. You can see how this looks in Figure 4.4. Your message inbox will be displayed by default, but if you navigate elsewhere, you can click the *Inbox* link on the left side of the screen.

With your inbox open, you should see your email in the center of the window, as shown in Figure 4.4. Your folders are listed on the left side of the screen. To add a new folder to help you organize your emails, click the *New Folder* link and enter the required information. When you sign into Hotmail, you are automatically connected to the Microsoft Messenger service, a synchronous instant messaging service. You can click the



◀ FIGURE 4.4
Hotmail example interface

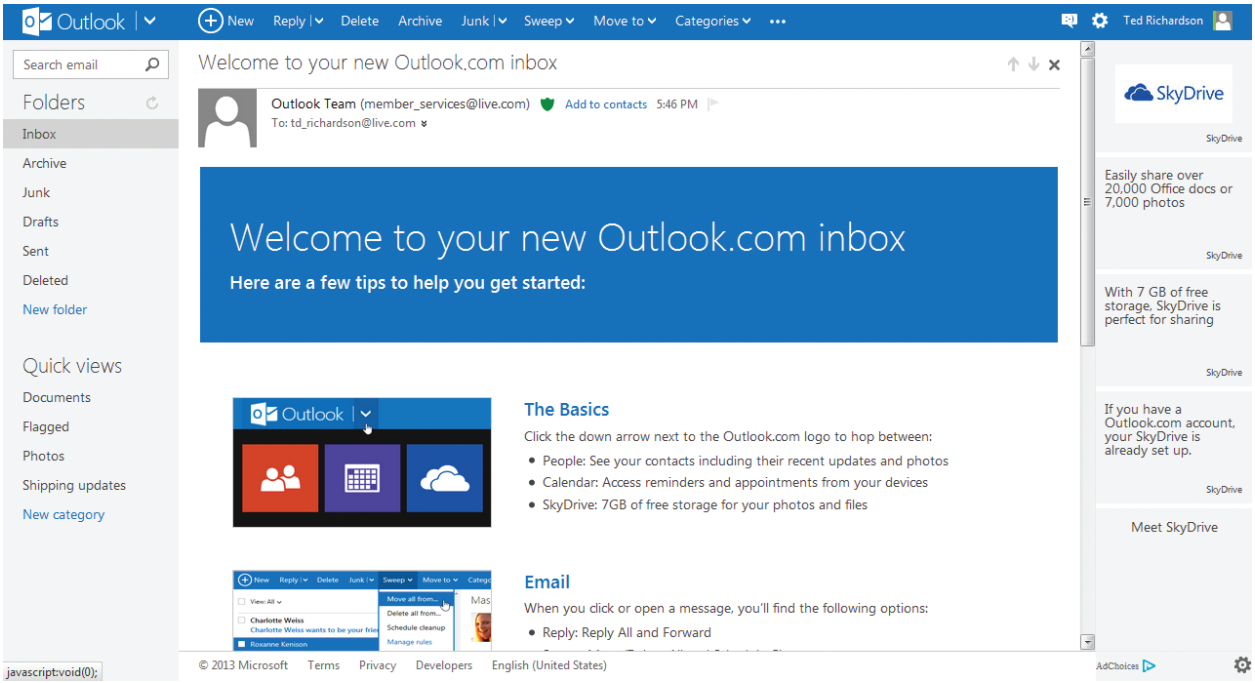
icon that looks like a speech bubble with an emoticon in it to open the options for this service. Your service links are across the top of the window where you can view your calendar or contacts as well as manage your account settings and sign out of Hotmail. For any folder, you can also delete, move, or print selected messages (where the box is checked to the left of the message). You can also arrange your email by date, subject, size, or sender using the *Arrange by* drop-down menu.

You have the same options for navigation and email messages in each of your folders. When you delete an email message, it will be moved to the *Deleted* folder. To permanently remove the email, you must delete the message (a second time) from the *Deleted* folder itself. Clicking the *Junk* link with a message (or messages) selected will delete whatever is selected and block the sender, meaning you will not receive any future emails from that sender.

The added benefit of using Hotmail is the access to an online-only version of Microsoft Office called the Office Web Apps. You can create and edit documents online using the Web-based interface (called Microsoft OneDrive®). You can access these documents via a link that you can send to others for collaborative effort or for them to view what you have created.

You can click the profile link, which appears as your name and picture, to open your profile settings. This allows you to change your account privacy settings and your contact information. Clicking the settings link (which looks like a gear) and then selecting *More mail settings* opens the *Options* menu. Using this menu, you can select *Safe and blocked senders* under *Preventing junk email* to add senders you want to block or remove senders you previously blocked. You can change most of the account settings (other than your email address) using the *Options* menu.

The *Drafts* folder holds email messages that you have written but have not yet sent.



▲ **FIGURE 4.5**
Hotmail example email

The drafts are stored on the email server and will remain with the account until they are sent. The *Sent* folder stores messages that were sent from your account. The sent items will remain with the account on the email server until they are deleted.

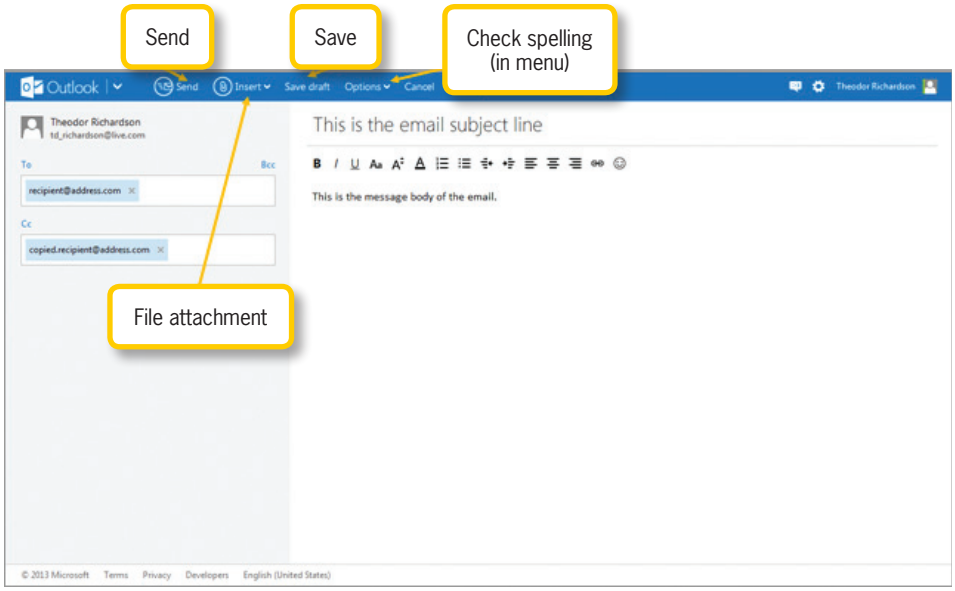
You can open an email message by clicking on either the name of the sender or the subject of the message. If you have just created the account, you should see a welcome message from Microsoft with getting started hints. The message view, accessed by clicking on the subject, offers a list of options, including sending a reply to the message. At the left side of the window are links to take you to your inbox or let you access any folders you want to check. Clicking on a message will open it, as shown in Figure 4.5. Your message options are in line with the service links. From these, you can delete, print (using the "…" icon shown beside *Compose* in the top line of the interface in Figure 4.5 for more options), or declare this message as junk. The Junk and Sweep options allow you to manage unwanted email quickly.

Composing an Email 4.4.2.3

You can create a new email message from within any folder in your inbox by clicking the *New* link at the top of the email window. The new message editor will then appear in your browser window, as shown in Figure 4.6.

This window is where you enter the information in the header and compose your message. You should start with the header information. Your email address appears at the top; this is the *From* field. The *To* field is below your email address; you can type any address you want here and Hotmail will validate that it is in the correct format (this does not validate whether it is a legitimate recipient). Clicking on the *To* link opens a

pop-up menu showing recent contacts and stored contacts so you can select them directly. As you type email addresses, if Hotmail recognizes a string of characters from your address book, it will provide a small pop-up menu that allows you to click the name to enter the rest of the address for you. There is a *Show Cc & Bcc* link at the right side of the window that will make the CC and BCC header fields visible and usable.



▲ FIGURE 4.6
Hotmail new message editor

Activity 4.1— Sending an Email

Using the Webmail client for your email address, compose a new email and send it to your own account. Use the subject line "Hello, World!" and be sure your address is typed correctly. Send the message and verify that you received it.

You should always enter a subject line, and it should be descriptive of what the message contains. The body of the message is an HTML-enabled text editor, meaning that the toolbar across the top can be used to format your text by changing the font, font size, style, color, and alignment. You can add attachments and images using the toolbar as well. Clicking the *Attachments* link opens a text box and activates a *Browse* button. The *Browse* button will open a File Upload dialog box in the native Web browser, allowing you to select the file that you want to include in the email.

> Some files, such as Microsoft Office files, must be closed before they can be attached to an email message. If a file is open in another program when you try to attach it, you will receive an error message and the file will not attach.

Logging Out and Logging In 4.4.2.4

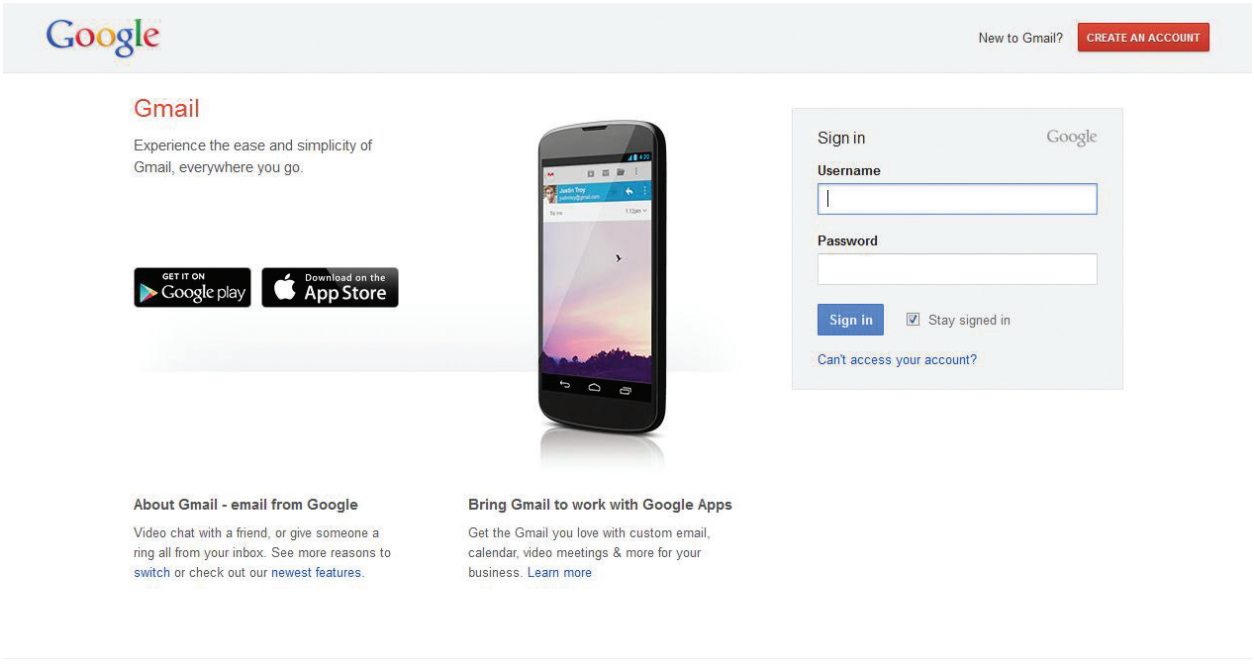
Whenever you are using a Web-based service, you should always log out when you are done with the tasks you needed to perform. To log out of Hotmail, use the profile (your name and image) on the right side of the browser and then choose *Sign out* on the menu that appears; you will then be automatically redirected to the MSN homepage. Logging out will protect your account by preventing anyone else using the machine from artificially extending your session and accessing your email.

When you want to log back in to read your email, you can go directly to the Hotmail Website *(www.hotmail.com)* and enter your username and password to access your account. If you forget your password, you can use the *Can't access your account?* link, which will take you through a series of steps that will either prompt you to enter the answer to your security question or send a password recovery email or security code to an alternate account you specified when you registered.

4.4.3 Gmail by Google

Google offers its own free email service in the form of Gmail by Google. You can access Gmail from either the Google homepage **(www.google.com)** or the Gmail homepage **(www.gmail.com)**. From the Gmail homepage, shown in Figure 4.7, you can either log in using an existing account or create a new Gmail account.

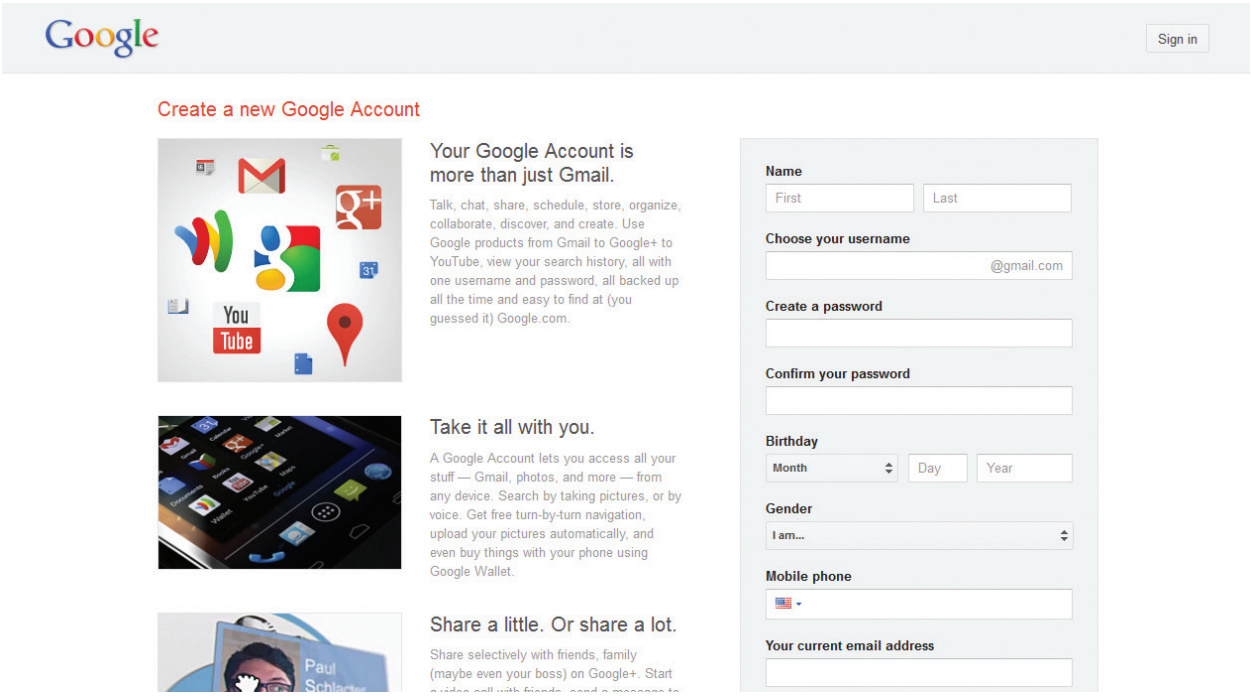
▼ **FIGURE 4.7**
Gmail homepage



Creating an Account 4.4.3.1

To create a new Gmail account, click on the *Create an account* button at the upper-right section of the Gmail homepage. This will open the account creation form shown in Figure 4.8. First, you must enter information in the first name and last name fields and determine the local part of the email account name. Again, you should keep the use of this account in mind when creating it. An easy way to create an email address is to use your first name followed by a dot or an underscore and then your last name; this creates a professional, memorable address. You can determine if the account is available by clicking the button labeled *check availability!*

You must then create a password and retype it for verification. There is also a list of options with checkboxes that you can enable or disable. Next, you should enter a security question to assist you in recovering a lost password and a backup email



▲ **FIGURE 4.8** Gmail account creation page

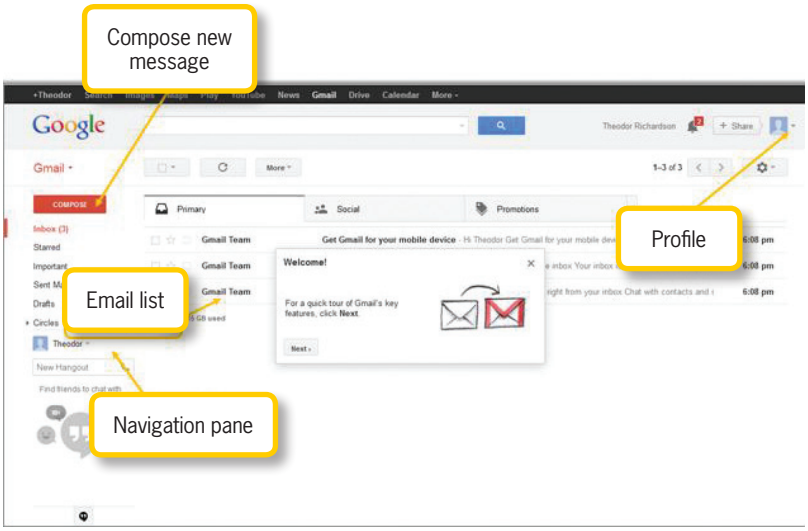
account to which a link to reset your password can be sent; you must also select your location from the drop-down list and enter your birthday (depending on your location). Finally, you will be prompted to enter a verification captcha (discussed in the earlier section on Microsoft Windows Live Hotmail) and accept the terms and conditions of use for the account. You will be taken to your account overview once the form is error free and you click *Next step*. Follow the prompts given and you will be taken to the Gmail interface for your account. Similar to Hotmail, there is information to review about the features and options you have with your account when you login for the first time. You can review or skip this information.

4.4.3.2 Navigating and Opening Email

When you log into your Gmail account, you will see a screen similar to Figure 4.9. This window contains a navigation menu of Gmail account services across the top. The left-side navigation menu contains a view of your inbox folders, contacts that are online, and your connection to Google's chat service, Hangouts.

Above the list of email messages in your inbox is a set of options for organizing and managing your email. You can move or delete messages that are selected and you can refresh your inbox, downloading any new messages that have reached your account. You can also select from the available organization tabs across the interface to organize your messages into basic categories.

Gmail also provides a task manager, which provides a simple interface allowing you to create a to-do list of items. From the service links at the top, you can access Google Drive (online document management and



◀ FIGURE 4.9
Gmail example inbox

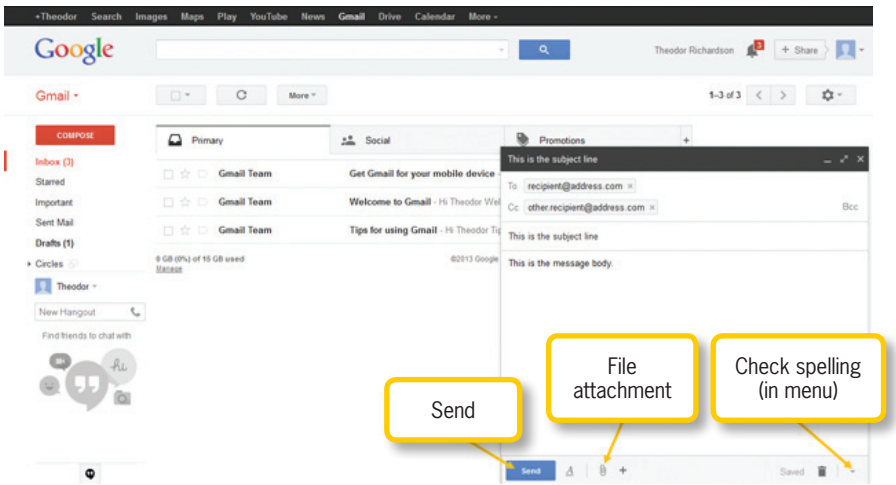
creation software similar to the Microsoft OneDrive), a link to your personal calendar (which is part of the larger Google account) that you can use to keep track of appointments, and the common services offered by Google, including Google Maps, YouTube, and Google Search.

To open an email message in Gmail, you can click anywhere in the row displaying the message information. Messages that are displayed in bold are unread, and messages that display in standard text have already been opened. When you click on an email message, the message will open in place of the Inbox display, allowing you to read the contents of the message, delete it, or archive it. The options to reply to the message, forward the message, and print the message are located above the message content. You can return to your inbox by selecting either the *Inbox* tag above the message or the *Inbox* link on the left side of the window.

Composing an Email 4.4.3.3

To create a new email message in Gmail, click the *Compose* button on the main interface. This opens the email message editing window, as shown in Figure 4.10. The options presented here are similar to those in other Webmail clients. The header information is entered at the top of the message window. The *To* field and the *Subject* field are the two header fields that are initially visible. Click the *Cc* and *Bcc* links to add the respective header fields. Remember that your subject should be meaningful regarding the content of the email. As you type an email address in any of the recipient fields, Gmail will attempt to match it to your existing contacts; if it finds a match, you can click the address that appears beneath the address entry box to auto-fill the rest of the address. To the far right of the window is an expansion

▼ FIGURE 4.10
Gmail message editing window



icon; clicking this will open the message in the full window.

The body is where you enter the content of your email message; this is presented as a text area in the central part of the window. You can use HTML formatting in the content, but Gmail also presents you with a limited set of fonts and sizes from which you can choose. You can add bold, italic, and underline to the text as well as set the text alignment and add any bullets and numbering from the menus at the bottom of the message composition window.

Activity 4.2—Adding Attachments

Using the Webmail client for your email address, compose a new email and use the attachment feature to add a file to your email address. Take note of the prompts and options that you have for adding a file from your email host. Send the message to yourself and verify that you received it.

You can attach files to your email message by clicking the icon that looks like a paperclip. This will open a set of options for different file types and sources to attach. When you are finished composing your email, click the *Send* button to send it or the trash can icon to delete it. Changes to the message are saved automatically and the message will be located in your *Drafts* folder until you send or delete it. You can use the expansion menu in the bottom right of the message composition window to select the option to check spelling before you send the message.

Logging Out and Logging In 4.4.3.4

As with any account, you should always make sure you log out when you are finished. This helps to prevent unauthorized access and use of your account. To sign out of Gmail, click the down arrow to the right of the account name at the top of the window; this opens a pop-up menu containing the *Sign out* link at the bottom. You will be returned to the Gmail homepage. Anytime you wish to sign back into your account, you can visit the homepage for Gmail, www.gmail.com, and enter your email account and password. Because these are the only credentials needed to access your account, you should keep your password carefully guarded.

Activity 4.3—Saving a Draft

Using the Webmail client for your email address, compose a new email with a subject line and body. Save the email as a draft and close the message composition window. Access your Drafts *folder and open the email again. Did everything you added save correctly? When would it be useful to save an email for later?*

EMAIL CLIENTS 4.5

Webmail functions as a limited email client. Some incarnations of Webmail are closer to the standalone email client applications than others. Email clients typically do not allow you to create an email account but instead serve to manage an existing email account through a range of supplemental services to manage tasks and

promote productivity. The main advantage of email clients over Webmail is the ability to save email messages externally on the local machine; this option is typically not available in Webmail.

Microsoft Outlook is a professional email client that includes a calendar, task manager, and robust email capabilities and is widely used in businesses and organizations as a primary means of communication and productivity management. The full features of this product are covered in Chapter 6 as part of the Microsoft Office suite.

Most operating systems come installed with a small email client that allows for basic email creation and management. One of the free alternatives to the more robust Microsoft Outlook is Mozilla Thunderbird®, a companion program to Firefox that allows for simple account configuration, management, and use. This can be a good alternative to the preinstalled options if you are looking for an email client to manage accounts on a home computer.

Most email clients have automated protection against some untrustworthy sources and suspicious files. You should always pay attention to these warnings. You can see an example of this in Figure 4.11. These messages will allow you to decide how to handle the suspicious content. Be wary of accepting the content when it is flagged like this and be sure you can verify the source of the email before you accept it on your machine.

4.5.1 Microsoft Windows Live Mail

The free email client for a Windows machine is Microsoft Windows Live Mail; the 2012 update to this software is part of the free Windows Live Essentials software package (available from windows.microsoft.com/en-us/windows-live/essentials) for Windows machines. You must download and install this software to use Windows Live Mail by navigating through the prompts for the software. This is a small application that allows for the management of multiple email accounts. It configures most accounts using just the email account name and password. The interface (shown in Figure 4.11) allows you to manage your email accounts, calendar, contacts, and newsfeeds. Windows Live Mail 2012 uses the ribbon interface that Microsoft has implemented in the Microsoft Office suite.

The **RIBBON INTERFACE** *(also called the* **RIBBON USER INTERFACE***) is a productivity-oriented GUI that contains larger icons than standard toolbars and emphasizes organizing related tasks into the same subset (a ribbon), which remains open and visible when selected, unlike a traditional menu.*

You can add an account using the *Email* icon on the *Accounts ribbon*. To change account settings, select the *Properties* icon from the *Accounts ribbon*. To remove an account, right-click the account name on the left side of the main interface and select *Remove account*, this procedure applies regardless of the current ribbon that is active.

Windows Live Mail allows you to manage your calendar and contacts as well as your email. You can sign into a Microsoft

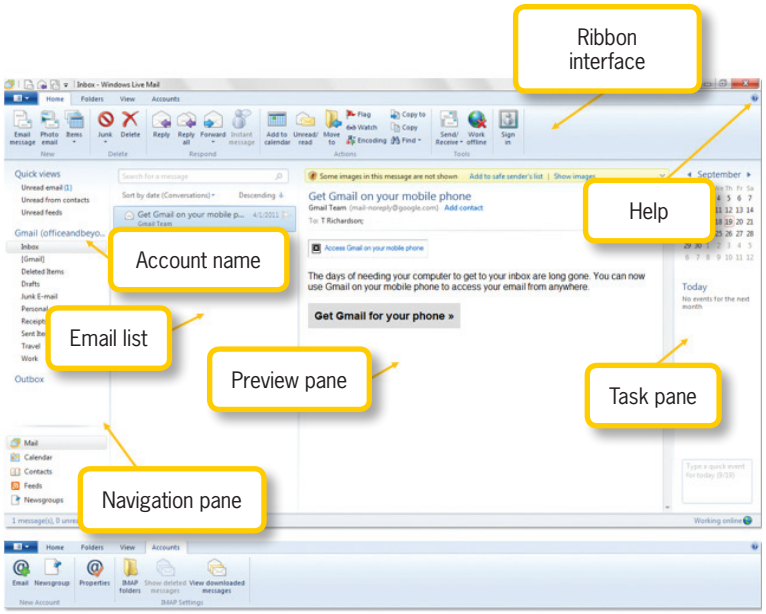


FIGURE 4.11
Windows Live Mail 2011 interface and Accounts ribbon

account from the *Home* ribbon using the *Sign in* icon. From the *Home* ribbon with Contacts selected as the main view, you can email your contacts directly or you can instant message them through Windows Messenger.

Email message creation in Windows Live Mail is similar to other Webmail clients with similar formatting options. The ribbon interface is slightly different, but it contains the same options; they are just in a different format. The message creation window has its own ribbons. You can create a new email message by selecting the *Email message* icon on the *Home ribbon* with the Mail view selected in the lower right pane of the interface. The email creation window and its associated ribbons are shown in Figure 4.12.

A Microsoft account and a Windows Live ID refer to the same credentials. These terms are used in various locations in Microsoft products, but the same user name and password works for either.

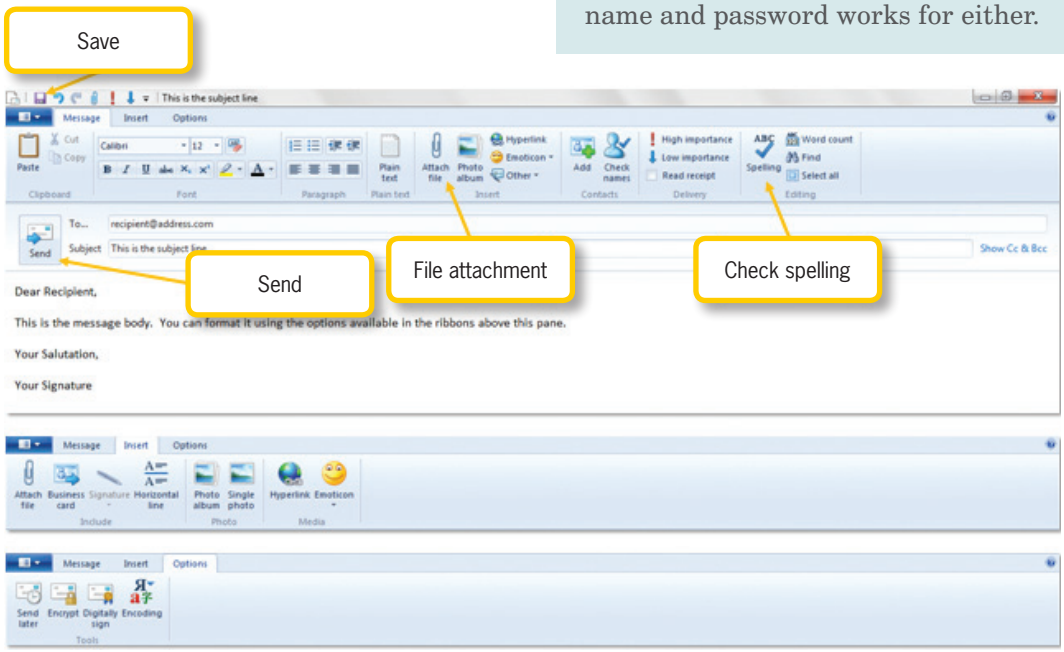


FIGURE 4.12
Windows Live Mail email creation window and ribbons

The message header information and the message body are located beneath the ribbon interface. The *Message ribbon* allows you to format your email content using the Font panel and the Paragraph panel; these create the message using HTML enhancements. To add attachments, images, hyperlinks, and emoticons, use either the Insert panel of the *Message* ribbon or the *Insert* ribbon. You can check the spelling for your message using the *Spelling* icon. Delivery options can be set using the *Delivery* menu, but you should only use these options (like High Importance and Read Receipt) when it is absolutely necessary. The *Options* ribbon allows you to perform advanced tasks like encrypting the message, digitally signing the message, or delaying delivery.

A message can be saved as a draft using the *Save* icon in the quick links at the top of the interface, which looks like an old fashioned floppy disk. You can send the message using the *Send* icon next to the header information for the message itself. To save an email as a file, select the message you want to save, click the *Windows Live Mail* menu (the blue menu on the far left of the ribbon names), select *Save*, and then select *Save as file*. The file can be saved as an email or text document or as HTML.

4.5.2 Macintosh Mail

The default email client installed on a Macintosh computer is Macintosh Mail. Similar to Windows Live Mail, it provides a simple interface that allows you to manage multiple email accounts. When you initially start the program, it will prompt you to enter a primary email account; Mail will automatically configure most accounts using just the email account and the password. The interface for Mail is shown in Figure 4.13.

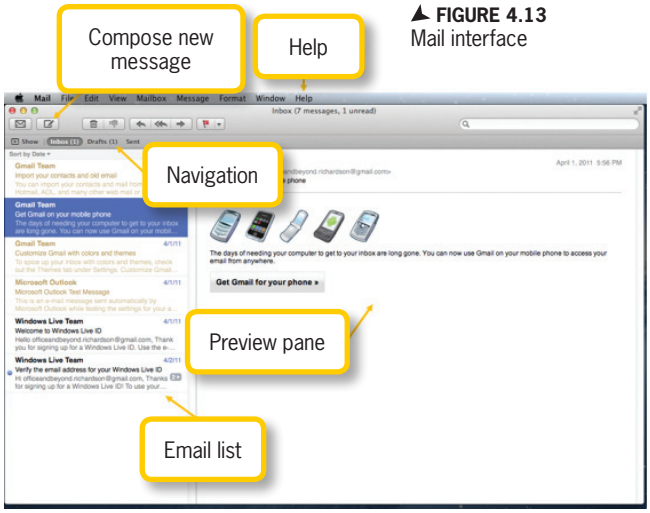


FIGURE 4.13
Mail interface

Once you have configured an account, you can manage the account settings by selecting the *Mail* menu and then selecting *Preferences*. When the Preferences window opens, click *Accounts* to alter your settings and add or remove accounts. The Accounts interface is shown in Figure 4.14.

To save an email as a file in Mail, select the message you want to save, click the *File* menu, and then choose *Save*. You can save a message as a raw email file, a text file, or an RTF file.

You can create a new message by clicking the *Compose new message* icon (which looks like an abstract pen on paper). This will open a new window for composing your message, as shown in Figure 4.15. The interface for creating new messages is limited because the messages are constructed

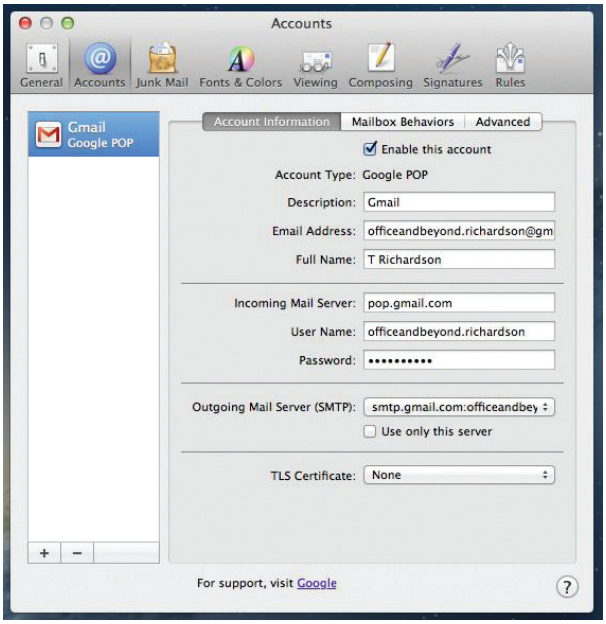


FIGURE 4.14
Mail accounts preferences

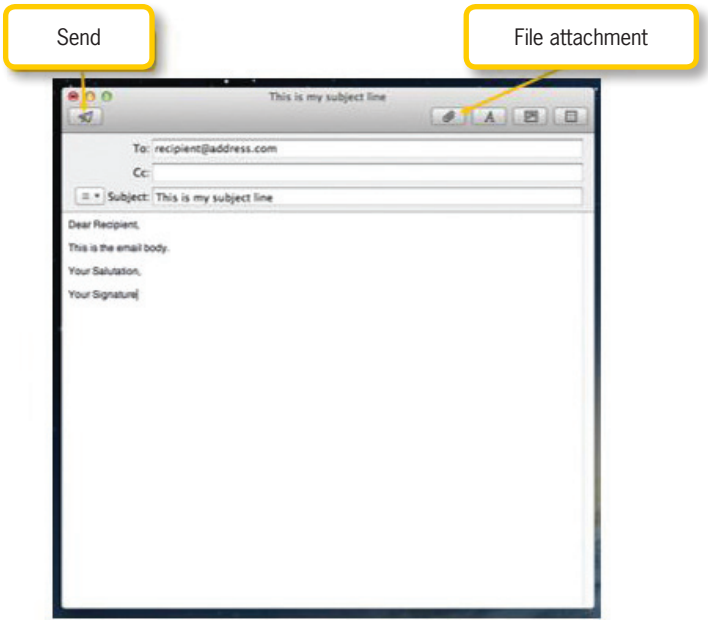


FIGURE 4.15
Mail message composition window

as rich text (which is simple text with some formatting information) instead of HTML (which provides a richer formatting and media environment); in short, this means you are limited to changing the font and color settings of the text of the message. Other options let you add attachments and photos to your email message and save it as a draft.

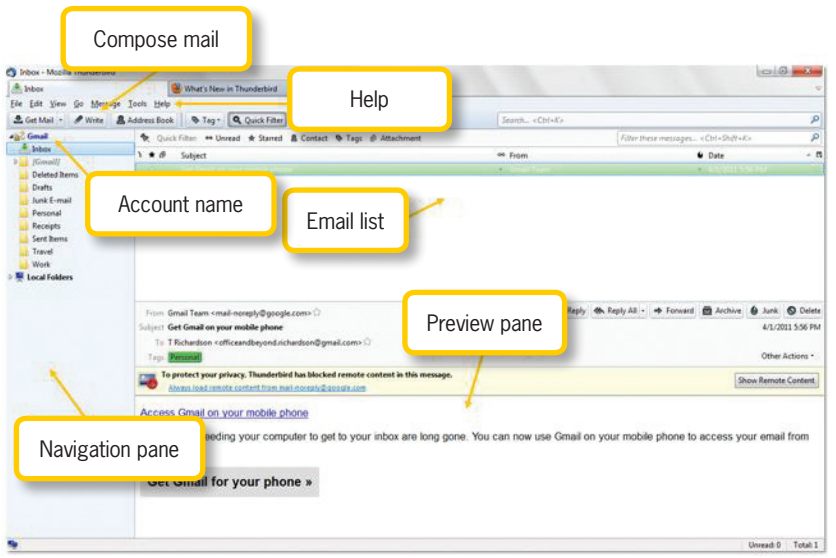
While the basic tasks of email creation and management can be accomplished with the limited email clients that are installed with some operating systems, more robust features give a higher level of convenience for performing daily tasks and managing a large volume of email. The Mozilla Thunderbird option is preferable to the more limited preinstalled clients in terms of productivity.

Mozilla Thunderbird

4.5.3

The Mozilla Foundation, the makers of the Firefox Web browser, offers a free email client for multiple platforms including Windows and Macintosh computers; this email client is called Mozilla Thunderbird. You can download Thunderbird from www.mozillamessaging.com/thunderbird. Thunderbird allows you to set up multiple email accounts and will configure most with just the email account and password. You will be prompted to add an account when you first start the software and will then be taken to the main Thunderbird interface, shown in Figure 4.16.

Thunderbird provides a significant advantage over Webmail access with the ability to save email to a file on your local machine. To do this, select a message, then



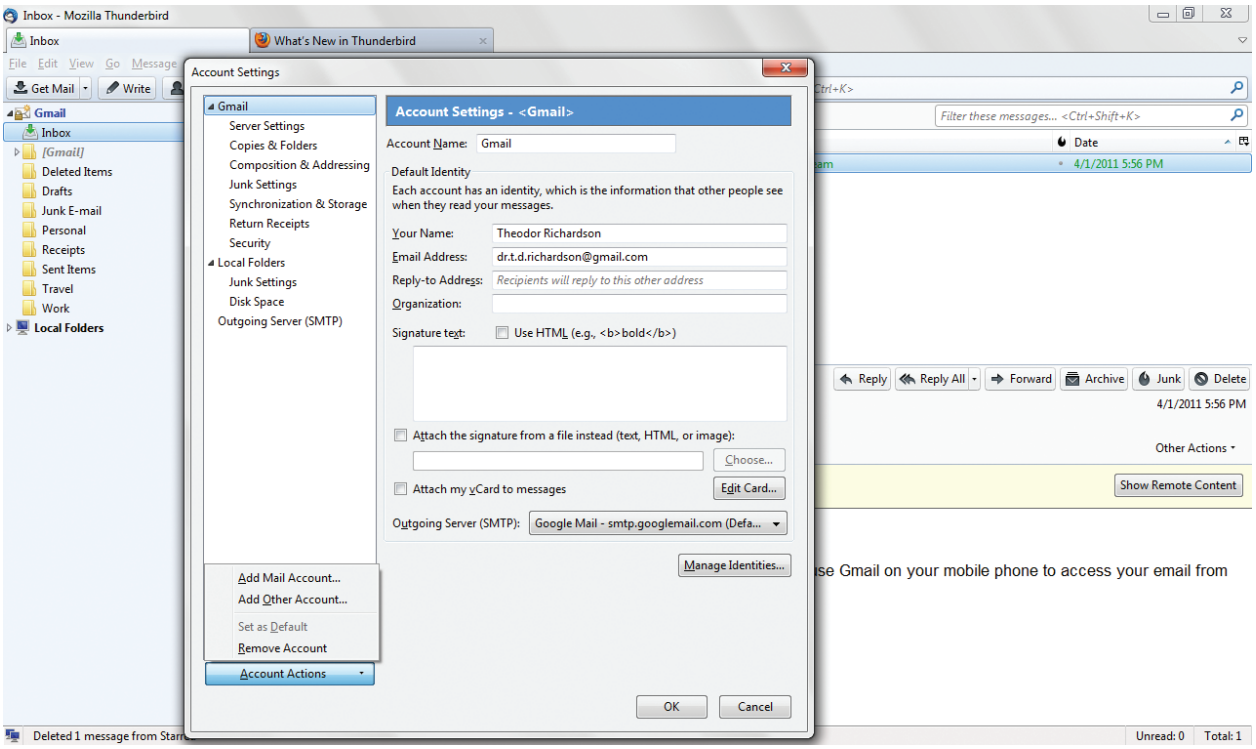
▲ FIGURE 4.16 Thunderbird interface

select the *File* menu, *Save As*, and *File* (you can also do this with the *Ctrl-S* shortcut on a Windows machine and the *Command-S* shortcut on a Macintosh machine). You can choose whether to save the message as a mail document, HTML, or simple text file.

To add more accounts or change account settings after you have configured your initial account, choose the *Account Settings* option under the *Tools* menu. From here, you can select the *Account Actions* menu to add or remove email accounts, as shown in Figure 4.17.

Email messages in any of your folders can be sorted by clicking the icons across the top that represent the field by which you want to sort (such as From or Subject). You can also switch to a threaded view, which will organize the messages by the inherent pattern of replies that they follow. To help organize and filter your emails, you can mark them with symbols like a star

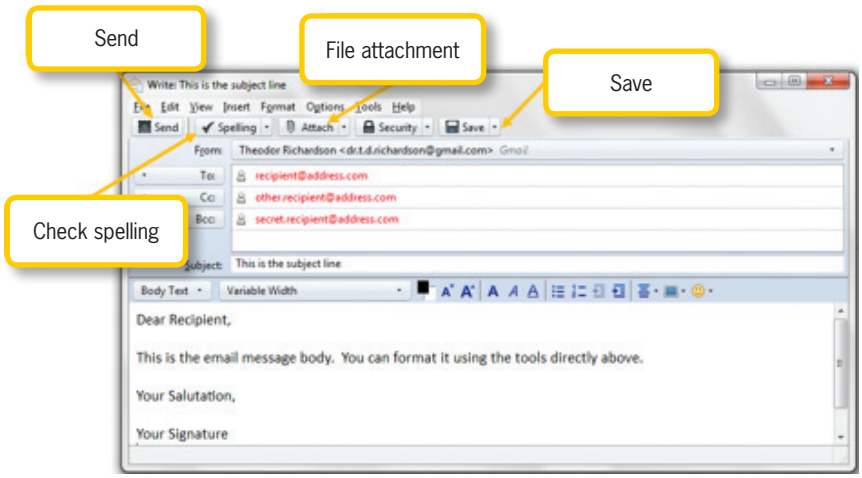
▼ FIGURE 4.17 Thunderbird account settings



or a tag. The search box at the top of the interface can help you search your email for a particular keyword or phrase. You can also apply a filter by keyword in the textbox below that.

There are several icons in the toolbar at the top of the interface. *Get Mail* lets you checks your account or accounts for any new mail that has been received, *Address Book* opens a new window that allows you to manage your contacts, and *Tag* places a color band on the selected message to draw attention to it and allow for easy sorting. Clicking the *Write* icon opens a new window (shown in Figure 4.18) where you can compose a new email message.

You can choose which fields from the header you want to include and format your text with a range of HTML commands. The normal options of setting the font, size, and color are available, along with the ability to change the text alignment and add images, hyperlinks, and emoticons to the body of the text. You can add attachments, save the message as a draft, and send the email message directly from this window.



▲ **FIGURE 4.18** Thunderbird email message composition window

One item worth noting is the Security feature in the message composition window of Thunderbird. This allows you to set up and use encryption to encrypt and decrypt messages; email is typically sent over the networks in plain text, so any information you send in an email message can be read by anyone who receives even a temporary copy of the packet on its way from the sender to the receiver. Windows Live Mail 2012 offers the ability to encrypt messages as well.

Activity 4.4— Deleting Email

Using an email client on your computer, compose an email and send it to your own account. When you receive the email, delete it using the email client. Now, access the Webmail client for your account. Is the email still located in the Webmail client? Where else does the email appear in your folders?

Connecting to Your Email Remotely

4.5.4

Most mobile phones with Web access can receive email messages from existing accounts. Smartphones, like the iPhone® and Android™ phones, have utilities to configure your email. You can set up remote access to your email with either POP3 or IMAP and SMTP. Most mobile devices have their own version of an email client (or a small mobile application called an app) that can configure a variety of accounts with the username and password for the email account. Microsoft Windows Live Hotmail and Gmail

by Google both have a mobile version available from the browser on your Web-enabled phone (regardless of the phone brand). Your email account provider can also give you the manual configuration details to set up remote email access on a mobile device. To set up a remote connection, you generally need the following information in addition to your email address and password:

- *Incoming mail server*—This is typically a POP3 or IMAP server hostname.
- *Incoming mail port number*—This is the port number on which the incoming mail is received.
- *Incoming mail security settings*—This can be set to no security, SSL, or TLS (Transport Layer Security); you may also have to set it to accept certificates for the connection.
- *Outgoing mail server*—This is usually an SMTP server hostname.
- *Outgoing mail port number*—This is the outgoing mail port, which is typically port 25.
- *Outgoing mail security settings*—These are the outgoing settings and may or may not be the same as the incoming security settings; options include SSL and TLS.

4.6 EMAIL ETIQUETTE

There are a multitude of thoughts on the Web about what constitutes proper email etiquette. You can conduct your own search to investigate this further, but there is a general consensus on some common tactics and practices that should be used in composing email messages. The following ten rules provide you with a suitable foundation for using email effectively and professionally:

1. *Always include a subject line and make sure it relates to the message contents.* The subject line is a preview of the message contents; therefore, it should explain in brief to the recipient what is contained in the message or what the message is about. A subject line should be short but descriptive.
2. *Only include recipients to whom the message is significant.* It is easy to get overburdened with the number of email messages that enter your account. You should consider this when you are sending an email and address it only to those individuals who are affected or would benefit from the message. If an individual is not involved in a situation, they should be left off of the communication. You should always avoid sending junk mail and you should never forward spam.
3. *Use To, CC, BCC, Forward, and Reply All properly.* You should use the *To* field for individuals who need to read the message to gain information or take some action in response. The *CC* field should be used for individuals who are impacted by the situation but who do not need to take direct action; this may include a supervisor in a situation where he needs to be kept informed. The *BCC* field should be used when you are sending information to a group; this is typically a hidden field so recipients will not see the email addresses of everyone in the group and they will not be bothered with a long list of recipients in the header of the message. You should only use the *Forward* function to send messages in which you have something to contribute or if a recipient was necessary but left off of the original distribution; the latter case will still require some explanation to the recipient. The *Reply All* function should only be used when you have

a significant contribution to share with the entire group; if this is not the case, individual replies are a much better alternative.

4. *Keep your messages short and to the point.* Email messages should not be used for lengthy explanations; those are better suited to phone calls or in-person meetings. Email messages are most effective when they are short and clear. If the recipient needs to take some action as a result of the email, it should be apparent. The recipient should never have to guess at the intention of your message or the next steps required.

5. *Make sure you address all questions in your response and curtail further discussion.* One approach to writing and responding to email is to have the goal of stopping the discussion with the current message. This means you should make sure any questions are addressed and any predictable questions are answered before you send the message. Failure to do this will slow down the communication and delay any outcome that is necessary from the communication.

6. *Use clear writing and a neutral tone in your message.* Your email messages should be clear; this means you should use proper sentence structure at all times and standard sentence casing. Changing the case in words makes the message more difficult to read. Because there is no tone in email, you should avoid irony and sarcasm; the context of the message and the tone with which you wrote it are lost, so your message should be neutral in tone with proper grammar and spelling.

7. *Never type in all capital letters.* Using all capital letters in an email message is the digital equivalent of shouting; it is considered rude to type in all capital letters.

8. *Check spelling in your email message before you send it.* Most Web browsers and email clients offer the option to check the spelling in any email message you are composing. You should be sure to take advantage of this to avoid any unnecessary typos that would diminish the professionalism of your communication. You should also make sure that you include proper punctuation to end sentences.

9. *Use attachments sparingly.* Large attachments can quickly fill an email inbox; typically, when an inbox is filled, it prevents the account owner from sending mail until the account is under the allowed limit again. This means you should be careful about sending a large attachment, especially when the recipient is not aware it is coming. It is considered a courtesy to send a short email notifying the recipient that a large attachment is on its way and asking if they are ready to receive it.

10. *Use appropriate priorities and avoid overusing words like "urgent" and "important".* Some email clients allow you to set the priority of the message. When doing so, you should not overuse the high priority setting if the actions needed are not actually urgent. Eventually, setting this priority flag to high will lose any meaning if you do it for most of your messages. You should also avoid words like "urgent" or "important" in the subject line. These detract from the overall content of the message and give no real preview of the subject. It is better to allow the content of the message to establish the urgency. In a real emergency situation, a phone call or in-person meeting is a much better option.

CHAPTER SUMMARY

This chapter covered the fundamentals of using email clients. Electronic mail is a convenient and efficient form of professional communication and it has become a standard for transmitting information in the modern business environment. If you do not have an email account, Gmail by Google and Microsoft Windows Live Hotmail are two alternatives for creating a free account to use for your communication needs. There are a variety of personal email clients available for use including those preinstalled on the computer for the operating system it uses. The ribbon interface described in this chapter for Microsoft Windows Live Mail will be seen throughout the rest of this book for the tools in the Microsoft Office suite of software programs, including the more robust Microsoft Outlook, which is an email client and productivity management software. The next few chapters of the book focus on the cloud computing and online file access as well as the first application in the Office suite, Microsoft Outlook.

CHAPTER KNOWLEDGE CHECK

1 The following are all examples of an email client except:

- ◯ **A.** Windows Live ID
- ◯ **B.** Microsoft Outlook
- ◯ **C.** Macintosh Mail
- ◯ **D.** Mozilla Thunderbird

2 A valid email address can contain all of the following characters:

- ◯ **A.** Uppercase letters
- ◯ **B.** Lowercase letters
- ◯ **C.** Numerical digits from zero to nine
- ◯ **D.** The underscore character
- ◯ **E.** All of the above
- ◯ **F.** None of the above

3 A valid email address can contain multiple full stop (or dot or period) characters.

- ◯ **A.** True
- ◯ **B.** False

4 A valid email address must contain at least one @ symbol and can contain more.

- ◯ **A.** True
- ◯ **B.** False

5 Most email clients provide the user with a built-in email account so there is no need to create a new account when you install an email client.

- ◯ **A.** True
- ◯ **B.** False

6 The following is a violation of the established rules for email etiquette:

- ◯ **A.** Using a descriptive and short subject line
- ◯ **B.** Using BCC for a large group email
- ◯ **C.** Typing a message or subject in all capital letters for emphasis
- ◯ **D.** Using Reply instead of Reply All for a large group email
- ◯ **E.** All of the above
- ◯ **F.** None of the above

7 A Webmail client typically offers all of the same features as a standalone email client installed on a computer.

- ◯ **A.** True
- ◯ **B.** False

8 Which of the following is true of all email clients and Webmail clients discussed in the chapter?

- ◯ **A.** They can send email from an existing account.
- ◯ **B.** They allow file attachments in an email.
- ◯ **C.** They allow HTML formatting for email content.
- ◯ **D.** All of the above
- ◯ **E.** Both A and B
- ◯ **F.** None of the above

9 Most email clients allow email messages in the following formats:

- ◯ **A.** Plain text
- ◯ **B.** Rich text (text with some formatting)
- ◯ **C.** HTML

- ◯ **D.** All of the above
- ◯ **E.** None of the above

10 The following is a valid email address for Microsoft Windows Live Hotmail:

- ◯ **A.** mY_great_eMail@gmail.com
- ◯ **B.** hey!email-me!@hotmail.com
- ◯ **C.** my.great.email@live.com
- ◯ **D.** All of the above
- ◯ **E.** None of the above

CHAPTER REVIEW QUESTIONS

1 What are some examples of information that might be inappropriate to include in an email or might be unsafe to send via email?

2 What types of communication barriers exist in emails?

3 What are the differences in the construction and design of a personal email versus a professional email?

4 What are good practices for developing dynamic passwords?

5 Why is it considered unprofessional and inappropriate to type in all capital letters in email? Use the Web to research and support your answer.

6 Give an example of an emoticon and what it means. When would this type of inclusion be inappropriate in an email environment?

7 Describe in your own words how email has increased the efficiency of communication in either business or personal interaction.

8 Give an example of when you would use CC and BCC when sending an email. Briefly explain the difference between the two.

9 Give examples of the types of attachments you would include in an email to a friend. How would this differ from attachments you would include in a business email?

10 Why is it important for email to have the date and time the message was sent? When would this information be useful in a business setting?

PRACTICE EXERCISES

1 Create a list of possible email address local parts that you could use as a personal account to register with a free Web email provider. Choose an email account provider and register one of the addresses from your list. Compose an email containing the possible local parts in your list and explain why you chose the particular address you did and the particular service. Send the email to your new account and save it to a local file using an email client. Make sure the message conforms to email etiquette practices, including the subject line.

2 Today many professionals and individuals alike access their email from a phone. Using a phone with Web access, setup remote email access on your mobile device. If you do not have access to a mobile device, simply choose a mobile device and research the instructions for setting up email. Using either method, write an email that describes the necessary steps for enabling email on a mobile device. In your email you will want to include the following: The incoming mail server, incoming mail port number, incoming mail security settings, outgoing mail server, outgoing mail port number, and outgoing mail security settings along with the email client and mobile device used.

3 Use the following terms to fill in the blanks below: Message-ID, BCC, From, Subject, To, Date, CC

- **A.** _____ **This is the address of the sender. In most email clients, this is not an editable field.**
- **B.** _____ **This is the send date of the message. In most email clients, this is not an editable field.**
- **C.** _____ **This is an automatically generated identification value that is used to identify the email message.**
- **D.** _____ **This identifies the primary recipient or recipients of the email message; this field is composed of email addresses separated by a comma or semicolon.**
- **E.** _____ **This stands for Carbon Copy; this is used to send mail to someone involved in the circumstances described in the message body but who is not directly involved or does not need to take direct action.**
- **F.** _____ **This stands for Blind Carbon Copy; this will (in most email clients) hide the addresses of the person or persons listed in this field from other recipients. This should be used for large groups to help protect email addresses and keep the message header size small.**
- **G.** _____ **This is a short description of the contents of the message.**

4 Compare a Webmail client to an email client installed on the computer. In general, what are the main features that differ between the two? Which one would be more useful at home or in the office? When would you use the Webmail client directly?

5 Compose an email to your instructor outlining the steps you took to register your email account. Include an appropriate subject, introduction, salutation, and signature. Copy yourself on the message via the CC field.

CHALLENGE EXERCISES

1. Using your chosen email account, develop a signature that will be attached at the bottom of every email as your closing. It should include a salutation, your name, school name, area of study, and email address. You may include additional information, but be careful in sharing any additional, personal information over an email. Then, construct an email according to the proper format. Include the steps for creating a signature in the body of your email. Finally, insert your signature onto the developed email.

2. Use the calendar available in either your email client or your Webmail client to set an appointment to read the next chapter. Include any additional email accounts you use in the list of recipients. Include a description, location, and resources for the event. If you are using this book as part of a course, include your professor in the invitation list. Set a reminder for the event (if your email client supports them) for 15 minutes prior to your appointment.

3. Compose a new message and include your own address in both the CC and BCC fields. When you send it, you should receive two copies of the message. Compare the two copies to see if you can identify which one was sent to you via BCC. Based on your observations, what is the benefit of using BCC? Is there any way to detect when someone has been copied BCC on an email?

4. Using the Web and the contents of this chapter, explain when someone should be included in the CC field instead of the To field in an email message. Why does this distinction matter and what message does it send to the recipient when they are included in each category?

5. Describe the benefit of using a standalone mail client installed on the computer if you only have one email account to manage and it has a Webmail client. Using specific examples, identify the features that are available in the standalone email client that are not available in the Webmail client. Are there any features available in the Webmail client that are not included in the standalone client?

CHAPTER
5

Microsoft OneDrive and Cloud Computing

IN THIS CHAPTER

With the increasing power of the Internet and the decrease in cost of server space, a new paradigm for data storage has arisen in cloud computing. Cloud computing is a means to remotely store or process data on a server so you can access it anywhere you have a connection to the Internet. Microsoft's cloud service, OneDrive, allows you to store your files remotely from your desktop or from any of the common Microsoft Office applications. This chapter covers the basics of creating an account in the cloud and using it to enhance your own productivity. Once you complete this chapter, you will be able to:

- Create an account with Microsoft OneDrive
- Store and retrieve files from your cloud storage location
- Connect your desktop to your cloud storage
- Integrate your OneDrive account with Microsoft Office

5.1 CLOUD COMPUTING

Cloud computing is the use of remote resources to process information or store files. The benefit of cloud storage is the ability to connect to these files and folders wherever you are as long as you have a connection to the Internet. This frees you from using one machine or carrying the files on physical storage media from place to place. This can also be a beneficial backup for meetings or presentations where you may need to access a secondary copy of a file if the storage media fails or you do not have your original computer with you. As Internet connectivity becomes more advanced and storage space on servers becomes cheaper, cloud computing and cloud storage have become much more popular options for file management.

Even though cloud computing is convenient, there is a security risk with storing your files outside of your computer. You should keep this in mind with the type of information and documents you place in your cloud storage system. Do not store anything containing personal information like your social security number or bank account information in the cloud; it is too easy for it to become compromised or to be intercepted over the network as you store or retrieve it.

5.2 MICROSOFT ONEDRIVE

Microsoft OneDrive is a free cloud storage service from Microsoft. It integrates with both the Windows and Macintosh desktop systems and allows for access on remote devices like smart phones and tablets. The free version of OneDrive comes with 7 GB of storage, but you can pay to upgrade this if you have higher needs than this. OneDrive also allows access to the Web app versions of Word, PowerPoint, and Excel.

If you have setup a Microsoft Windows Live Hotmail address, the login and password you use for that will serve as your account on OneDrive as well.

Creating a Microsoft Account 5.2.1

OneDrive can be accessed from the Web at *www.OneDrive.com*; this will reroute you to a custom URL where you can login or create an account. The interface for the OneDrive homepage is shown in Figure 5.1. If you have a Microsoft account, you can login with it at this page to access the OneDrive without creating a new account.

If you do not have a Microsoft account, you can create one for using the OneDrive by clicking the Sign up now link at the bottom of the screen. When you click this link, it will redirect you to the page where you can setup a Microsoft account.

FROM SKYDRIVE TO ONEDRIVE

Microsoft's cloud computing platform was previously called SkyDrive. This is the same service that is now called OneDrive; it has simply been rebranded. You may encounter the term SkyDrive on platforms that have not been fully updated, but rest assured you are accessing the same system with all of your saved files.

This process is similar to creating a Microsoft Windows Live Hotmail account, in which you must create a username, password, and enter some identifying details like

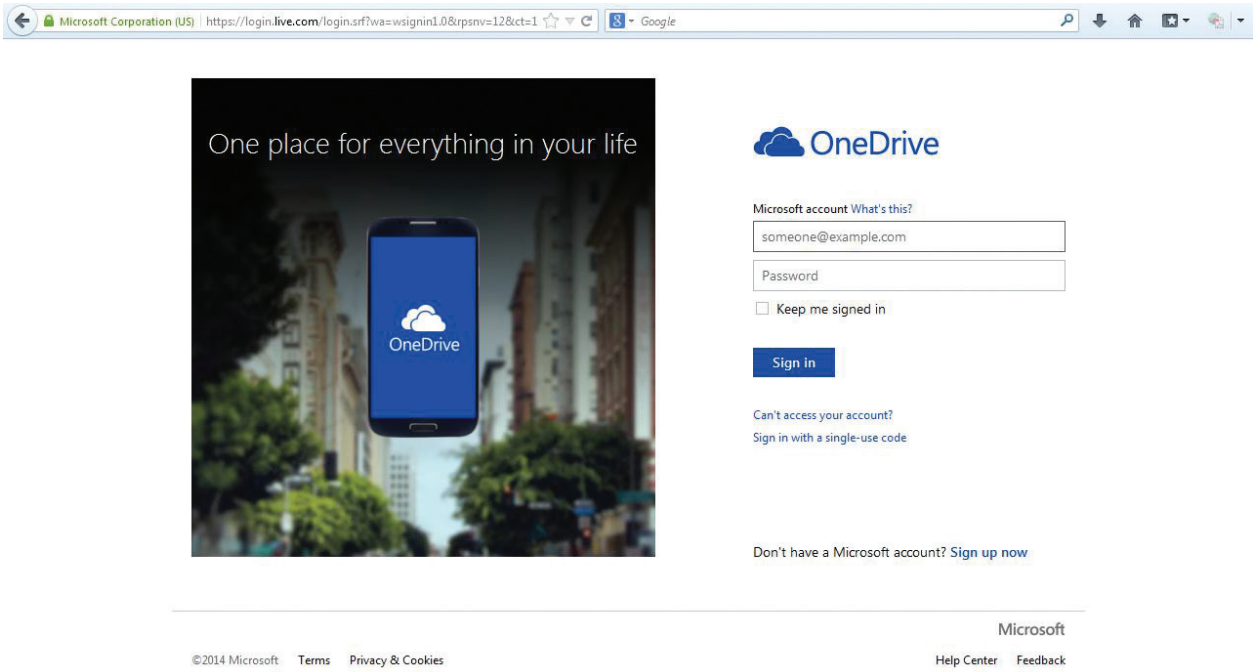


FIGURE 5.1 OneDrive homepage

your address and an additional form of contact that can be used to verify the account. Once you have completed this process, you can click the *Create account* link and you will be able to access your OneDrive account.

The OneDrive is linked directly to the email associated with the Microsoft account and it requires only a password to access. You should consider this in both setting the level of security on your password (i.e., the password complexity and length) and the type of files that you add to your OneDrive because password security is relatively easy for attackers to bypass.

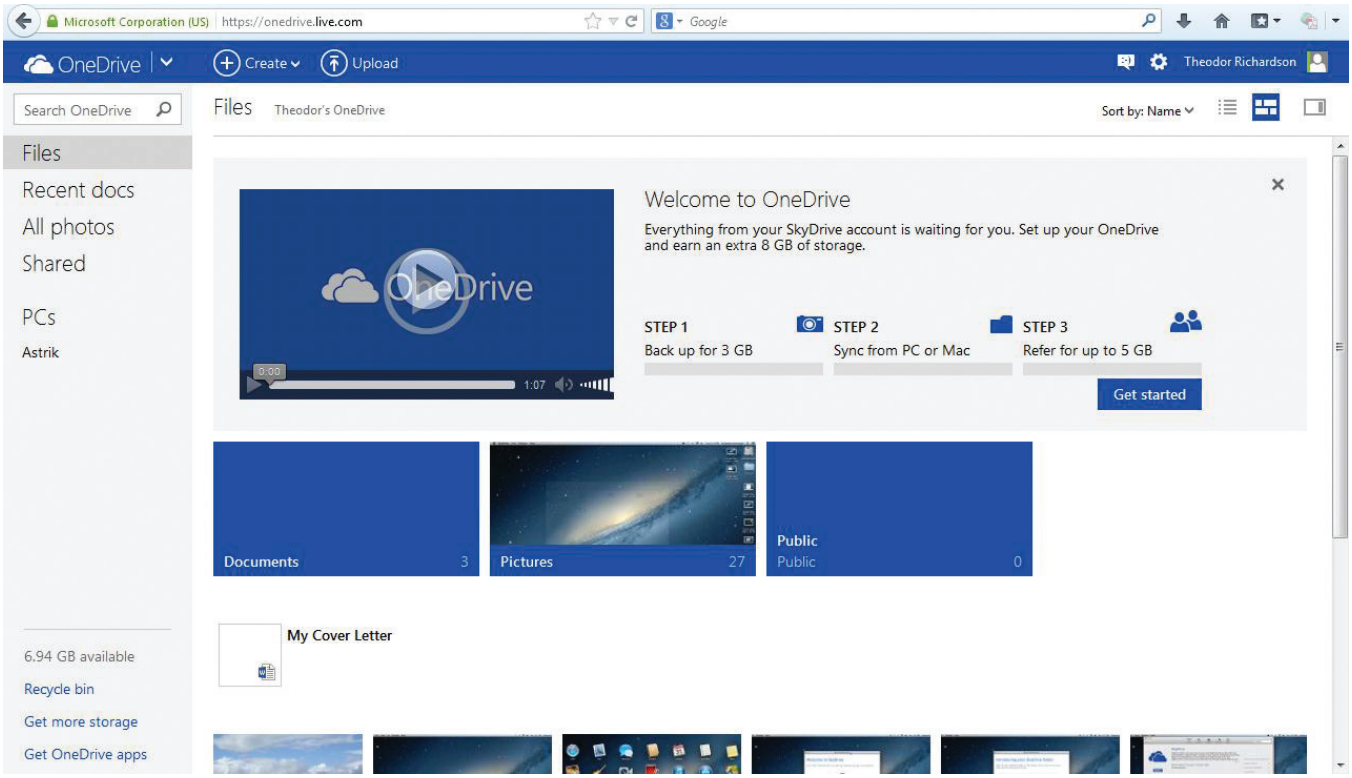
Activity 5.1—The OneDrive Interface

For this activity, you should create a Microsoft account if you have not yet done so. Using your account, login to the OneDrive using the Web interface at www.OneDrive.com. *Explore the interface and identify the method for either creating a new file on the OneDrive from any of the Web apps available. You do not need experience with the Office applications to do this successfully; you only need to create and save the file as practice. When prompted, save the file as* Activity5_1.

Uploading and Downloading Files

5.2.2

When you enter your Microsoft account email and your associated password after your account has been verified, you will see the homepage for your OneDrive. You can see an example of this in Figure 5.2. This interface allows you to upload new files, manage files stored on your OneDrive account, and download files to the machine you are using.

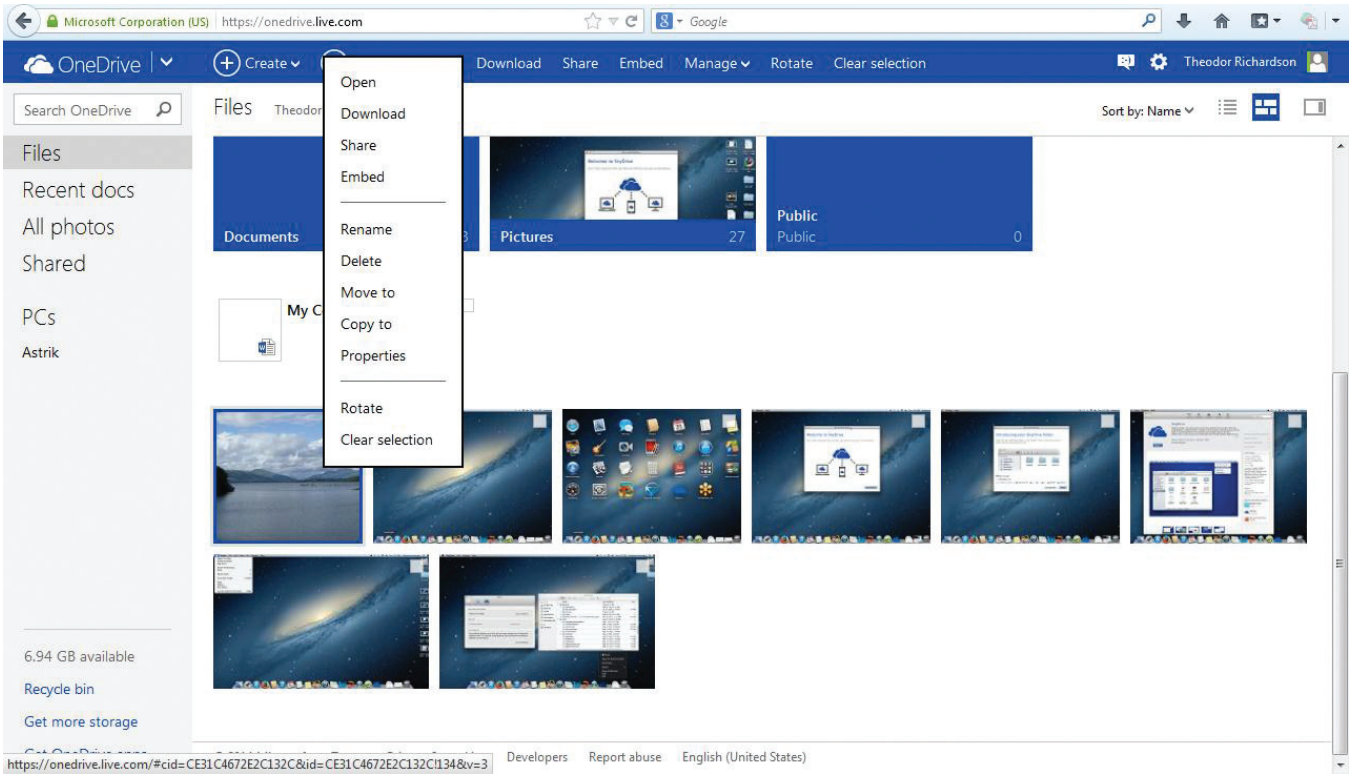


▲ **FIGURE 5.2**
OneDrive Web interface

In order to upload a file, just select the *Upload* link at the top of the interface. This opens a standard file selection interface for your OS where you can select the file you want to store on your OneDrive. Once you have chosen a file, the upload will begin. The progress for this will be shown at the top of the interface, and an icon representing the file type (or a preview in the case of a photograph) will appear in your file list. Clicking on this icon will allow you to manage the file. This opens a context-sensitive set of options along the top of the interface, as shown in Figure 5.3. You can also right-click the icon to open a menu of options as well, which is also shown in Figure 5.3.

You can download the file from either the top interface's *Download* link or the right-click menu. You can share the file using the right-click menu and choose *Share* or you can select *Manage* and then select the *Share* option in the pane that opens. The *Share* menu allows you to get a link to the item to distribute yourself or choose recipients for the file and OneDrive will email them a link to the item. You can set permissions on the link for whether you want them to have editing capabilities or not. The file properties will show you the share settings for the file.

You can also use the *Create* icon to access the Web app versions of Word, PowerPoint, and Excel. This will create a new document and save it to your OneDrive account for later use. The Web apps will be discussed later with the respective application, but in general they are more condensed versions of the standalone software with only the core functionality.



▲ **FIGURE 5.3**
File management in OneDrive

Activity 5.2—Uploading Files

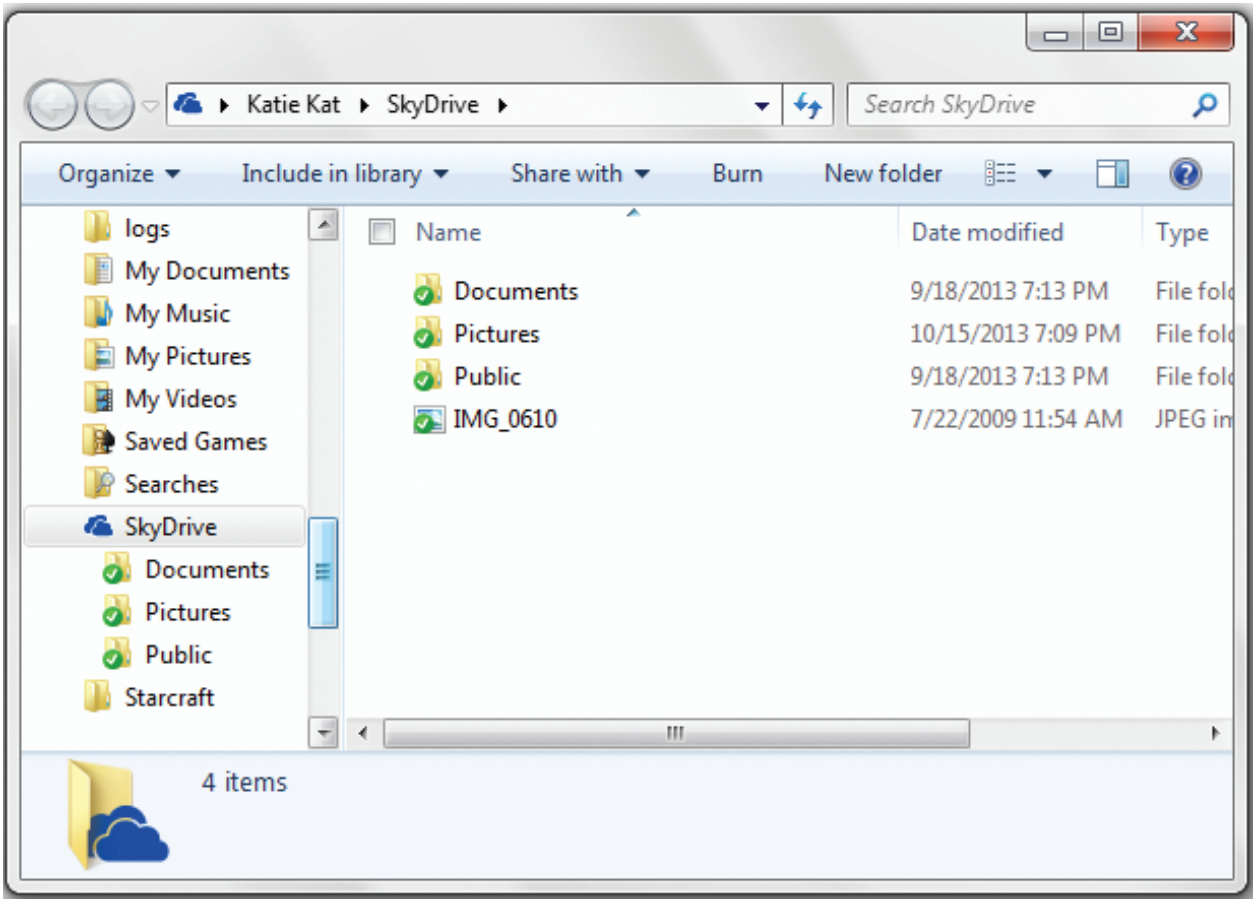
For this activity, you should login to the OneDrive using the Web interface at www.OneDrive.com. *You should then choose a file from your desktop to upload to your OneDrive. You should not choose anything that contains sensitive or personal information. When you have selected the file, upload it to your OneDrive. Using the options available in the Share settings, create a link to the file. Paste the link in another tab or window in your Web browser. What happens when you visit the link? What options do you have to set the permissions on the file from your OneDrive interface?*

INTEGRATING ONEDRIVE WITH THE DESKTOP 5.3

In addition to the Web application for OneDrive, you can integrate OneDrive into your OS desktop environment for easier interaction. This will allow you to place files to be uploaded into the *OneDrive* folder and it will synchronize the contents with your OneDrive account as you specify. The integration process is slightly different for each OS, as described in the following sections.

OneDrive on Windows 7 5.3.1

When you install Microsoft Office 2013 on your Windows machine, it will install



▲ FIGURE 5.4 OneDrive integration in Windows 7

OneDrive Pro 2013 which allows you to set the URL for your OneDrive library which will synchronize with the application. You can also install the Microsoft OneDrive application from *http://windows.microsoft.com/en-us/OneDrive/download#apps*. This will allow you to use your OneDrive just like any other folder on your OS, as shown in Figure 5.4.

You can connect your OneDrive Web application to your PC to allow you to access any files from your PC as long as it is turned on and connected to the Internet. This is a risk depending upon the type of information that you store on your computer because the security of the connection is only as strong as your OneDrive password. It is safer not to enable this option, but it does provide a convenience if you do allow it.

OneDrive on Windows 8

5.3.2

In addition to the installed standalone application for OneDrive that is available on Windows 7, a Windows 8 app version of OneDrive is available for use as well. This can be downloaded from the Windows 8 app store and it will appear in the Start screen. The interface for this app is shown in Figure 5.5. It functions similarly to the Web app version and allows you to directly upload and download files to and from your OneDrive and your computer.

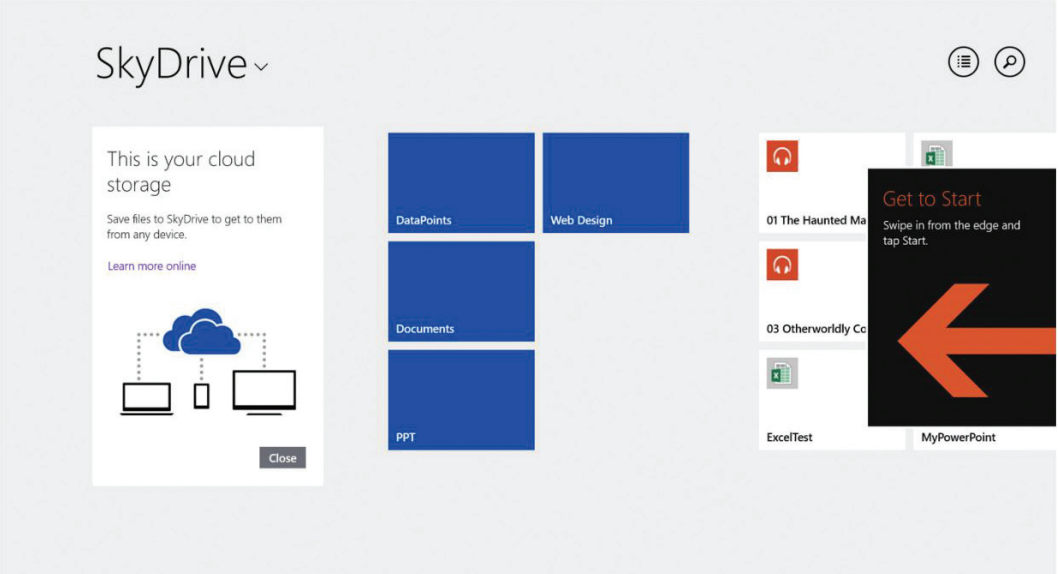


FIGURE 5.5
Windows 8 OneDrive app

5.3.3 OneDrive on Mac OS X

OneDrive is also compatible with Mac OS X. To add OneDrive to your Mac, open the App Store and search for "OneDrive." This will allow you to install the application on your system and add an icon for managing the OneDrive to your Dock. The application will create a folder on your system that is connected to your OneDrive. This folder acts like any other but it uploads the contents to your OneDrive account. You can see an example of the *Dock* icon and the OneDrive application in action on a Mac in Figure 5.6.

FIGURE 5.6
Mac OS X OneDrive icon and connected folder

Activity 5.3— Integrating OneDrive

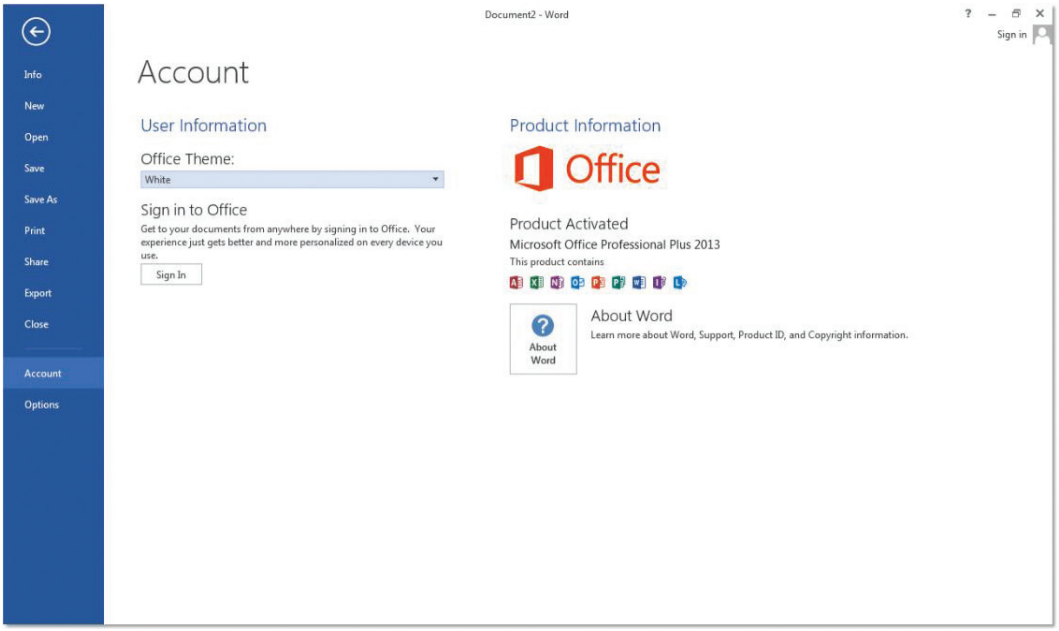
For this activity, you should install OneDrive on your OS. Using a different file or the same file from the previous activity, you should place a file in the OneDrive *folder that is now present in your OS. Revisit your OneDrive through the Web interface after a few moments (long enough for the file to upload). Does the file appear? How is it organized within your OneDrive account? Practice the process of downloading the file from the OneDrive Web interface to your desktop.*

5.4 INTEGRATING ONEDRIVE WITH MICROSOFT OFFICE

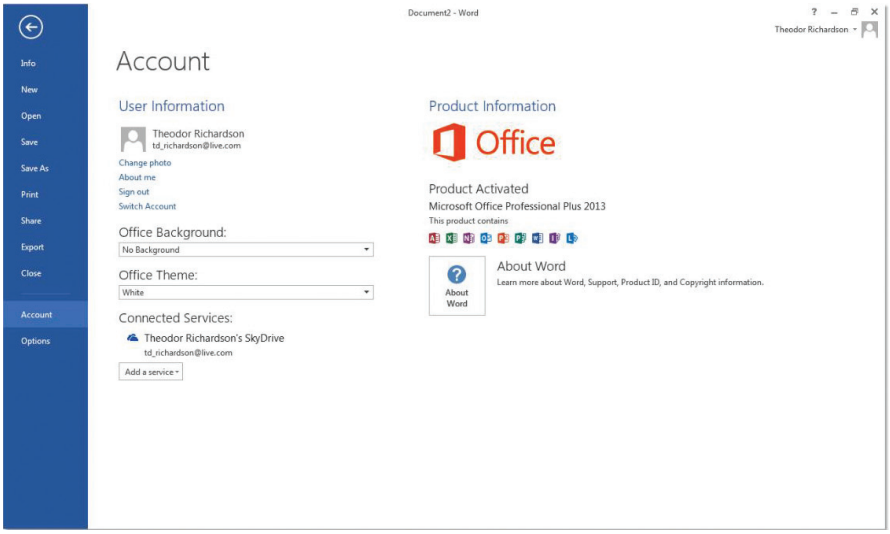
Microsoft Office 2013 has direct integration with a Microsoft account and the OneDrive. When you sign into your Microsoft account with any Office program, the OneDrive becomes available as a storage location to open or save files from the *File* menu, just like any other folder on your machine. This is supported by all of the primary productivity programs: Word, Excel, and PowerPoint. When you sign into your Microsoft account on one of the Office programs, the account will be saved for the rest of the Office suite as well for whenever you open a different program.

To sign into a Microsoft account from a Microsoft Office application, such as Word, select the *File* menu and choose the Account option. This will open a screen similar to Figure 5.7. Choosing *Sign In* will prompt you to enter your Microsoft account email address and password.

When you have successfully signed into your Microsoft account, you can change the appearance of your programs, including the theme and background. You can also choose



➤ **FIGURE 5.7**
Account settings in Office 2013



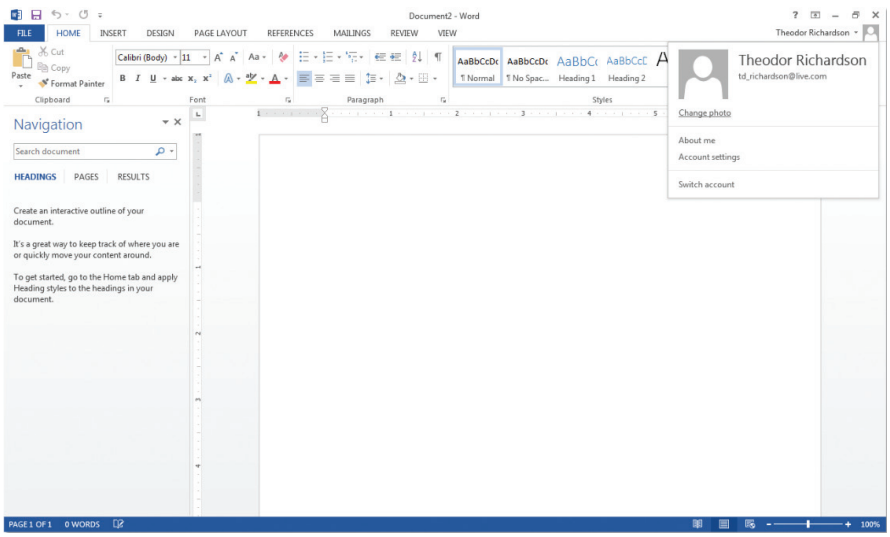
◀ FIGURE 5.8
Account options in Office 2013

the *Add a service* option to connect to your OneDrive to use it as a storage location directly from the *File* menu.

When you return to your document or file, you will see your name in the right corner of the interface. You can click on your name to open a dropdown box with account options as shown in Figure 5.9. This is primarily cosmetic in appearance aside from the use of the OneDrive for storing and retrieving files.

Activity 5.4—Saving a file to the OneDrive

Using the program that you opened to add your account, save the file you created to your preferred document location. Using either the integrated OneDrive location or the folder you established on your OS, save the file to your OneDrive. Connect to the OneDrive and open the file from the remote location. What options are provided to you



◀ FIGURE 5.9
Account menu in Word 2013

for opening the document? Is there another way to open the document in the desktop application? How is this beneficial?

5.5 ACCESSING ONEDRIVE ON A REMOTE DEVICE

OneDrive is also available for iOS and Android mobile devices. It is located in the iTunes app store for iOS devices like the iPhone and iPad, and it can be found in the Google Play store for Android. In both cases, it can be found by searching for "OneDrive" in the search box. When installed, it allows you to access the features of OneDrive for managing and sharing your files. The login for this is the same as accessing the Web interface; you simply use your Microsoft account and the password you selected.

OneDrive is the only common cloud service that is available to use on a Windows smart phone.

The mobile versions are primarily for managing and viewing photos and videos, but you can download documents for use in other programs. The upload and sharing features are optimized for the smaller screen in both of these versions so it will work efficiently with a smart phone.

5.6 ALTERNATE CLOUD COMPUTING PLATFORMS

Microsoft is not the only company that provides free cloud storage. However, if you use Office in any significant way, it does have the advantage of integrating with that software system and provides you with a Web app interface that should be familiar. Different companies have different benefits and services associated with their cloud storage. Some cloud computing systems cost money to use but may provide a higher level of security or a higher storage capacity. Some of these charge on a monthly basis while others are free. The two alternatives that most closely reflect the purpose and use of OneDrive are Google Drive and iCloud by Apple.

Google Drive 5.6.1

Similar to the relationship between OneDrive and a Microsoft account, Google Drive is automatically enabled for free with a Google account. Google Drive provides 15 GB of free storage as well as separate access to the Google productivity apps for creating new word processing, spreadsheet, and presentation documents. Google Drive can be similarly integrated into most computing environments, but it is focused primarily on document storage and transfer. Google Drive is not optimized for sharing photos and videos.

iCloud 5.6.2

iCloud is Apple's cloud computing platform. It is included in their OS by default. It allows for 5 GB of free storage for certain file types, like photographs. If you want to store additional file types, you need to purchase other software like iWork. iCloud is accessible on PCs as well as remote devices through a control interface that allows for file upload and download, similar to other cloud services. Additional storage space is available for purchase.

CHAPTER SUMMARY

This chapter covered the basics of cloud computing, primarily for storing and retrieving files remotely. Microsoft OneDrive was covered more extensively for its integration into the Microsoft Office suite and the access it provides to the Web app versions of the common Office productivity applications. OneDrive integrates directly with Office 2013 as a direct storage location and it is supported on Mac and Windows computers. The next chapter will begin the coverage of productivity software with Microsoft Outlook, which manages email and provides productivity aids like a calendar, contacts, and task list.

CHAPTER KNOWLEDGE CHECK

1 Sharing a file from the OneDrive always allows anyone with a link to overwrite the file.

- ◯ **A.** True
- ◯ **B.** False

2 The Microsoft OneDrive can be accessed on _____.

- ◯ **A.** The Web
- ◯ **B.** A Windows desktop
- ◯ **C.** An iPad
- ◯ **D.** All of the above
- ◯ **E.** None of the above
- ◯ **F.** A and B

3 Files on the OneDrive can be unshared, meaning the account owner is the only one who can access the file.

- ◯ **A.** True
- ◯ **B.** False

4 A file uploaded to the OneDrive from a Mac will not be accessible on a Windows machine.

- ◯ **A.** True
- ◯ **B.** False

5 Only certain file types can be uploaded to the OneDrive.

- ◯ **A.** True
- ◯ **B.** False

6 Microsoft allows you to upgrade your storage size on the OneDrive for a cost.

- ◯ **A.** True
- ◯ **B.** False

7 The OneDrive provides _____ GB of storage space for free.

- ◯ **A.** 2
- ◯ **B.** 5
- ◯ **C.** 15
- ◯ **D.** None of the above

8 Connecting your Microsoft account to the Office applications allows you to _____.

- ◯ **A.** Customize the interface of the Office applications
- ◯ **B.** Save files to the OneDrive
- ◯ **C.** Store the Office application in the cloud so it can be used anywhere
- ◯ **D.** All of the above
- ◯ **E.** None of the above
- ◯ **F.** A and B

9 The OneDrive app on Android allows you to create new Office documents.

- ◯ **A.** True
- ◯ **B.** False

10 A Microsoft Windows Live Hotmail account is required to access the OneDrive.

- ◯ **A.** True
- ◯ **B.** False

CHAPTER REVIEW QUESTIONS

1. Explain in your own words why cloud computing is beneficial in the modern world of interconnectivity. Give examples to support your conclusions.

2. Why is password security a risk for connecting to a cloud computing account? Give examples to support your conclusions.

3. What is the benefit of connecting to the cloud on a mobile device that does not have productivity software installed? Give two examples of when this would be useful.

4. Explain the benefit of using OneDrive to share a photograph instead of using social media like Facebook. Give examples to support your answer.

5. Explain a benefit of connecting a Microsoft account to the Microsoft Office programs other than storage on the OneDrive.

6. Explain why it is useful to connect the OneDrive to your computer when the Web interface is available on the same machine. Give examples to support your answer.

7. What other functionality would be useful in a cloud environment other than file storage and retrieval? Explain your answer.

8. Explain why it is useful to have access to the Web app versions of Microsoft Office in connection with the OneDrive. When would this be useful?

9. Explain the benefit of using one cloud storage service for all of your devices. Give examples to support your answer.

10. Give an example of a business file or folder that you would share in order to enhance productivity. Explain how sharing this would provide a better result than emailing the file.

PRACTICE EXERCISES

1. Use the Web interface for the OneDrive to create a new Word document. Save the file to your OneDrive using the menus available. Create a link to share the document. Explain the different options that you have for sharing the document. When would each one be used? Give examples to support your answer.

2. Upload a picture to your OneDrive and open it in the Web interface. If you do not have one of your own, you can use the Web to locate an image that you may use. What options are presented that are unique to images? In your own words, explain why the mobile versions of the OneDrive are optimized for image and video sharing.

3. Use the desktop version of OneDrive to upload a file to your account. Download the file using the Web interface. Explain the steps that it took to complete this cycle. Complete the process in reverse, uploading the file through the Web interface. Does the uploaded file appear in the *OneDrive* folder on your desktop? How does the process differ for this path?

CHALLENGE EXERCISES

1. The exercise requires access to at least two computers. Upload a file to the OneDrive and open it on another machine. How does the interface compare between the two versions of the OneDrive? Are there any differences in the file and how it appears on the two machines? If so, what would explain this?

2. Using the Web, explain briefly why passwords are not the highest level of security. How should this influence the material that you connect to your OneDrive? What consequences would arise if all of the files on your entire computer were accessible on your OneDrive account?

3. Microsoft and Apple are competitors. Explain why it is beneficial to Microsoft to support the use of their product on a Mac. Similarly, explain why Apple should support its cloud storage system on a PC. How is computing unique for this type of competition?

4. Create a Google account to access Google Drive. Compare the interface and options of Google Drive to the OneDrive. Which of these is a better system for cloud storage? Use specifics to justify your conclusion.

CHAPTER
6

Microsoft Outlook® and Productivity Management

IN THIS CHAPTER

Now that you have an understanding of electronic mail, or email, it is time to explore the first application in the Microsoft Office suite of productivity programs, Microsoft Outlook. Outlook is primarily an electronic mail client, but it also serves as a tool for productivity management, which includes additional tasks such as managing your calendar, maintaining your task list, and housing a contact list. Outlook is a common program in the workplace for communication and scheduling. Once you complete this chapter, you will be able to:

- Manage email accounts in Microsoft Outlook
- Manage calendar events such as meetings and appointments
- Maintain a contact list
- Add items to a list of tasks to manage and complete

6.1 MICROSOFT OUTLOOK

Microsoft Outlook is a professional email manager and productivity tool; it is a commercial version of an email client that adds functionality beyond just writing and managing email. Outlook allows you to not only manage your email (from one or multiple accounts) but also use a personalized calendar to keep track of events and meetings, manage your contact list, keep track of your tasks (which functions just like a to-do list), and manage notes (which are the digital equivalent of sticky notes). Outlook is part of the Microsoft Office program suite and is included with both Microsoft Office 2013 for Windows machines and Microsoft Office 2011 for Macintosh machines.

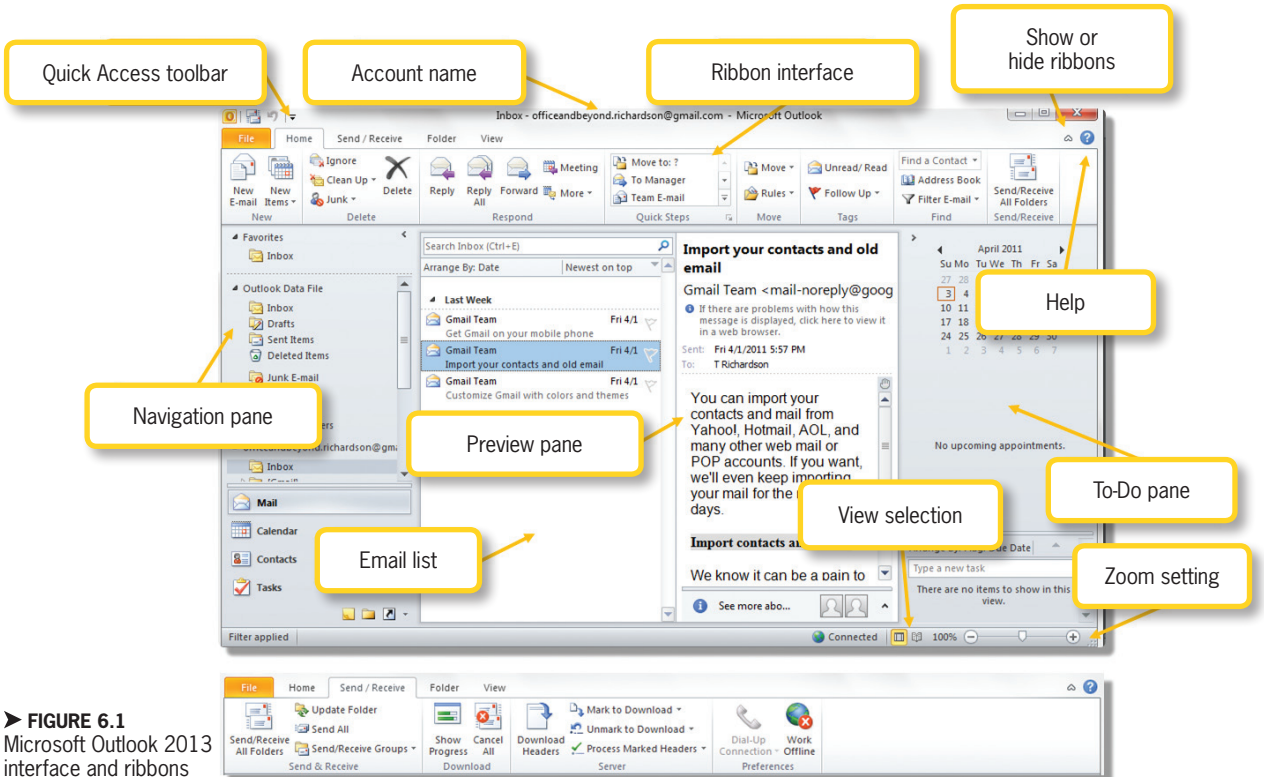
Outlook 2013 utilizes the ribbon interface structure. When you first start the program, it will prompt you to enter your email address and the password for that email account. Outlook will then attempt to automatically configure the account, determining the servers and settings associated with the incoming and outgoing messages. Your account provider can give you this information so you can enter it manually if Outlook cannot perform the configuration automatically. You are then taken to the main interface of the Outlook software. While the functionality of the software is consistent, the appearance of Outlook 2013 and Outlook 2011 are different. Both of these versions use the ribbon interface.

Anatomy of Microsoft Outlook 2013 6.1.1

The main interface of Microsoft Outlook 2013 is shown in Figure 6.1. The ribbons along the top allow you to perform tasks specific to each of the elements with which you are working. These ribbons change to match the context of whatever you select as active on the left side of the window (called the Navigation pane), whether it is Mail, Calendar, Contacts, Tasks, or Notes. The second icon at the top left of the interface is Send/Receive All Folders; this option is also accessible from the *Send/Receive* ribbon or by pressing the *F9* key. The Help icon is located on the far right of the interface and it is also accessible by pressing the *F1* key.

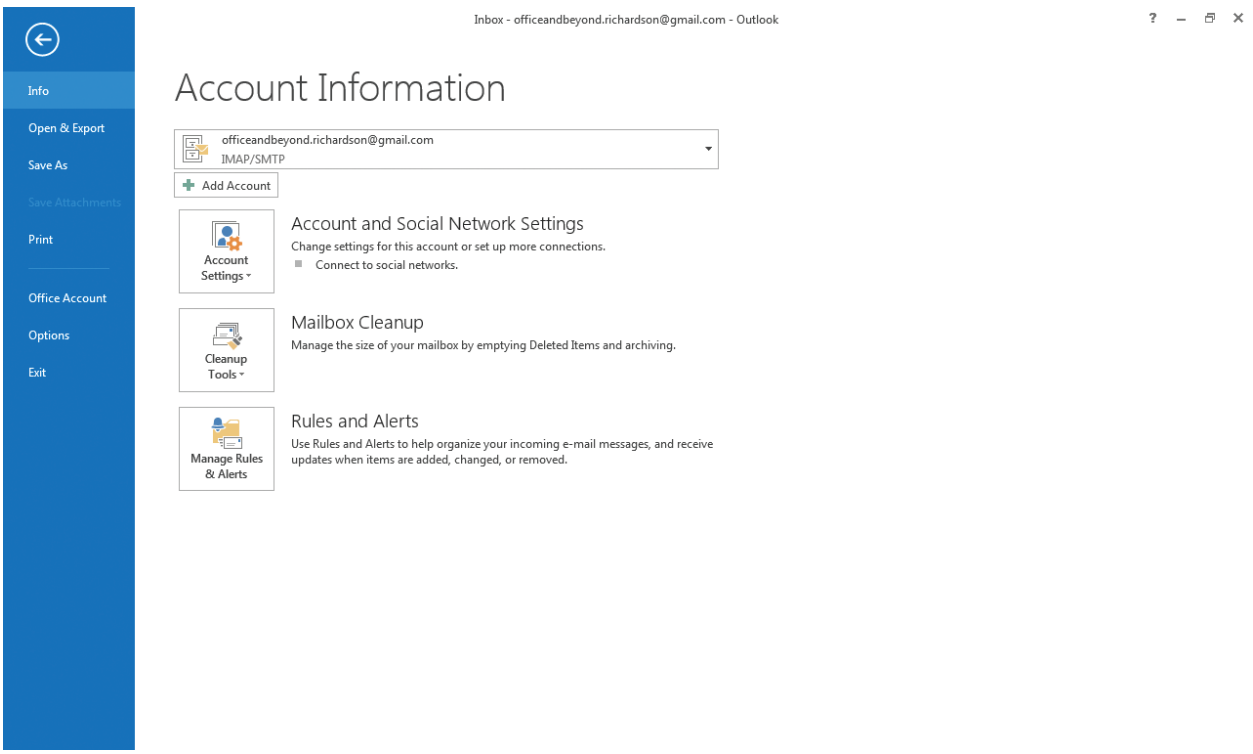
The *Send/Receive* ribbon is constant, allowing you to get new mail for your connected accounts and send mail that was written offline. You can also switch from working offline to working online by clicking the *Work Offline* icon (the state is determined by whether the icon is highlighted). When Mail is active in the Navigation pane, there are a few additional options on the Server panel in the *Send/Receive* ribbon that allow you to determine how you want to download information for the current email message or the current folder of email messages.

The *File* menu, located to the left of the ribbons, is shown in Figure 6.2. This is the menu you will use to adjust the settings on the default account that was set up when you started the software. To change any of the configured settings, click on *Info* in the left-hand menu and select the *Account Settings*



➤ FIGURE 6.1
Microsoft Outlook 2013 interface and ribbons

➤ FIGURE 6.2
Outlook 2013 File menu



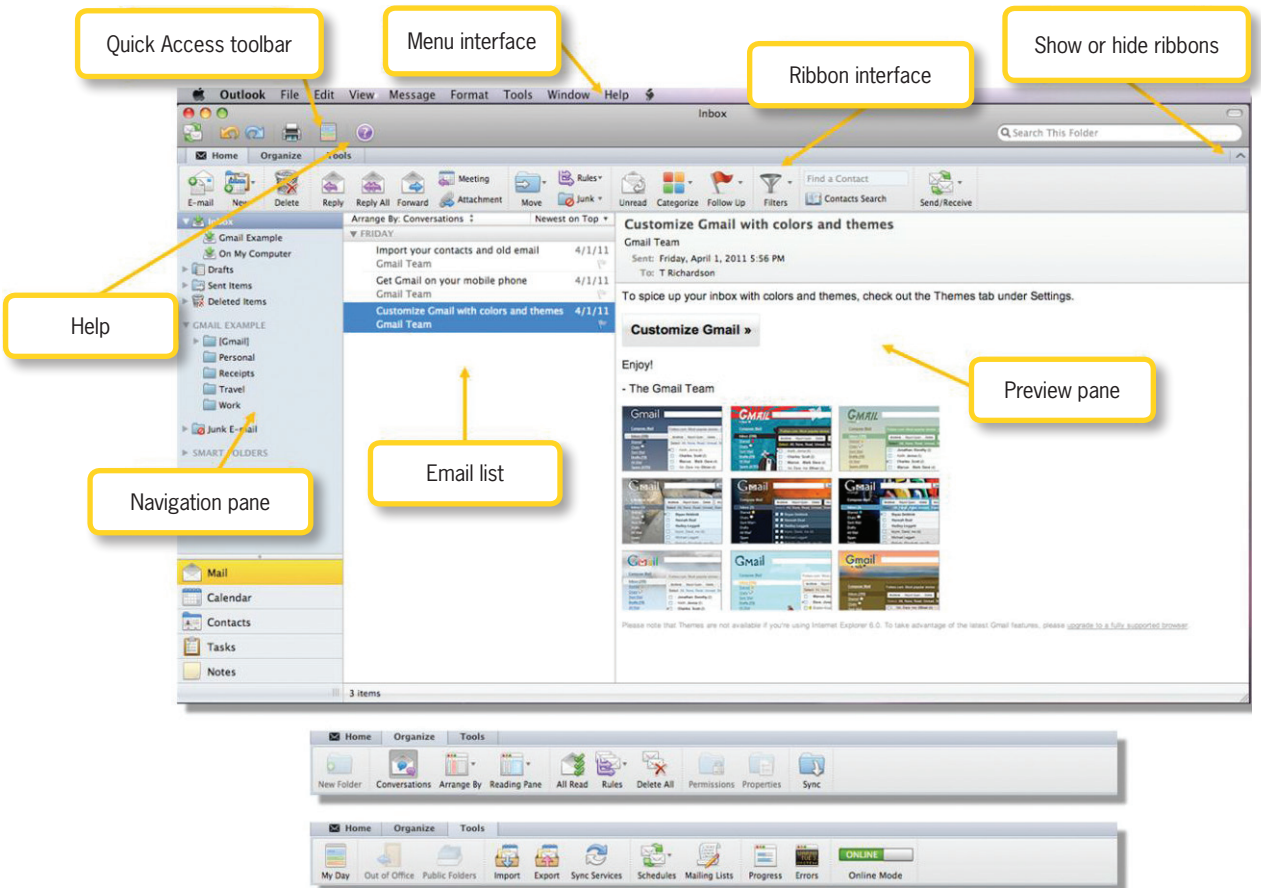
icon; this opens the Account Settings dialog box, which you can use to manage all of your connected accounts, contacts, and calendars. You can remove an account using the Account Settings dialog box by selecting that account in the *Email* tab and then clicking the *Remove* icon above the accounts listed. To add new accounts using the *File* menu, simply click on *Info* in the left-hand menu and then select *Add Account* under the Account Information display. You can save email to the local machine by using the *File* menu and selecting *Save As*; email can be saved as a text file, as a message, or in HTML format. To save a message to the local machine, click on the message and drag it to either the desktop or a folder.

Anatomy of Microsoft Outlook 2011

Microsoft Outlook 2011 is very similar in functionality to Outlook 2013, although it has a different appearance, as you can see in Figure 6.3. The Macintosh version of the software uses a combined menu and ribbon interface. The menu bar is located along the top of the computer screen next to the Apple icon. The ribbon is located along the top of the application window, with quick link icons above it. These icons allow you to send and receive messages and access the help files.

The *Tools* ribbon allows you to import or export information from Outlook and set whether you want to work online or offline.

▼ FIGURE 6.3
Outlook 2011 interface and ribbons



You can adjust the mode by moving the slider icon for *Online Mode* from Online to Offline (or Offline to Online). The *Schedules* icon in this ribbon can be used to send and receive mail, send mail only, or empty the *Deleted Items* folder.

You can manage your email accounts by selecting the *Tools* menu and choosing *Accounts*. This will open the Accounts dialog box where you can use the + or – icons to add or remove accounts. You can also select an account from the list to edit the account's settings and save files to the local machine by clicking on the message and dragging it to the desktop or a folder.

6.2 MANAGING EMAIL IN OUTLOOK

Microsoft Outlook allows you to manage more than one email account, each of which has its own set of associated folders (such as Inbox and Deleted Items). Using Outlook, you can format email text using the modern HTML approach (the same language used for Web page creation that you learned about in Chapter 4) using a simple interface for common commands in text. Unlike word processing, formatting should be kept to a minimum to maintain quick readability. Not everyone will have an email client capable of viewing complex HTML information in an email format. If this occurs, most email clients that do not support HTML will display the text of the email as standard text and the HTML tags will be ignored.

Creating a New Email 6.2.1

You can create a new email message from the *Home* ribbon by selecting *New E-mail* (or *E-mail*). This opens a new window with its own ribbon interface. The options presented in Outlook 2013 are organized into multiple ribbons, while Outlook 2011 offers only two ribbons, as shown in Figure 6.4.

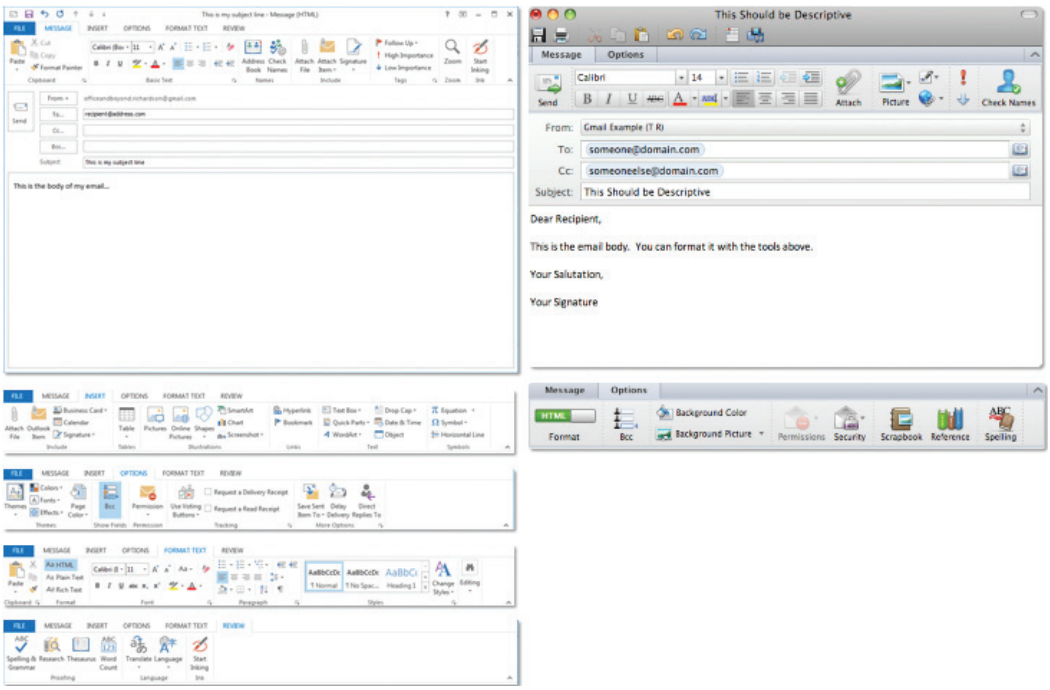


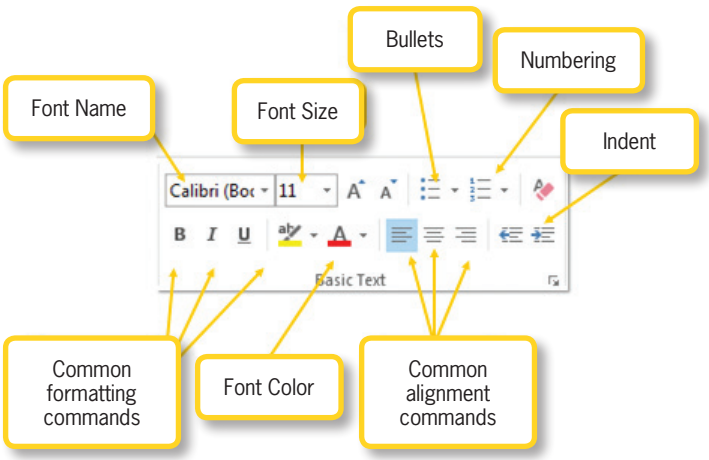
FIGURE 6.4 Message creation window and ribbons in Outlook 2013 (left) and Outlook 2011 (right)

Most of the necessary email message editing options are available in the *Message* ribbon. These include icons to change the font, color, size, and alignment of the text; you can also attach files and a signature from the *Message* ribbon. Images and hyperlinks can be added in Outlook 2013 using the *Insert* ribbon; these options are available from the *Message* ribbon in Outlook 2011. The *Options* ribbon allows you to add the BCC field. To check spelling, select the *Spelling & Grammar* icon under the *Review* ribbon in Outlook 2013 or the *Spelling* icon in the *Options* ribbon in Outlook 2011.

6.2.2 Formatting Email Content

Most modern email clients, including Outlook, support the HTML format for email display. This allows you to set complex formatting such as bold text, italics, underlines, and different colors for your text. In Outlook, you can use the ribbon interface to format text whenever you are composing an email. This only applies to the text in the email body, not subject lines or addresses. You can see the common formatting commands in Figure 6.5.

As you become more familiar with productivity software, you will see most of these elements repeat for formatting the appearance of text. The "B" is for bold, which will create a thicker text that appears darker. This is one type of emphasis that preserves readability. The "I" is for italic emphasis, which slants the text. This can affect readability in some cases. The "U" provides an underline to the text. The text itself is not changed in appearance, but the underline appears wherever this is selected. These icons work like a toggle, turning the modification on or off as it is clicked. You can also select text in the message body and click one of these icons to apply the effect or get rid of it if it is applied already.



➤ **FIGURE 6.5** Formatting commands in Outlook 2013

Activity 6.1— Formatting Email

For this activity, you will create a new email message and practice with the formatting options available in your version of Outlook. Compose an email with at least two sentences. Choose two words to emphasize. Apply bold formatting to one of them and italic formatting to the other. What happens when you change the alignment? What happens when you click the icon to apply a bulleted list? When you are finished, add the subject line Activity6_1 *and send the email to yourself.*

Bullets create an unordered list from multiple lines of text. Numbering provides the ability to order items, and you can switch the appearance with the dropdown menu to use either numbers or letters for your ordering. Indentation will add space before the word begins, providing the appearance of paragraphs that you would see in printed material. Font name and font size are discussed as part of word processing where they are more applicable. It is generally not a good idea to change fonts or font sizes in an email because email messages are meant to be read quickly.

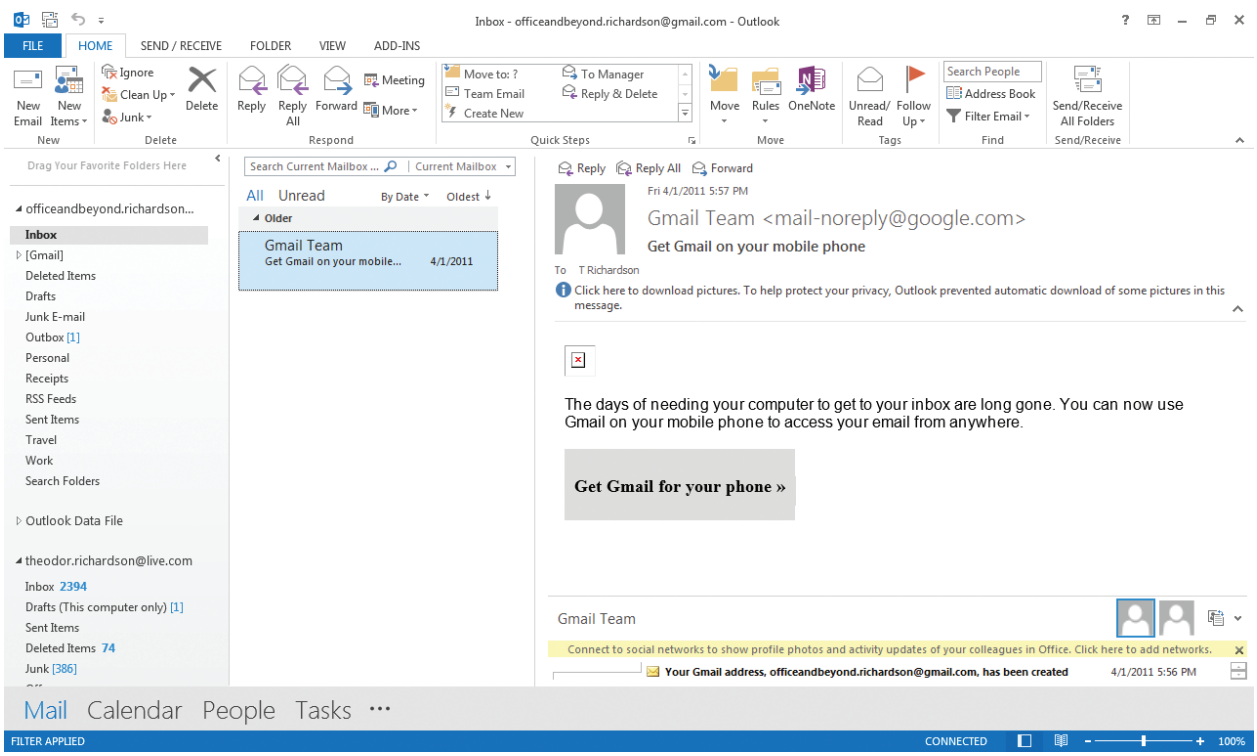
Some email clients allow RTF format instead of HTML. This format is discussed further in relation to word processing, but it allows for minor changes to text such as bold and italics for emphasis. HTML remains the most robust format for email construction to date.

Managing Incoming Email

6.2.3

In Outlook, clicking on a folder within an account will open the view shown in Figure 6.6. This includes a list of every email that is currently part of that folder on the local machine. The Send/Receive icon initiates the process which will update this listing with any new mail that is received by the server that actually manages your email account. You can sort the email in a folder by date received, size, the category assigned, or even the contact information of the person who sent it. In Outlook 2013, this

FIGURE 6.6 Inbox view in Outlook 2013



Categories provide another way for you to organize your email. You can use the Categorize option and select a color to associate with an email. Sorting by category will then bring all of the similarly classified emails to the same grouping.

is encapsulated as a dropdown list that by default shows the text "By Date" above the listing. Whatever email is currently selected will appear in the preview pane on the right side of the interface.

Email can also be saved or printed from Outlook. In Outlook 2013, the *File* menu can be used to save or print an email that is selected. You can also move email using the Move icon in the ribbon interface or by right-clicking and selecting the Move option; this allows you to change the folder in which the email is housed. If you are moving email to the Deleted Items folder, remember that you need to delete them again from that folder to permanently remove them.

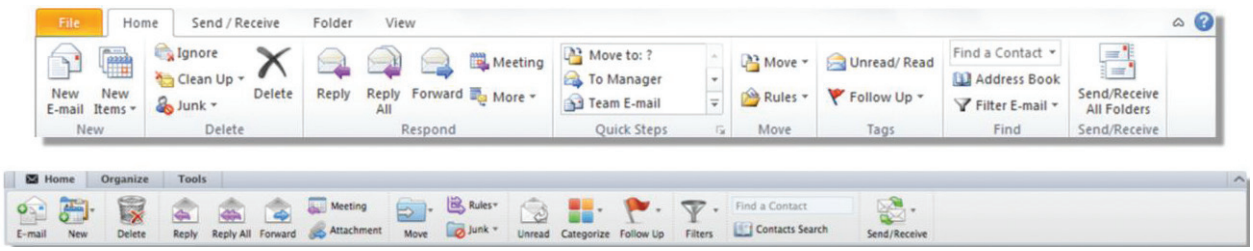
6.2.4 Responding to Email

Outlook allows you to perform all of the necessary tasks to create and manage email. The *Home ribbons* for both Outlook 2013 and Outlook 2011 are shown in Figure 6.7. This ribbon allows you to select a message and use Reply, Reply All, or Forward to respond. You can also choose advanced options such as Reply with Meeting, which will create a calendar instance in response to an email. The *Move* icon lets you move your messages to another folder, and the *Rules* icon defines custom rules that determine automatic responses when you receive messages meeting specific criteria.

It is a good idea to clean out any unwanted messages so they do not clutter your email folders. You should also set up folders to house important email messages that you need to keep on the server. Any messages that you want to save but do not need to be kept active on the server should be archived to your local machine. To set up your email archive in Outlook 2013 on the local machine, click *AutoArchive Settings* in the *Folder* ribbon with Mail active in the Navigation pane. To archive items to your local machine in Outlook 2011, click the *Export* icon on the *Tools* ribbon. To create custom folders, select *New Folder* from the *Folder* ribbon in Outlook 2013, or select *New* and then *New Folder* from the *Home* ribbon in Outlook 2011.

6.3 MANAGING CALENDARS

An electronic calendar allows you to keep track of your schedule. Most email account providers, including Gmail and Hotmail, have some form of calendar. These calendars allow the creation of events, which



▼ FIGURE 6.7 Home ribbon for email in Outlook 2013 (top) and 2011 (bottom)

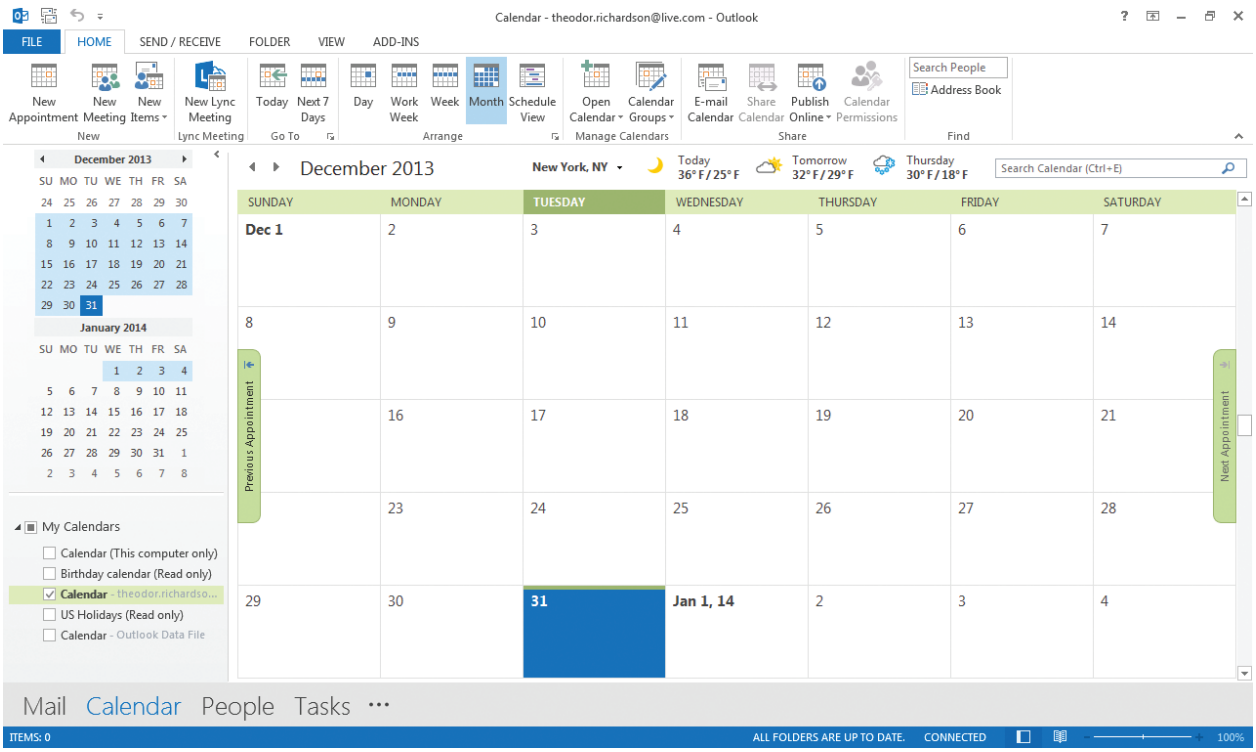


FIGURE 6.8
Outlook 2013 Calendar interface

are simply the details needed for you to be present for a certain occurrence at a certain time. For instance, if you needed to call your parents at 3:00 p.m. next Tuesday, you would need the phone number you are calling, the time zone for the phone call, and the calendar date for next Tuesday. This is sufficient information to include in the event details. Most events also have a time period associated with them, so if it is going to be a brief 15-minute call, you would schedule the event from 3:00 p.m. to 3:15 p.m.

Microsoft Outlook provides you with an internal calendar and the ability to include additional calendars (such as personal and professional calendars). Unlike most general calendars that allow you to create everything as an event, Outlook differentiates between appointments and meetings. You can create either an appointment or a meeting from the *Home* ribbon of Outlook with the calendar active in the Navigation pane. The *Home* ribbon for the calendar is shown in Figure 6.8.

You should use an appointment for a personal event that involves you as the primary focus; you can still invite others to attend, such as an appointment to have coffee with a friend. If you are using a calendar on a work computer that is connected to others, you should set your appointments to private so others cannot see the details associated with the event; instead, the calendar will just show you as busy during that time. To set an appointment as private, click the *Private* icon on the *Appointment* ribbon.

Activity 6.2—Adding a Meeting

For this activity, you will schedule a time to read the next chapter. Do this in Outlook

by creating a new meeting in the Calendar view. Explore the options that are provided and set this as a private time for yourself so that no one else can view the details. Name the appointment Activity6_2 *and save it to your calendar. If you have an alternate email address, add that address as an attendee and send the invitation. What does the email look like when you receive it at your alternate account?*

A meeting should be used for professional events. Meeting details may or may not remain public. You should include any resources in your meeting request that will be used in the meeting. Because meeting notices are sent via email, they will arrive in the same inbox with other email messages (though some email clients may not have the ability to transfer the meeting request to the recipient's calendar). Meeting details should include any call-in numbers for remote attendees, the location for local attendees, and any Web resources (such as a Cisco® WebEx® meeting) the attendee needs to utilize.

You can set how often meetings or appointments recur using the *Recurrence* icon when creating the initial event. Selecting the *All Day Event* checkbox clears your calendar for the day. The Scheduling Assistant will attempt to load calendars for any additional attendees that you have included in the meeting or appointment request. This will load your calendar in a row above the rest of the attendees so you can find a time when everyone is free. To access the Scheduling Assistant in Outlook 2013, select the *Scheduling* icon; in Outlook 2011, *Scheduling Assistant* is a tab beside the Message tab beneath the header containing the scheduling details.

MANAGING CONTACTS

6.4

Your contacts are people you interact with on a personal or professional level. Outlook allows you to manage individual contacts and groups easily and stores them in an Address Book that you can use to look them up later. To create a new individual contact, simply click the *New Contact* icon on the *Home* ribbon with Contacts active in the Navigation pane; for an individual, you can store address, phone number, and personal information. If you store an address, you can use the *Map It* icon to load a new Web browser window that will locate the address using the Bing search engine. You can also set the contact to private by selecting the *Private* icon; this hides the information from others connected to your account, such as in an office or professional network environment.

Activity 6.3— Adding Contacts

For this activity, choose a friend or coworker and add their email and name as a contact in your Outlook contact manager. If you have additional information about that person, such as a phone number, add it as well. When you have finished adding the person to your contact list, compose a new email and start typing the person's name. What happens when what you type matches part of the information stored for the contact?

How does this help productivity in composing emails?

For a group contact, you can store names and email addresses as a list. To create a new group contact, click the *New Contact Group* icon in the *Home* ribbon with Contacts active in the Navigation pane. In Outlook 2011, you can type the names and email addresses for the group directly and select the option for whether you want the addresses always included in the BCC header field to keep the addresses private. In Outlook 2013, you need to add the group members to your contacts before you can add them to a group.

When you have saved your contacts, Outlook allows you to look them up in your address book (or books if you have multiple accounts) rather than typing their email addresses. Outlook will also attempt to automatically complete any address that you start to type that matches the address of someone in your contact list. Click the *Address Book* icon in Outlook 2013 whenever you are creating a new email message or meeting to look up your contacts using a keyword search and choose the email header field in which you want the email address for your contact included. The address book is accessible in Outlook 2011 by selecting the icon that looks like an open address book (next to the address entry field).

6.5 TASKS AND NOTES

Outlook also allows you to use tasks and notes. Tasks are the digital equivalent of to-do lists that you would traditionally write by hand. You can create a task and give it a priority and a due date, and set reminders for when you need to follow up on it. A task entry is created using the *New Task* icon of the *Home* ribbon. When you are done with a task, you can select *Mark Complete*; this will remove the task from your active task list, but it will remain in Outlook so you can view your completed tasks later.

Activity 6.4— Creating Tasks

For this activity, you will create a new task to complete the practice exercises for the chapter. Using the options available in Outlook, switch to the Task view and add a new task which details the exercises you need to complete and the deadline by which you need to complete them. You can use the current date as the start date for the task. What other options are available when you construct a new task? Save this task and mark it as completed when you have finished your work. What happens when you mark this as complete?

Notes are the digital equivalent of sticky paper notes that you would use to quickly jot down information. You can create notes and view existing notes by selecting *Notes* in the Navigation pane. Notes in Outlook just allow simple text entry, so you can write and save them quickly without any formatting. To create a note, click the *New Note* icon in the *Home* ribbon (or simply double-click inside the viewing pane in Outlook 2013).

You can remove email messages, tasks, contacts, and notes in Outlook by clicking on the individual item you want to remove and hitting the *Delete* key.

CHAPTER SUMMARY

This chapter covered the fundamentals of using Microsoft Outlook for managing email and productivity. Outlook is similar to other email clients in its treatment of incoming email and its ability to format text in HTML format for delivery to other modern email clients. It also maintains a calendar, contact list, and task list to enhance your productivity and help maintain your schedule and workload on a day to day basis. Microsoft Outlook is a professional email client that is part of the Microsoft Office productivity suite of software available on Windows and Macintosh machines. The ribbon interface described in this chapter for Outlook will be seen throughout the rest of this book for the remaining tools in the Microsoft Office suite of software programs. The next section of the book focuses on the most common productivity task in modern organizations: word processing.

CHAPTER KNOWLEDGE CHECK

1 Microsoft Outlook provides the user with a built-in email account so there is no need to create an account after you install it.

- ○ **A.** True
- ○ **B.** False

2 The calendar system in Microsoft Outlook does not allow you to hide appointments, so you must only enter details you wish to make public.

- ○ **A.** True
- ○ **B.** False

3 The following event type should be used in Microsoft Outlook for having coffee with a friend:

- ○ **A.** Meeting
- ○ **B.** Appointment

4 Which of the following formats is the most advanced for formatting an email?

- ◯ **A.** Plain text
- ◯ **B.** Rich text (text with some formatting)
- ◯ **C.** HTML
- ◯ **D.** None of the above

5 Microsoft Outlook allows for the management of multiple email accounts at once.

- ◯ **A.** True
- ◯ **B.** False

6 Tasks in Outlook 2013 allow the user to enter _____.

- ◯ **A.** A start date for the task
- ◯ **B.** An end date for the task
- ◯ **C.** A name for the task (i.e. a subject)
- ◯ **D.** A description of the task
- ◯ **E.** All of the above
- ◯ **F.** None of the above
- ◯ **G.** B and C

7 It is not possible to mark a task as completed in Outlook, so it should just be deleted when it is finished.

- ◯ **A.** True
- ◯ **B.** False

8 Email in the Inbox of Outlook 2013 can be sorted by all of the following except:

- ◯ **A.** Date
- ◯ **B.** Size
- ◯ **C.** Category
- ◯ **D.** None of the above

9 Both a meeting and an appointment in Outlook can have invited attendees.

- ◯ **A.** True
- ◯ **B.** False

10 Contacts stored in Outlook will automatically populate in an address field when the text you enter matches the _____ of the contact.

- ○ **A.** Name
- ○ **B.** Email
- ○ **C.** All of the above
- ○ **D.** None of the above

CHAPTER REVIEW QUESTIONS

1 Describe how categories can help organize email in a folder. Give examples to support your answer.

2 Give two examples of when you would use a meeting in Outlook and two examples of when you would use an appointment. In your own words, summarize the difference between the two and establish a rule for distinguishing them.

3 Why is it important to take advantage of spelling or spelling and grammar checks when composing an email? Give examples to support your conclusion.

4 When would you need to move an email from one folder to another? Is this a common practice? Give examples to explain your answer.

5 Explain in your own words why it is necessary to have a Deleted Items folder as part of an email account.

6 Explain in your own words the difference between a *Deleted Items* folder and a *Junk* folder. Why is it necessary to have both? What kind of email enters the *Junk* folder automatically? Give an example of this.

7 Choose two items on the *Home ribbon* in Outlook that were not covered in detail in this chapter. Explain the purpose of these items and when they would be useful.

8 Is it necessary to record every item that must be completed in a task in Outlook? If not, when would you add something as a task? Give examples to explain your answer.

9 What options are provided for responding to email in Microsoft Outlook? From your previous experience with email, explain when each of these would be used.

10 What options are available for creating calendar entries in Outlook? Choose two of these options and explain when and how they would be used.

PRACTICE EXERCISES

1. Add two contacts to your list in Outlook. Compose a new email and address it to one of your contacts. How much did you need to type before Outlook began matching the text you typed with the contact in your list? How does this speed up productivity? Is there a time when this would not be a convenience? Give examples to justify your answer.

2. Create a new folder under your email account in Outlook. Move at least one email into this folder and compare the view of that folder to your Inbox view. How does the ability to create folders help organize your email? Give at least three examples of folders that would make you more organized and explain your answer.

3. Create two tasks in Outlook. Make sure to include start and end dates for the task. Mark one of them as completed. How do the appearance of these differ? How would you know quickly if a task is complete? Is there a way to organize tasks that are completed and ones that are not? Explain your answer.

4. Add two contacts to your list in Outlook. These can be friends, family, or co-workers. What information about a person can be recorded in an Outlook contact? How much information is needed to make the contact useful in email exchange? Give examples to justify your answer.

CHALLENGE EXERCISES

Using Outlook, create a new note. Would a note ever be more useful than either a task or a calendar entry? Give examples to explain your answer.

Set a flag on an email in Outlook. Explain the process you would use to quickly identify an item that is flagged in one of your folders. When would the use of flags be more beneficial than categories?

The folders you create in Outlook do not correspond to folders in your actual email account. They exist only on your local machine. Define a rule for creating folders that would prevent the over-complication of your email account (i.e., when the folders would become too much to manage your email effectively). Explain your answer with examples.

Practice deleting email from your Inbox and permanently deleting it from the *Deleted Items* folder. Explain why it is a good idea to delete email that is no longer needed, even if there is no size limitation on your email account. Give examples to explain your answer.

CHAPTER
7

Introduction to Word and Word Processing

IN THIS CHAPTER

This chapter presents an overview of productivity software and an exploration of word processing, the most common productivity application used in today's business environment. You will create your own word processing documents as you learn about the software, formatting text and utilizing templates. As an example project, you will also learn to create a resume and cover letter, which are fundamental tools for any job search. Once you complete the chapter, you will be able to:

- Locate and use the *File* menu for most applications
- Access the help files for an application
- Construct a word processing document from a blank document or a template
- Format and manipulate text in a document
- Save and manage files within productivity software

7.1 INTRODUCTION TO PRODUCTIVITY SOFTWARE

Microsoft Office is an example of a software suite that is used for productivity. A *software suite* is a collection of individual programs that are used to perform related tasks; in the case of Office, this is the management of documents for word processing, presentations, spreadsheets, and email. You were introduced to Outlook in the previous chapter; Outlook is one of the software packages included in the Office suite, which itself is considered productivity software.

PRODUCTIVITY SOFTWARE *is a program that assists you in performing tasks that are necessary for you to accomplish at home or in the workplace. Productivity is a measurement of how much you can accomplish in a given period of time.*

Office includes the following set of programs common to all of its versions: Outlook (covered in Chapter 6, "Microsoft Outlook and Email Clients") for email and calendar management, Word (Chapters 7 through 9) for word processing tasks, PowerPoint (Chapters 10 through 12) for professional presentations, and Excel® (Chapters 13 through 15) for spreadsheet creation and data management. Office has different versions depending on which operating system you have on your computer. Office 2013 is the most current version for a Windows machine, and Office 2011 is the most current version for a Macintosh. Both versions allow for the completion of nearly identical tasks. However, Office 2013 also includes Microsoft Access® (Chapter 16) for creating databases and Microsoft OneNote® (Appendix A, "Additional Productivity Software") for compiling information into a digital notebook; these programs are not available in Office 2011. Office also includes an online app version of the software for use with a Windows Live account; this version does not require a license to use but it does not have the full functionality associated with the licensed version of the software.

For the most part, there is little difference in functionality between the Office 2013 and Office 2011 versions of the programs. The differences are mainly in the placement of commands between the two versions, and these will be pointed out in the text as you follow along with the examples, just as they were for Outlook in the previous chapter. You access the programs that are part of Office on a Windows 7 machine by

If you do not already have Office installed on your machine, you can get a trial version of the 2013 software for Windows from the Office homepage at *www.office.com*. For the 2011 version of the Office software for Macintosh, go to *www.microsoft.com/mac*.
Companies like JourneyEd (*www.journeyed.com*) offer discounted professional software to students. If you are using another site to get a discount on your software, remember that whenever you purchase software from a source other than the official vendor, you should make sure the site is legitimate before you attempt to make a purchase or enter any personal information. This is part of being a responsible Web user.

▲ **FIGURE 7.1**
Word shortcut icon in Windows

selecting the *Start* menu, choosing *All Programs*, and then choosing *Microsoft Office 2013*; you will then see a listing of programs from which to choose. For this chapter, choose *Microsoft Word*. If you are using Windows 8, the start screen should contain an icon for Word once the program is installed. You can see the *Word* icon for Windows in Figure 7.1.

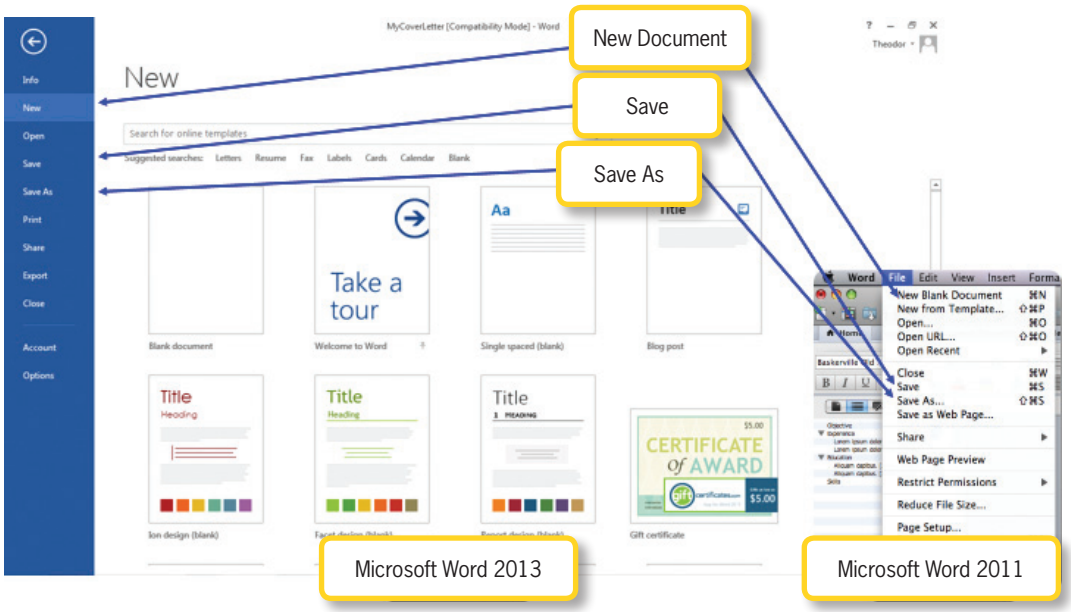
To access Office 2011 on the Macintosh, you may be able to click the icons installed on the Dock (when you installed the software, you probably had the option to place the shortcut icons there). If you do not have the icons on your Dock, you can access the programs in the Office 2011 suite by selecting *Macintosh HD* (or whatever name you have given your machine) from the desktop, opening the *Applications* folder, and then opening the *Microsoft Office 2011* folder. Select *Microsoft Word* from the available programs.

Whenever you activate one of the Office programs on a Macintosh, you will first be presented with a gallery of options for selecting templates or existing documents. You can simply select *Cancel* on this screen to get to the standard interface.

The File Menu

7.1.1

The *File* menu and the help files should be the first items you locate in any new software system. The *File* menu exists in almost all software applications written today and enables you to perform the essential tasks of creating a new file, opening an existing file, saving a file, printing a file, and exiting the program. While there may be additional options available in the *File* menu, these basic tasks warrant further investigation. The *File* menu is typically located at the left side of the software interface. Figure 7.2 shows the *File* menu for Word. In Word 2013, the *File* menu (which is also called the Backstage view in the Office 2013 suite) is found to the far left on the ribbon interface.

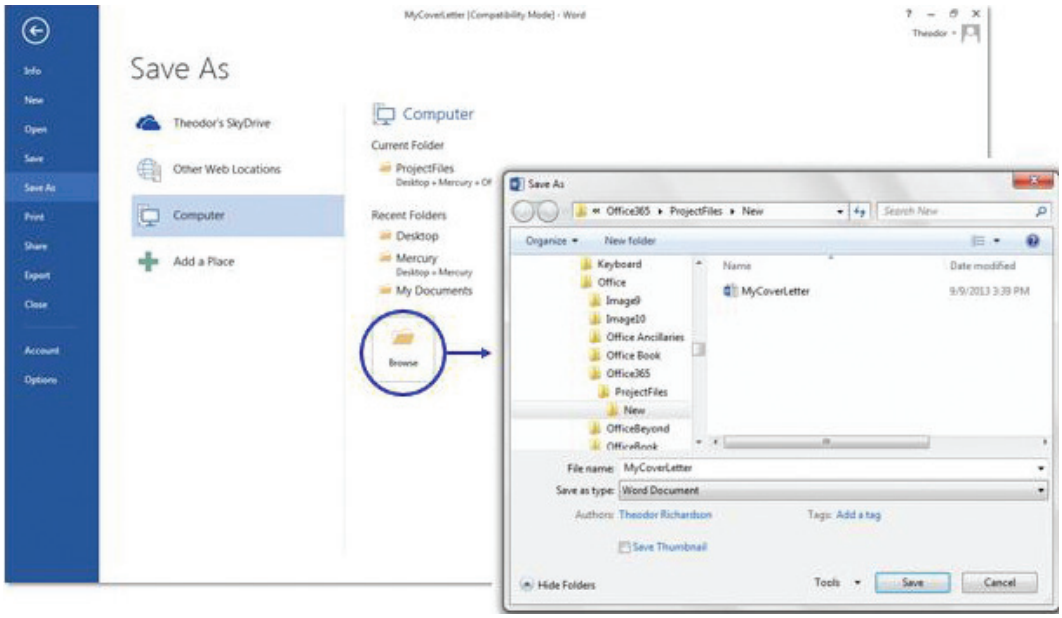


◀ **FIGURE 7.2**
File menu in Word

In Word 2011, it is located beside the *Apple* menu at the top of the computer screen.

There are several essential commands found within the *File* menu with which you should become familiar:

- *New*—The New command is used to create a new file of the type associated with the program. In the case of Word, this file is a word processing document. The New command may present you with several alternatives if the program supports different document types or document creation options.
- *Save As*—This command opens a dialog box to allow you to select the name, file type, and location to which you would like your file stored; this operates on the file that is currently active in the program. If you have already saved your document and want to save a copy or save it with a different name, you can do so with this option. For Word, the default file type is *Word Document* (*.docx*), but there are several alternative file types available when saving a document including *Portable Document Format* (*.pdf*). It is important to use Save As to save a new file you have created so your work will not be lost if there is a problem with the software system or you close it by accident. The Save As dialog box for Word is shown in Figure 7.3. Word 2013 will provide you with a list of commonly used folders where you can store your work; if you do not see the folder where you wish to store your file, you can always click the *Browse* icon in the right column of the interface to select any location on your machine.
- *Save*—The Save command allows you to save the file that you currently have open within the software application; this is useful for making sure your recent changes are retained in the document. The first time you save the document after it is created, this command will typically function like the Save As command.
- *Open*—The Open command is used to reopen existing documents. Selecting this command opens a dialog box that is similar to the one used to save documents and allows you to select a document from the current folder on the right-hand side of the dialog box. You can also type the name of the file you want to open in the File Name field, and any files that are a match to the partial string you have typed will appear in a box as options to select. Similar to the Save As functionality, Word 2013 will provide you with a list of commonly used folders where you can open your work as well as a list of recent files in the rightmost column; if you do not see the folder or file you wish to open, you can always click the *Browse* icon in the right column of the interface to select any location on your machine.
- *Print*—This command allows you to send the current file to an installed printer. Printing requires additional hardware and a driver installation for that hardware to work. In Office 2013, you are given a software-based print option of *Send to OneNote 2013* as a possible printer regardless of what other printers you have installed. If you have installed Adobe Acrobat® Professional, you will also get the software-based option of printing to a *Portable Document Format* (*.pdf*) file. Both of these printing options are discussed further in Appendix A.
- *Exit or Close*—Selecting this command will close the program. On a Macintosh, closing the windows of the program will not exit the program entirely; you must select the *File* menu and choose *Exit* to fully close the program. On Windows, selecting



◀ FIGURE 7.3
Save As dialog box in Word

Close will terminate the program unless there are other instances of it open for other documents. In this case, all document windows must be closed to fully exit the program.

Activity 7.1—Saving and Opening Files

You should practice saving and opening documents to see how the word processing software interacts with the file system of the operating system. If you have not done so, you should create a folder called Activities *somewhere on your computer (this should be located somewhere in your document libraries or inside your* My Documents *folder where you can locate it easily). You should already have your initial file (that opened by default when you started the program) which you should save as* MyNewDocument. *Create a new document and save it (using the default file extension selected in the dialog box) as* Activity7_1. *Close these two files and then open them again. If your software application closes when you close these files, as in the case of the Windows version which closes when there are no open documents, you should start it again from the operating system. By the end of this activity, you should have both* MyNewDocument *and* Activity7_1 *open again.*

Document Management

7.1.2

Whenever you are working on a project, it is important to manage the files associated with that project. You have already learned about using folders in previous chapters. Throughout the rest of this text, you will be creating projects in every chapter. You should be sure to keep your work organized—not just for the purposes of learning but also for the general management of productivity. If you already have a designated folder for your projects, you should create a new folder within it and title the folder *Documents*. You can similarly create other folders for the rest of the productivity software packages and

title them *Presentations*, *Spreadsheets*, and *Databases*. It is a good idea to create folders to manage your different responsibilities so you can find items when you need them; the same rules that apply to filing and sorting paper documents also apply to organizing electronic documents.

There are several options for saving your files from Word. The default file type for the Word application is Word Document which has a file extension of *.docx*. This is selected by default when you save the document. You can also use the compatibility format for Word documents so that the documents you create can be viewed in older versions of Word without issues; this document format is called Word 97-03 and has the document extension *.doc*. Using the *.doc* file format disables the new features of Word but preserves backward compatibility with prior versions; the need for this is becoming less common since the 2007 and 2008 versions of Word also used the new *.docx* format and features. In addition to these options, you can also save your document from the Word application in other file formats:

- A Portable Document Format (PDF) file (which uses a *.pdf* extension) is constructed from printing commands and it produces a static document that cannot be edited or reformatted without specialized software. Unlike the native Word file format, which can change depending on the software version and installed fonts, there is no variance in the display of a PDF file (a format that was invented by the Adobe company). This means it will display for the viewer exactly as you intend it to be seen. You can create a PDF file of your Word document by selecting *PDF* as the file type in the Save As dialog box in both Word 2013 and Word 2011. The most common application for viewing PDF files is the Adobe Reader, which is available in a free version from *www.adobe.com* (by typing "Adobe Reader" in the search box).
- The XML Paper Specification (XPS) format is the Microsoft version of a PDF; this type of file requires a special viewer for the application type but it has the same fixed display property of the PDF document. The document extension for this type of file is *.xps*.
- The Web Page format saves the document in HyperText Markup Language (HTML) for use in Web browsers and storage on Web servers for remote access. HTML is an interpreted display, so it will look different in different Web browsers. Word does not create clean code for the Web, so you should not use it as a primary Web development tool. The file extension for this is *.htm* or *.html*.
- Rich Text Format (RTF) was invented by Microsoft in 1987; it is a common format for word processing that can be used by multiple, cross-platform word processing applications for document exchange. This is a safe alternative file format if the destination of the file is not another Word product but it will disable the advanced display features and text modifications available in Word and retain only basic formatting such as bold and italic text. The file extension for RTF is *.rtf*.
- Plain text will save the contents of the document without any formatting effects or modifiers. This type of document format can be read by basic text applications like Notepad and Notepad++ which do not allow formatting alterations for text content. The document extension for this type of file is *.txt*.

- OpenDocument Format is an open standard for word processing that is compatible with the Apache OpenOffice application suite. Not all of the features available in Word have an equivalent in this format, so the document may not display accurately in this file format. You can find more information on the use of Apache OpenOffice as an alternate word processing software solution in the appendices of this book.

Activity 7.2—File Types

Now that you have an understanding of the different types of file formats that are available for saving a document from Word, you should create a new document and save it using the default file format as Activity7_2. *You should add a line of text to the document such as "This is my new application document." Now, save the document in the folder for this chapter with each of the following file formats: PDF, XPS, RTF, Web Page, and Plain Text. Depending on the type of file format you select, you may need to re-open the original document to save it in a new format. What are the application icons for each of these formats that appear as the default program to open them (such as the system's default Web browser for the Web page version of the file)?*

7.1.3

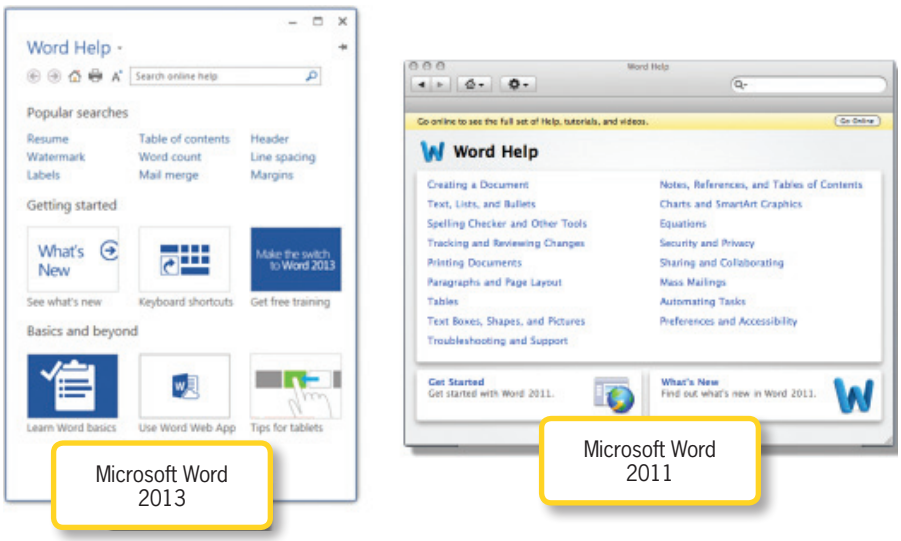
Help Files

Help files are almost always included in a software system. These files allow you to get definitions of elements in the software system and obtain help in performing common tasks and troubleshooting. On a Windows machine, pressing the *F1* key will activate the Help interface for whatever program you currently have selected (if you are using the operating system when you press *F1*, you will open the help interface for the operating system). On a Macintosh, the Help interface is available by selecting the *Help* menu at the top of the screen; this will be context-sensitive for the program you have active. The Word Help interface is shown in Figure 7.4. Most help files, including those in Office, allow you to search for entries using a keyword search.

7.1.4

Productivity Shortcuts

Productivity shortcuts are keyboard commands that can be entered quickly to save you the time of having to open a menu or ribbon to find the command you wish to use. These exist for the most common actions you perform in a software system and are common to most software programs that utilize individual documents or files to store and organize information.



▼ **FIGURE 7.4**
Word Help interface in Word

You activate a shortcut command by holding down the *Ctrl* key on a Windows machine and typing the letter corresponding to the shortcut while the *Ctrl* key is held down. These shortcuts work on a Macintosh machine as well, except the *Command* key is used to activate the shortcut instead of the *Ctrl* key. The most common shortcuts with which you should be familiar are as follows:

- *New Document* (*Ctrl-N* on Windows machines or *Command-N* on Macintosh machines)—This command opens a new blank document in the active program.
- *Open Document* (*Ctrl-O* or *Command-O*)—This is used to open an existing file. It will open a dialog box that allows you to choose the file you wish to open.
- *Save Document* (*Ctrl-S* or *Command-S*)—This is the same as selecting the *Save* command; it will save any progress in an open document that has already been saved. If the document has not yet been saved, it will act like the *Save As* command.
- *Print Document* (*Ctrl-P* or *Command-P*)—This command initiates the printing process. If the software allows you to set options before you print, it will open a dialog box; otherwise, it will attempt to use the default printer to initiate a print command.
- *Undo Last Action* (*Ctrl-Z* or *Command-Z*)—This will attempt to undo the last action you performed in the open document; not all actions can be undone with this command. Some programs maintain a buffer of actions, allowing you to undo multiple changes that you made to the document.
- *Redo Last Action* (*Ctrl-Y* or *Command-Y*)—This will reverse the effects of the Undo command; not all actions that are undone can be reversed by the Redo command. Again, there are some programs that will maintain a buffer of commands and changes, allowing you to redo multiple actions that were reversed by the Undo command.
- *Select All Content* (*Ctrl-A* or *Command-A*)—This command will select all of the content in the current document or document element (like a table cell) that is allowed to be selected. This is a useful command if you want to perform actions like applying formatting to everything in your document.
- *Quit* (*Ctrl-Q* or *Command-Q*)—This command will attempt to exit the currently active program.

There are additional shortcuts that are used often to utilize the system clipboard for transferring information quickly and easily from one document or location to another. These are valuable to learn and will save you a considerable amount of time when you are typing. There are also shortcuts to common formatting changes that will be discussed later in this chapter as you start your first project in word processing. Additionally, specific programs may have a unique set of shortcut commands in addition to or instead of the ones covered here.

The System Clipboard

7.1.5

The system clipboard is temporary storage for anything you copy from a document or folder that allows you to use it again elsewhere. When you copy an object or a grouping of text to the clipboard, all of its formatting and content are retained.

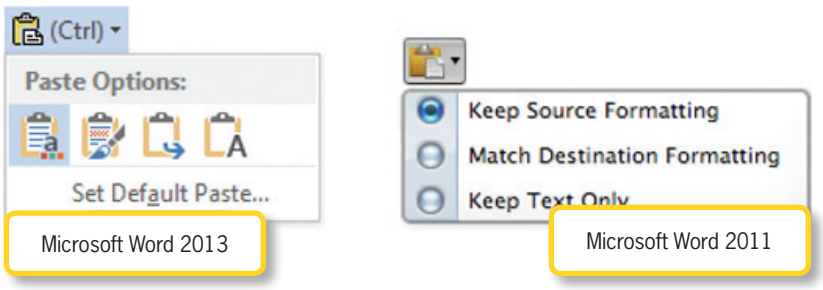
The copied material can then be pasted in another location in any of the productivity software programs. For instance, you can copy formatted text from Word and paste it into PowerPoint and it will retain any formatting that was applied to it. Similarly, you can copy a chart from Excel and paste it into a Word document. This interoperability and the ease of use of the clipboard make it a valuable tool for productivity.

The three commands that apply to the clipboard are:

- *Copy*—The Copy command is used to make a duplicate of selected text or objects in a document. Copy will leave the original source of the material intact in the document and make a duplicate on the clipboard. The *Copy* icon looks like two sheets of paper overlapping each other. The shortcut for the Copy command is *Ctrl-C* on a Windows machine and *Command-C* on a Macintosh machine.
- *Cut*—The Cut command functions like Copy except it removes the original source material from the document (whether it is text or an object) and places it on the clipboard. The *Cut* icon is traditionally a pair of scissors; the shortcut for the Cut command is *Ctrl-X* on a Windows machine and *Command-X* on a Macintosh machine.
- *Paste*—The Paste command is used to place the contents of the clipboard at the active cursor location within a selected document. Whether the contents are then removed from the clipboard depends on the specific program; in Word, they are not removed and can be pasted multiple times. The *Paste* icon looks like either a clipboard or a bottle of rubber cement (which was traditionally used to place clippings of documents in other documents). The shortcut for Paste is *Ctrl-V* on Windows and *Command-V* on Macintosh.

If you copy formatted text from one document and paste it into a document location that does not allow formatting, such as Notepad on a Windows machine, the text will be pasted and the formatting will be removed. The spacing of the letters (such as blank space characters created using the spacebar or tab indents from the Tab key) will be retained to match the way the keys and spacing are defined in the target document. This can actually be helpful for removing unwanted formatting from Web documents or PDF files.

In Word, you are given a choice of options when you paste something from the clipboard. This appears as a clipboard icon, which opens to a menu when you place an object from the clipboard, as shown in Figure 7.5. Typically, these options are whether you want to keep the formatting from the source, whether you want to match the formatting to that of the document where you are placing the text (called *Merge Formatting* in Word 2013), or whether you want to retain the text without the formatting. These options vary from program to program. Try this functionality yourself by typing a simple sentence in your open document, selecting it, cutting it from the document, and pasting it back into the document. If you open the clipboard icon, you will see the available paste options.



▼ FIGURE 7.5
Paste Options menu in Word

7.2 INTRODUCTION TO WORD PROCESSING SOFTWARE

Word processing is the most common task in any modern business environment. Word processing software is the digital equivalent of letter writing. Word processors have their origin in typesetting and the manual typewriter, which used an ink ribbon and a striking wheel to pound individual letters from the wheel onto the ribbon, imprinting the letter on the paper. If any mistakes were made, you had to either use a strikethrough character to alert the reader or use correction fluid to cover up the error.

Early electronic word processors allowed a user to enter a line of text and, when the user hit the return carriage key (the equivalent of the Enter key), would mechanically type the letters one by one onto the paper using the striking wheel; this allowed the user to avoid most typos with a quick read-through of the line before hitting the return carriage. Now word processing is almost universally done on a computer, allowing an enormous level of convenience and collaboration for creating and utilizing documents.

WORD PROCESSING *in modern terms is the use of a computer system to create, manipulate, and share text. The traditional means of word processing is through the use of the keyboard and mouse, though modern speech recognition programs allow you to create text from audio input.*

7.3 ANATOMY OF MICROSOFT WORD

Word is one of the more popular software applications for word processing. Whenever you open Word from either a desktop icon or the *Start* menu of a Windows machine, it will open with a new blank document (which defaults to the name *Document1*). You can save this document with a name of your choosing using the *Save As* command in the *File* menu (the *File* menu is shown in Figure 7.2).

When you select the *Save As* command, it will open a Save As dialog box, as shown in Figure 7.3. This allows you to select the location where you want to store your file. You can select the folder you want to use from the left-hand Navigation pane. The contents of the active folder are shown at the right side of the Navigation pane. You can select the *New Folder* icon to create a new folder to use inside the current folder. Finally, you can type a name for your file and select the file type you want for your document. The default file type for Microsoft Word is *Word Document* (*.docx*). Save your document in a *Projects* folder with the filename *MyCoverLetter*.

Whenever you are working on a document, you should save it often. Your software could quit because of a machine error or a glitch and any unsaved progress on your work could be lost. You could also accidentally delete a portion of your work or make a change that the Undo command cannot correct; if you have saved your document before these changes, you can close the current document and open the saved version to get back to where you were.

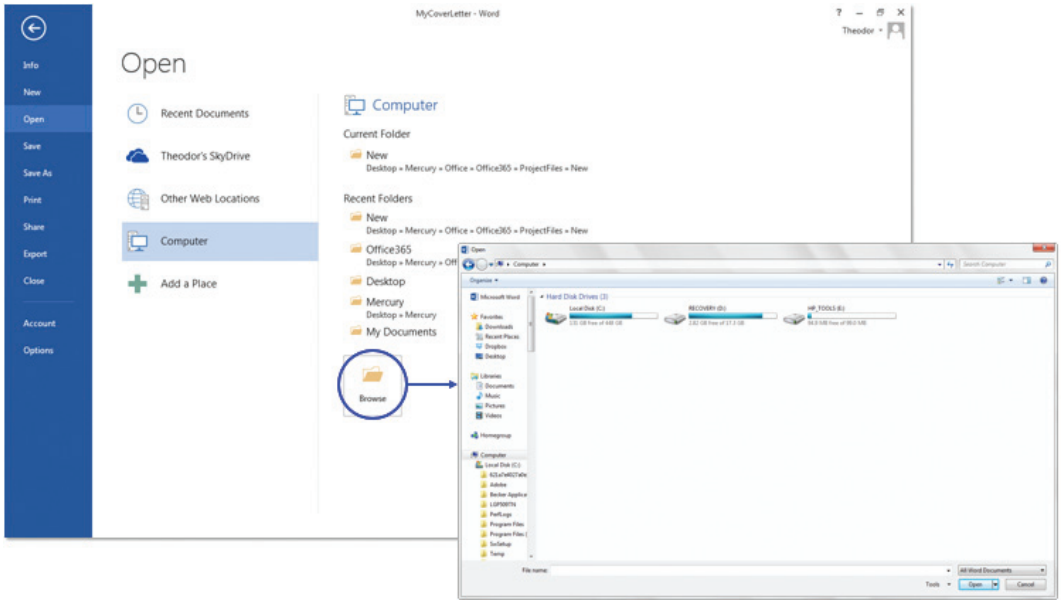


FIGURE 7.6
Open dialog box in Word 2013

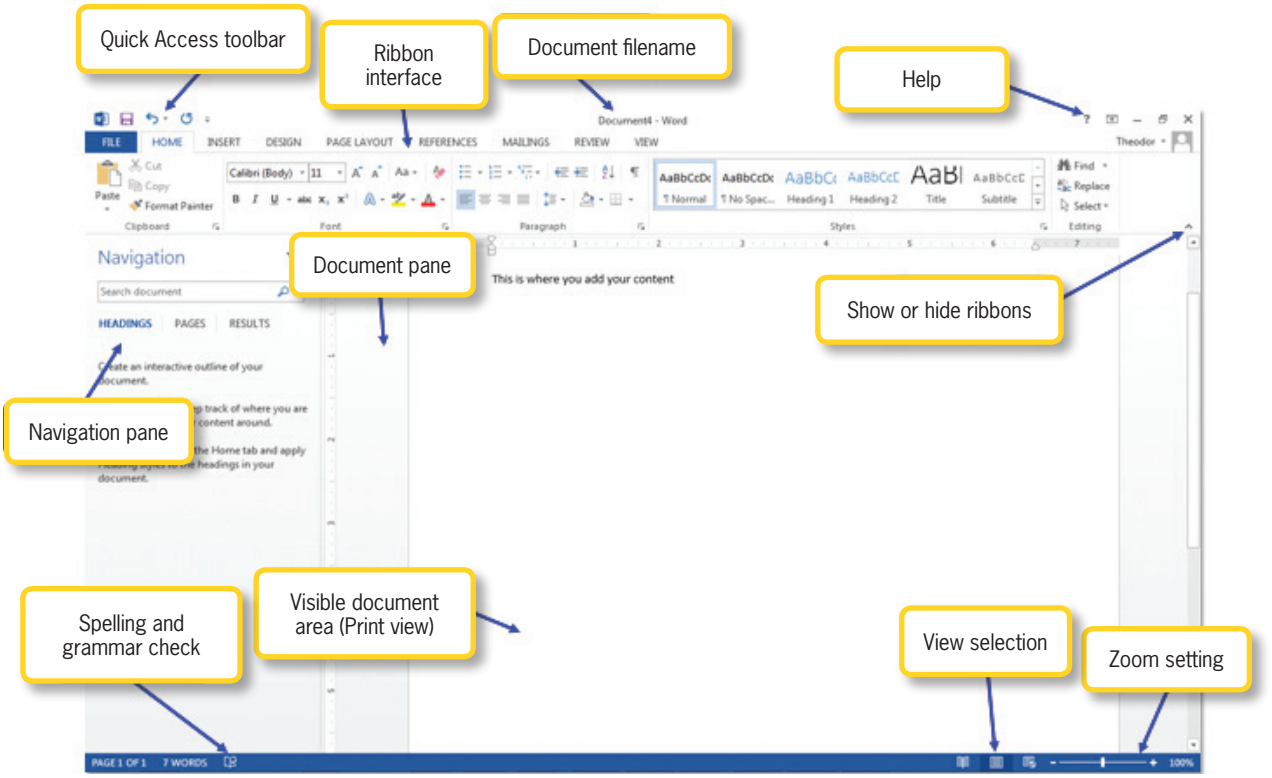
To open an existing document in Word, select the *File* menu and then choose *Open*. This will display an Open dialog box, as shown in Figure 7.6. The left-side Navigation pane is similar to the Save As dialog box where you can navigate to the folder you want to open. The right side of the dialog box lists the contents of the current folder. You can select any of the files with file types that can be opened in Word; the name of the file will display in the *File Name* field and you can click the *Open* button (or simply double-click the name of the file).

You can also start typing the name of the file you want to open in the File Name field of the Open dialog box. A drop-down menu will appear from the File Name field, displaying all of the filenames within the active folder that match the partial string of characters you have typed. You can then select an item from the list instead of typing the entire filename or manually sorting through all of the contents of the active folder. Word 2013 for Windows and Word 2011 for Macintosh allow you to perform the same functions to create a document; however, the interface for these two applications is different. You can jump to the section of the text that applies to the version you have.

Microsoft Word 2013

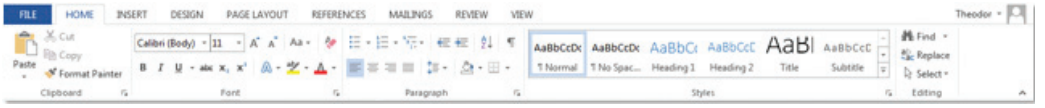
7.3.1

Figure 7.7 shows an example of the standard interface for Word 2013. Across the top of the window for each open document is the Quick Access toolbar, which contains shortcuts to commonly used commands. By default, Save, Undo, and Redo are included as direct links. The arrow beside the Undo command contains a buffer list of prior actions that can be undone; all of the actions after the one selected will be undone if this list is used. The *Microsoft Word* icon in the far-left corner contains commands for moving and resizing the window. The far right of the interface contains icons to activate help, minimize the window (which removes the



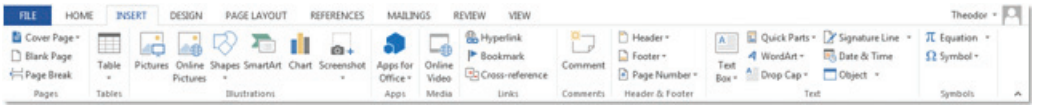
▲ FIGURE 7.7
Anatomy of Word 2013

document from the screen while keeping it open), maximize the window (to take up the full available space of the computer screen), or close the document and the window.



▲ FIGURE 7.8
Home ribbon in Word 2013

The ribbon interface for Word 2013 is beneath the toolbar. The *File* menu can be found to the left of the ribbons that are available. The *Home* ribbon is the first ribbon you will see. This ribbon, shown in Figure 7.8, contains common formatting commands for your document. You can also manage styles from this ribbon, which you will learn about in the next chapter. The other commands here to note are the *Find*, *Replace*, *Copy*, *Cut*, and *Paste* icons. You will use these extensively in creating documents.



▲ FIGURE 7.9
Insert ribbon in Word 2013

The *Insert* ribbon, shown in Figure 7.9, is used to add special content to your document; this includes tables, images, drawing objects, and clip art. There are special document elements available in this ribbon as well, particularly the Header,

▲ **FIGURE 7.10** Design ribbon in Word 2013

Footer, Cover Page, Blank Page, and Page Break (which immediately pushes subsequent content to the next page regardless of whether there is room left on the current page). Other formatting options include Drop Cap, Symbols, and Hyperlinks. You can add a hyperlink to an external document or Web page, or link to a section within the current document (defined as a bookmark).

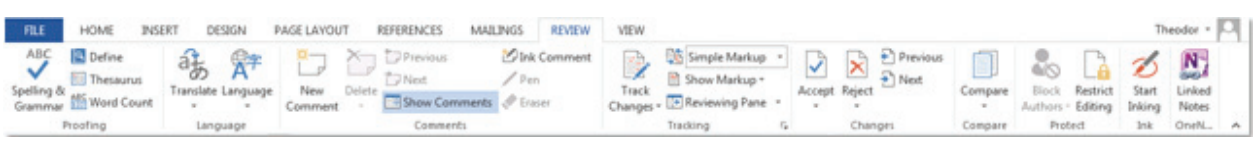
The *Design* ribbon is a new addition to Word 2013. It contains options for setting the overall look and feel of your document. From here, you can set a style for all of your document graphics or add a background watermark image to your pages, in case you need to mark them as Confidential. You can also set the page border here for quick graphic effects for flyers. You can see the *Design* ribbon in Figure 7.10.

The *Page Layout* ribbon is the next one in line. This ribbon allows you to control the size of the document, document orientation for printing, indents, spacing, and alignment. This ribbon is discussed in Chapter 8, "Developing and Editing Documents." The *References* ribbon is used for documents that require citations, endnotes, and footnotes; this ribbon is also covered in the next chapter. The *Mailings* ribbon is used to construct documents such as envelopes and labels and individualize mailing documents for letters to multiple recipients. This is one of the more advanced features of Microsoft Word.

The next ribbon of interest is the *Review* ribbon, shown in Figure 7.11. This ribbon contains the icon for *Spelling & Grammar*, which should be used to review any document prior to submitting it; clicking this icon will start parsing your document for known spelling and grammar errors and prompt you to correct them. Additional research tools like the Thesaurus and Word Count are also located here, as well as the ability to turn on Track Changes and add and remove comments, which are useful when working on a collaborative document.

The *View* ribbon is the last standard ribbon and is shown in Figure 7.12. You can change the view of the document in this ribbon. Unlike some of the other programs in the Office suite, there is not usually a reason to deviate from the Print Layout for most documents; this view shows the text broken up into pages where the editable regions are bright white and anything not on the printed page is shown as a gray background. Read Mode shows the document with the maximum amount of screen space devoted to the content. Arrows at each side allow you to move from one screen to another, either forward or backward in the document. Web

▼ **FIGURE 7.11** Review ribbon in Word 2013



▲ **FIGURE 7.12** View ribbon in Word 2013

Layout shows the contents of the page as they would look if the page were converted to an HTML document. *Outline* view shows the levels of the document and is similar to an outline of content; you can promote or demote content using this view and select how many levels of headings you want to see. *Draft* view works like *Print Layout* view but without showing the text as it would appear on the printed page. One item to note here is the *Navigation Pane* checkbox; this will show or hide the *Navigation* pane, which provides you with an outline or preview of your document in a separate, mobile pop-up window. Make sure this checkbox is selected.

The *Navigation* pane has three tabs. The first tab (which looks like a small document with outline format) is a display of the document outline by heading; you can adjust the number of levels of the document outline to display by right-clicking on a heading and choosing *Show Heading Levels* and the level you want to show. The Pages tab displays a thumbnail view of the pages of your document so you can jump quickly to a page by clicking its thumbnail. Finally, the Results tab shows the results of a keyword search of the document using any keywords entered in the text box above the tabs.

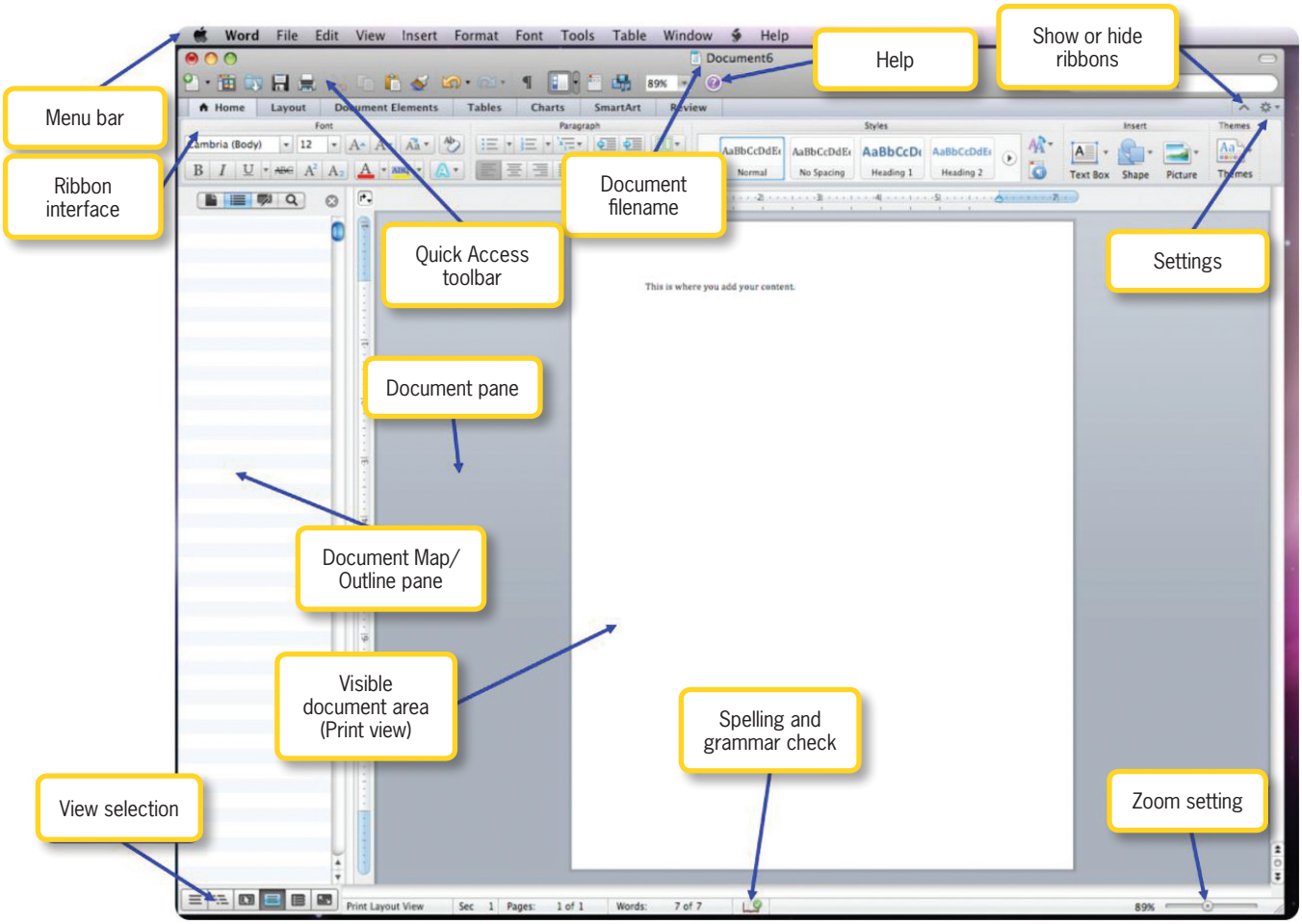
In Word 2013, you can click the page count at the lower-left corner of the interface to show or hide the Navigation pane.

The bottom of the standard interface contains page information, word count, a proofing error indicator, and View and Zoom settings. You can see the current page in which you are working and the total number of pages in the document. The word count defaults to the total number of words in the document; if you have some text selected, the words in that selection are displayed as a fraction of the total word count. The View settings are shortcuts to the different views available. To change the zoom percentage, you can use the slider or the + and – buttons. The zoom percentage is how much the document is magnified from standard print/screen size. A zoom of 100% is the actual size of the document.

Microsoft Word 2011

7.3.2

The main difference you may notice between Word 2013 and Word 2011 is the inclusion of the menu bar in Word 2011. The menu bar is standard with any Macintosh software application, and it contains a lot of the functionality of the ribbon interface plus some convenient shortcuts that are not easily accessible from the ribbon. The menu bar is located beside the *Apple* menu at the top of the computer screen; the menu choices begin with the *Word* menu and include the *File* menu and *Help* menu. In the document window itself (shown in Figure 7.13) are the icons to close the document, minimize it, or maximize it on the screen. Beneath those are the Quick Access toolbar icons.



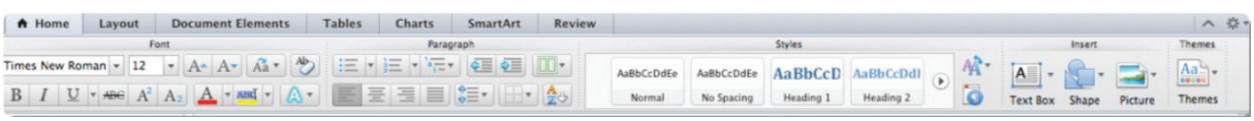
▲ FIGURE 7.13
Anatomy of Word 2011

By default, there are more of these icons in Word 2011 than there are in Word 2013; these include shortcuts to the standard *File* menu commands (such as New, Open, Save, and Print), along with Cut, Copy, Paste, Undo, Redo, and Format Painter.

The Quick Access toolbar also contains an icon to open the Help interface; this appears as a circle with a question mark inside of it. Beside the Quick Access toolbar is a text box for searching the document; you simply type a keyword into the box and press *Enter* or click on the magnifying glass icon to perform the search. The ribbon interface is beneath this toolbar.

The *Home* ribbon for Word 2011, shown in Figure 7.14, contains the tools you will need to format your text. This includes the *Font* and *Paragraph* panels for altering various settings that affect how your text will display. You also have access to the available styles in this ribbon, which are covered in the next chapter. In Word 2011, you can also insert pictures and shapes from the *Home* ribbon.

▼ FIGURE 7.14
Home ribbon in Word 2011



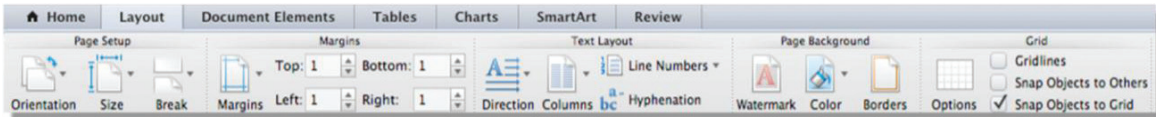


FIGURE 7.15
Layout ribbon in Word 2011

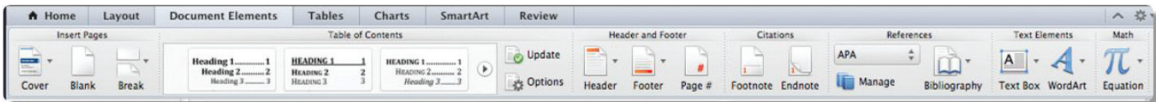


FIGURE 7.16
Document Elements ribbon in Word 2011

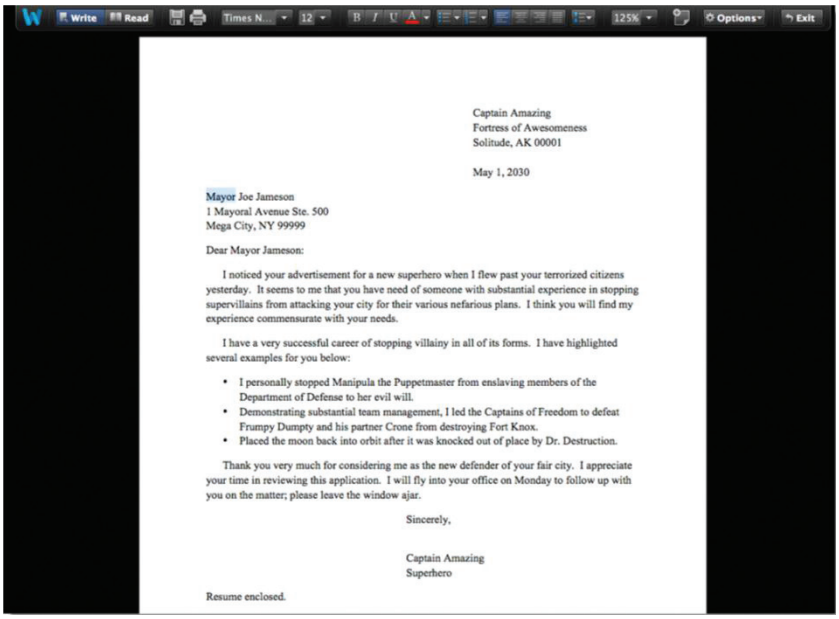
The *Layout* ribbon, shown in Figure 7.15, contains all of the tools for setting up the pages of your document. These include setting whether you want your document layout to be *Portrait* (the standard printed page with the longer side having the vertical measurement) or *Landscape* (where the shorter side is the vertical measurement). You can also set your margins from this ribbon. The margin is the amount of white space between the edge of the printed page and the beginning of your content; these typically default to 1" on each side. This ribbon allows you to add page breaks, set the number of columns in your document, and use advanced functionality, such as adding a watermark to the document or changing the background color of the page.

The *Document Elements* ribbon, shown in Figure 7.16, allows you to add common items to your page. These include a cover page, a blank page, and various types of page breaks. You can add a Table of Contents, Header, and Footer to your document from this ribbon using the predefined formats. This ribbon also includes tools for using references and citations; this is covered in the next chapter.

The *Tables*, *Charts*, and *SmartArt* ribbons are used to add advanced features to your document. These ribbons are covered in later sections of this book. You are welcome to click on them to see what they contain, but they are not used in this chapter. The *Review* ribbon is used primarily for editing collaborative documents for which you want to track changes and for sharing documents with others. Some of the features in this ribbon are discussed later in this chapter.

The *Document Map* pane lets you see an outline of your document, similar to the *Navigation* pane in Word 2013. To do this, select the *View* menu, choose *Sidebar*, and then choose *Document Pane*. The four tabs across the top of the *Document* pane correspond to Thumbnails, Document Map, Reviewing, and Find and Replace. The *Thumbnail* pane shows a miniature version of the pages of your document as they appear when printed. The *Document Map* pane shows the outline of the document arranged according to the document headers. The *Reviewing* pane identifies comments and tracked document changes. The *Find and Replace* pane will locate instances of the text you enter in the Find text box and allow you to select options for replacing that text with what you enter in the Replace text box. The *Document* pane is useful for jumping quickly through your document and seeing an outline of the text you are constructing.

The bottom of the interface includes shortcuts for changing the view of the



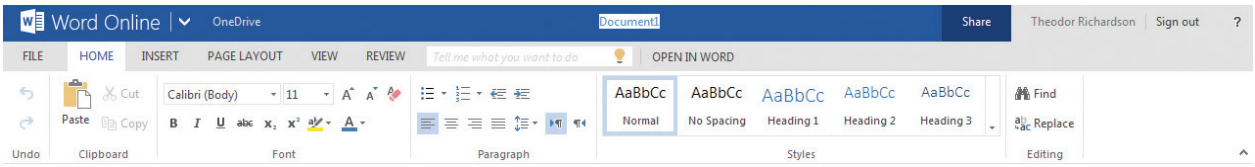
▲ **FIGURE 7.17**
Full Screen view in Word 2011

document. The views included here are Draft, Outline, Publishing, Print, Notebook, and Full Screen. *Draft* view shows your document without the page formatting. *Outline* view shows the contents of your document arranged as an outline where you can see higher level headings for text farther to the left. *Full Screen* view is a special mode that shows your document on the full screen without any desktop interface, as shown in Figure 7.17; when you are in this view, you have access to just a subset of the normal formatting commands. Select *Exit* to return to the standard *Print* view. *Publishing* view and *Notebook* view are special formats for text documents that require your document to be created or converted to the format for use; *Notebook Layout* view is similar to Office OneNote 2013 and is covered in Appendix A.

In addition to the view selection, the bottom of the interface has several other convenient data points. You will see the page number you are currently on out of the total page count. You will also see your current word count; if some text is selected, you will see the word count of the selected text out of the total word count. There is also an indicator for spelling and grammar errors; a green check mark means there are currently no mistakes in the document and a red *X* indicates that there are errors according to the spelling and grammar rules of Word 2011. Finally, at the far right of the bottom interface is the current zoom percentage (this is a percentage of actual document size, which is 100%); you can adjust the slider setting to change the zoom.

Microsoft Word Web App 7.3.3

As part of the Windows Live account, the OneDrive cloud storage system allows for users to create new Word, Excel, and PowerPoint documents which can be stored and shared online or downloaded to a local computer. The app versions of these Office programs are not as robust as the standalone versions you install on your computer, but they do allow you to perform basic tasks from any computer connected to the Internet. From the homepage of the OneDrive (as covered in Chapter 5, "Microsoft OneDrive and Cloud Computing") select *Create* and then



▲ FIGURE 7.18
Creating a new Word file from the OneDrive

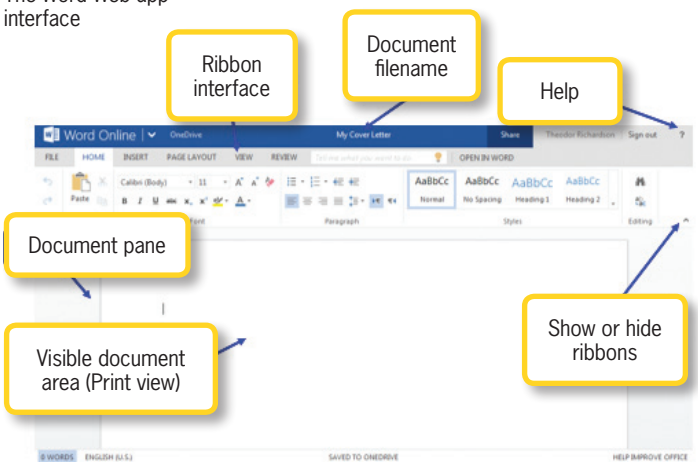
choose *Word Document*. You will be taken to your new file, where you can name your document by clicking on the text "Document 1" as shown in Figure 7.18 or by using the Save As function in the *File* menu. For this example, you can use the name *MyCoverLetter*.

The interface of the Word Web app should be familiar if you have seen Word 2013. You can see this interface in Figure 7.19. There are fewer ribbons on this interface and fewer options available. The *Home* ribbon (also shown in Figure 7.19) allows access to the system clipboard, provides the standard options for font and paragraph adjustments, manages the document styles, and contains the functionality for checking the document spelling. You may also notice that the bottom of the interface contains only an estimate of the total word count.

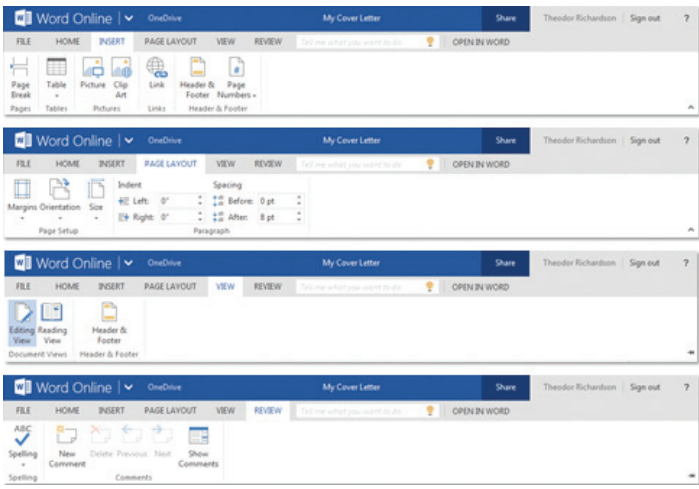
The remaining ribbons are also limited in functionality from the other versions of Word. The *Insert* ribbon, shown in Figure 7.20, only allows you to add tables, hyperlinks (connections to other documents or resources), images, and Microsoft ClipArt. The *Page Layout* ribbon allows you to set margins, page orientation, document size, indentation, and paragraph spacing. The *View* ribbon allows you to select between Editing View, which shows the full interface and serves as the default setting, and Reading View, which hides the interface and allows you to view just the document content. The Review ribbon allows you to check spelling in the document and add and edit comments.

There are two additional options in the ribbon interface: Open in Word and Share. Open in Word allows you to open the document using your local copy of Microsoft Word. This will only work if you have Word installed on your machine or if you are downloading a temporary copy as

◀ FIGURE 7.19
The Word Web app interface



▼ FIGURE 7.20
Ribbons in the Word Web app interface



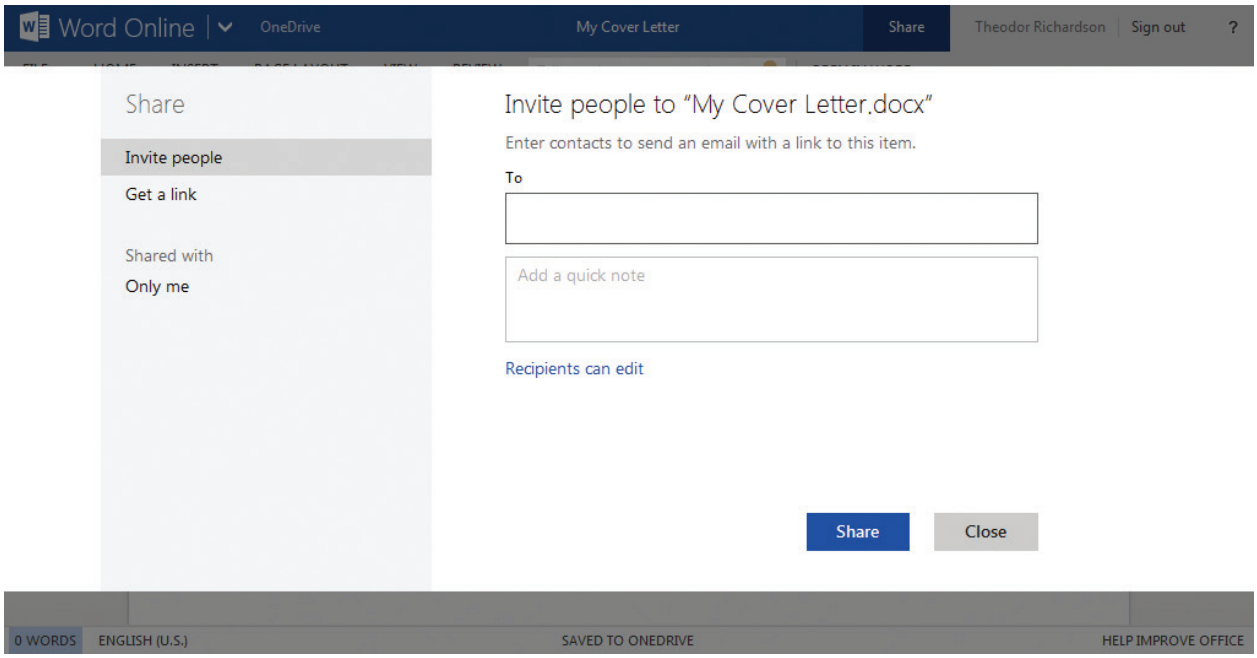


FIGURE 7.21 Sharing a Word document in OneDrive

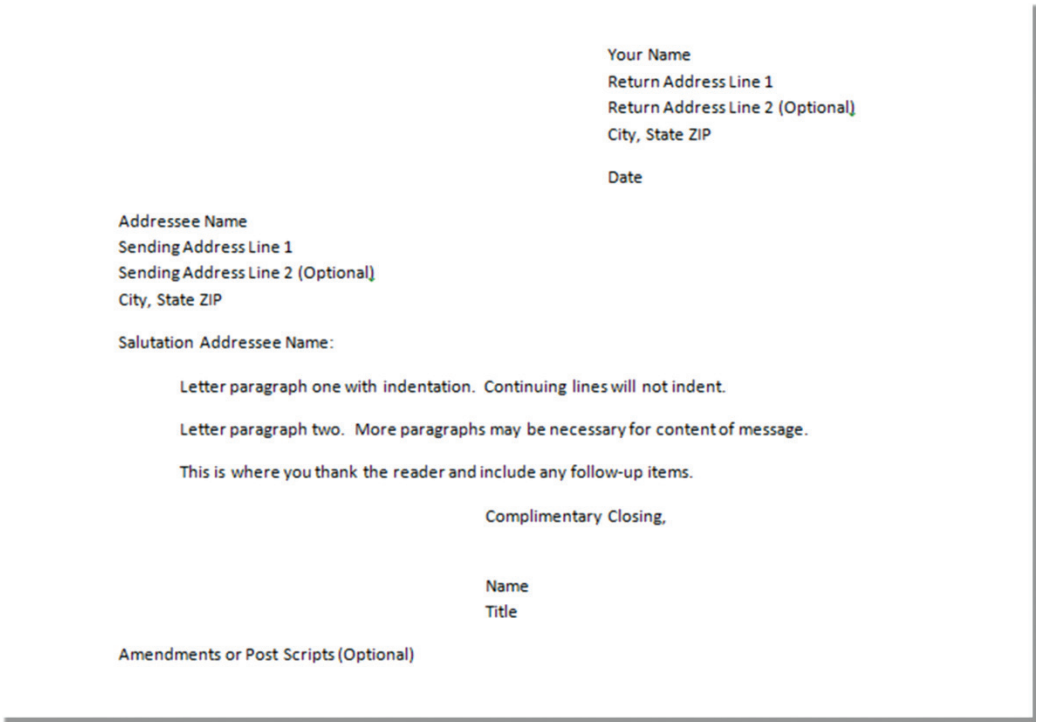
part of the Office 365 subscription service. The Share option, as shown in Figure 7.21, allows you to email the document to other recipients, post it to social media outlets like Facebook and Twitter, or get a link which you can send to others that will allow them to access the document on your OneDrive. You can choose whether the recipients are allowed to edit the document or not.

7.4 DIVING INTO WORD PROCESSING

A resume and a cover letter are two documents that everyone needs to prepare when applying for jobs in the professional world. These documents are designed to showcase your abilities and experience. Because these two documents are almost universally necessary, they are used as a first step into the world of word processing. Even if you are not currently looking for a job, it is always beneficial to remain proficient in the skills used to create these documents. You will be creating two documents for this project, one from a blank document and one from a template. You can use the blank document you already created to start your cover letter. Be sure to clear out any contents of the document you may have entered while exploring the program by using the shortcut to select all (*Ctrl-A* or *Command-A* depending on the operating system) and pressing the *Delete* key. Save the file as *MyCoverLetter*.

Writing a Cover Letter 7.4.1

A *cover letter* is a type of formal business letter that typically accompanies a resume in response to a job posting. While the resume is a bullet-point account of education, experience, and skills, the cover letter is a paragraph account of the significant points on the resume that apply to the specific job for which you are applying. One way to look at a cover letter is to think of it as a tour guide of the resume for a particular job.



▲ **FIGURE 7.22** Example formatting for a cover letter

A cover letter should be short and tailored to the specific job, highlighting the relevant skills and experience that make you a suitable candidate for that position.

To get started, research a job on Monster (*www.monster.com*) that you would like to have; this will be the job for which you customize your resume and cover letter for the project in this chapter. Because this is a formal business letter, there is a specific format that should be followed. These formatting instructions and the required number of blank lines between each section are shown in Figure 7.22. You should include all of the information on this outline that you can and prepare to write the text of your letter.

A cover letter should consist of three paragraphs of text with a total word count of 150 to 250 words. The first paragraph should describe how you found the job posting, why you are qualified for the job, and why you are seeking the job (this is especially important if you currently have a job).

The second paragraph should highlight your qualifications. You should have three to four relevant accomplishments or demonstrable skills (with some sort of supporting documentation or recommendation to back up the claim) that you want to highlight in the second paragraph of the letter. The final section of the letter should indicate follow-up actions like when you will contact the potential employer for any next steps on your end.

The company Palladian International, LLC, conducted a study called "Cover Letter Best Practices" that outlined how managers actually use cover letters in the hiring process. The following are their recommendations for creating a more successful cover letter:

You can see the word count of your document in the lower-left corner of the interface beside the page number in Word 2013; it is located more to the center of the bottom of the interface in Word 2011. This is indicated by the word *Words:* next to the value.

- Personalize the cover letter to the specific position.
- Give a reason why you should be hired.
- Identify why you are seeking the position.
- Keep your letter brief.
- Make it easy for the viewer to see the relevant points.

Several other important steps to take are to proofread your document before you submit it and to make sure your document is in the correct format the organization wants for submission. You should also avoid cliché opening lines in your letter; these may get you disregarded entirely so it is better to open with accomplishments relevant to the available position. A completed example of a cover letter is shown in Figure 7.23. This is the model you should follow in constructing your letter (though you will need to add your own text that is specific for the position you selected).

After you have entered your text (as plain text entry), you will need to format your letter. You should have your return address, the recipient address, greeting, first paragraph, bullet-point accomplishments, third paragraph, salutation, and name entered in plain text (formatted from the default text entry settings of the program) at this point. Because the text of your document will vary greatly from position to position, the remainder of the project will concentrate on formatting, reviewing, and managing the document.

Formatting Text

7.4.2

Text entry can be done in simpler programs like Notepad, as the real benefit of word processing software is the ability to format and change the appearance of text. The ability to design the appearance of your text, add additional media to your documents, and share your documents in multiple formats is where word processing stands out against simple text editors. Word has all of these features available to turn the plain text you added to your document into a professional-looking cover letter.

▼ FIGURE 7.23 Cover letter example

Captain Amazing
Fortress of Awesomeness
Solitude, AK 00001

May 1, 2030

Mayor Joe Jameson
1 Mayoral Avenue Ste. 500
Mega City, NY 99999

Dear Mayor Jameson:

I noticed your advertisement for a new superhero when I flew past your terrorized citizens yesterday. It seems to me that you have need of someone with substantial experience in stopping supervillains from attacking your city for their various nefarious plans. I think you will find my experience commensurate with your needs.

I have a very successful career of stopping villainy in all of its forms. I have highlighted several examples for you below:

- I personally stopped Manipula the Puppetmaster from enslaving members of the Department of Defense to her evil will.
- Demonstrating substantial team management, I led the Captains of Freedom to defeat Frumpy Dumpty and his partner Crone from destroying Fort Knox.
- Placed the moon back into orbit after it was knocked out of place by Dr. Destruction.

Thank you very much for considering me as the new defender of your fair city. I appreciate your time in reviewing this application. I will fly into your office on Monday to follow up with you on the matter; please leave the window ajar.

Sincerely,

Captain Amazing
Superhero

Resume enclosed.

7.4.2.1 *The Font Panel*

The *Font* panel is common to most of the Office programs. This panel, located on the *Home* ribbon, contains the formatting commands for changing the font, size, style, and color of your text. The default font for a new document is Calibri (Body) on Windows and Cambria (Body) on the Macintosh. Select all of the text in your letter by using the *Select All* shortcut (*Ctrl-A* on Windows and *Command-A* on the Macintosh) and select *Times New Roman*.

A **FONT** *is a complete set of keyboard characters in one particular style (the style is the name of the font). Most fonts support standard sizes as well as bold and italic variants.*

The *Font* panel is shown in Figure 7.24. Remember that changes to the *Font* panel settings apply only to text that is selected when the changes are made. If no text is selected, the settings will be changed for text that is added at the current cursor location until another section of formatted text is encountered. By default, the format of new text that you enter will be consistent with the text immediately before it in the document.

You can change the size of your text (called the font size) in a number of ways: by selecting a preset value from the drop-down Font Size field, typing a number manually in the Font Size field, or using the *Grow Font* and *Shrink Font* icons to increment or decrement the size of the font. Select all of your text and change the font size to *12*. Font sizes are set in point values; a *point* is the smallest unit of measure in typography.

There are several keyboard shortcuts for the common formatting enhancements. To bold text, use *Ctrl-B* (or *Command-B* on the Mac); to italicize text, use *Ctrl-I* (or *Command-I*); and to underline text, use *Ctrl-U* (or *Command-U*). These act as a toggle, so repeating the command will turn off the effect.

There are 72 points per inch. An intermediate value called a *pica* is the equivalent of 12 points (so there are 6 picas per inch).

You should not add text effects to a cover letter. Readability and clarity are essential for this type of document. However, you should take note of the styles that you can apply to your text in the *Font* panel. Bold, Italic, and Underline are all means of adding emphasis to your text. Bold will make the text thicker

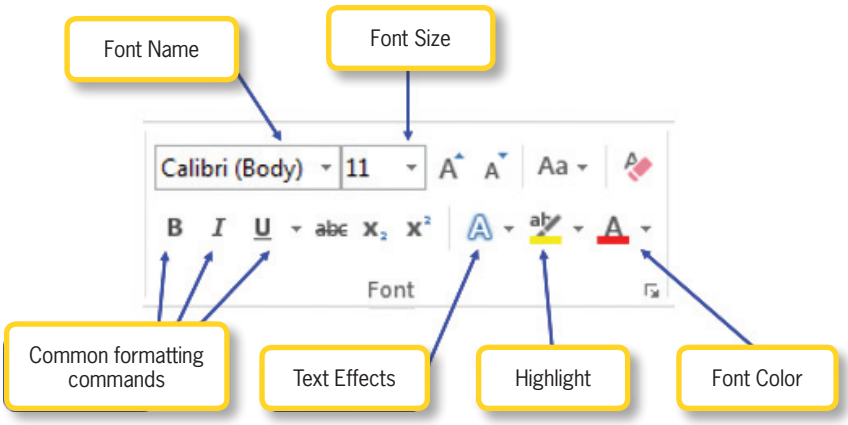


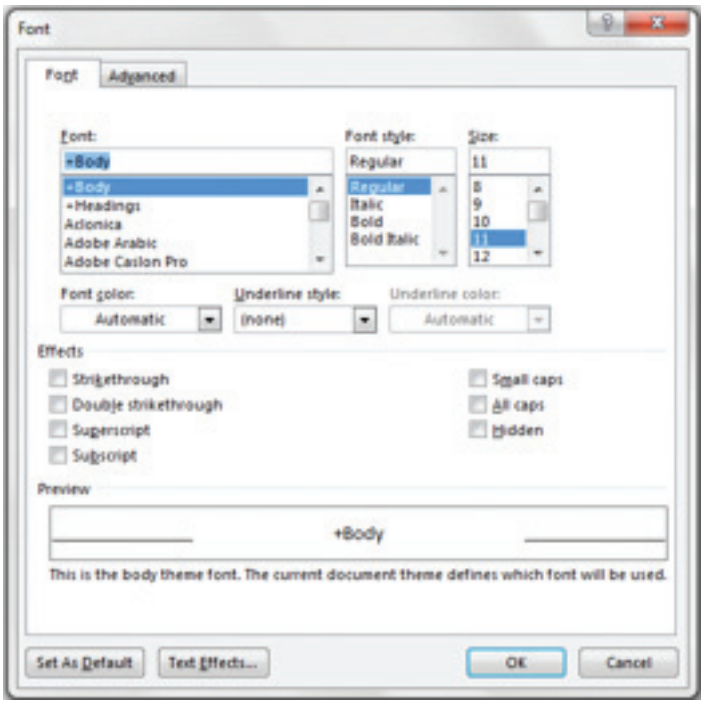
FIGURE 7.24
Word Font panel in the Home ribbon

and darker, Italic will slant the text, and Underline will add a line under the text. Strikethrough retains the text but crosses it out; this is used to show completed tasks in a list of tasks. The strikethrough used to be an indicator of an error correction in typewritten documents, but there is no need for this use in modern word processing software except in tracking changes for collaboration.

You can use the Text Highlight Color option to highlight your text; this is similar to using a highlighter marker on paper. The text will remain visible, but it will be emphasized so it can be quickly found later. The color of the highlighter can be changed, allowing you to color-code text. To get rid of an existing highlight, select the highlighted text, click the drop-down arrow under the *Text Highlight Color* icon, and choose *No Color*.

To change the color of the text itself, you use the *Font Color* icon. Clicking on the drop-down arrow opens a menu from which you can select any of the colors of the current theme setting and standard colors. You can also utilize custom colors or a gradient by selecting these options from the menu. Finally, using the *Clear Formatting* icon (which looks like an eraser) will remove any changes you have made to the formatting of the selected text and reset it to the default font settings for the document.

In Word 2013, the expansion icon in the lower-right corner of the *Font* panel opens the *Font* dialog box. In Word 2011, you open the *Font* dialog box by selecting the *Format* menu and choosing *Font*. The *Font* dialog box is shown in Figure 7.25. This dialog box allows you to configure the font, size, effects, and enhancements for your text in a single interface. Of particular note is the ability to change the underline style of your text from the default thin solid line to a preset number of selections included a dotted line, broken line, wavy line, and double line.



▲ **FIGURE 7.25**
Font dialog box in Word 2013

Activity 7.3— Clipboard Options

For this activity, you will explore the different options for preserving formatting in text. You should create a new document and save it using the default file format as Activity7_3. *You should add a line of text to the document such as "This is my new formatting document." Use formatting commands to alter the line of text, including the font, size, and style. Copy the text of the line and begin pasting it below the original line, separating each line with a blank line*

(from the enter key) and selecting the different options that appear in the dropdown list. How does the formatting differ in each case?

7.4.2.2 The Paragraph Panel

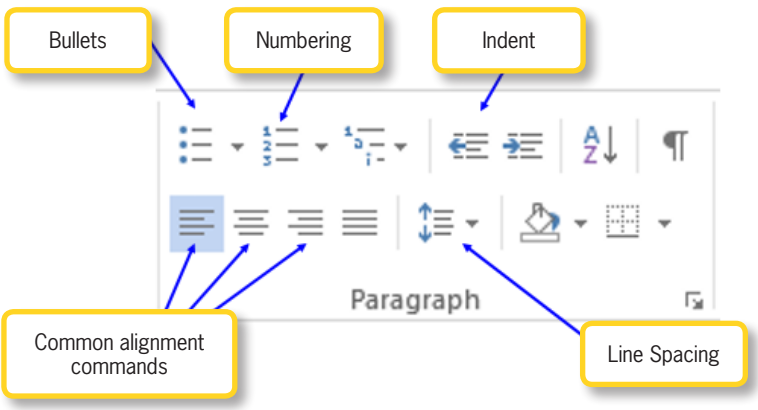
The *Paragraph* panel is located beside the *Font* panel on the *Home* ribbon and is shown in Figure 7.26. This panel provides options for bullets and numbering, outline formatting, text indent (to increase or decrease indent), text alignment, and spacing between lines. Text alignment will be a bigger concern when you start adding complex visual elements to your word processing documents (and presentation documents). For now, though, use the *Align Text Right* icon to align the date and return address to the right margin of your cover letter (the margins should be set at the default letter size for now, meaning your text will be 1" from the right edge of the paper when printed). To do this, select the date and return address (your address) within the document and click *Align Text Right*. You will notice that the default setting is for text to be aligned to the left.

The *Line Spacing* icon allows you to select the number of lines of space given for each line of text (by default, this is set at 1.15 lines of space per line in the menu); this spacing is based on the font size of the text, so double spacing (two lines of space per line of text) for a 12 pt font will be equal to 24 pts of space, but for an 18 pt font will be 36 pts of space. There are also a few options for paragraph spacing. The *Paragraph* dialog box offers a more detailed selection of options for line spacing.

In Word 2013, click the expansion icon in the lower-right corner of the *Paragraph* panel to open the *Paragraph* dialog box. In Word 2011, you activate the *Paragraph* dialog box by selecting the *Format* menu and choosing *Paragraph*. When you open the dialog box, it should default to the *Indents and Spacing* tab, which is where you change the settings for the line spacing.

In the *Spacing* area, select *At Least* under the *Line Spacing* entry, and in the *At* field, enter *16 pt*. This will add some additional space to each line and make your text more readable without wasting too much space. The preset *Single* and *Double* values are also commonly used for formatting, using either one or two times the font size of the line as the vertical space between lines of text.

▼ FIGURE 7.26
Word Paragraph panel in the Home ribbon



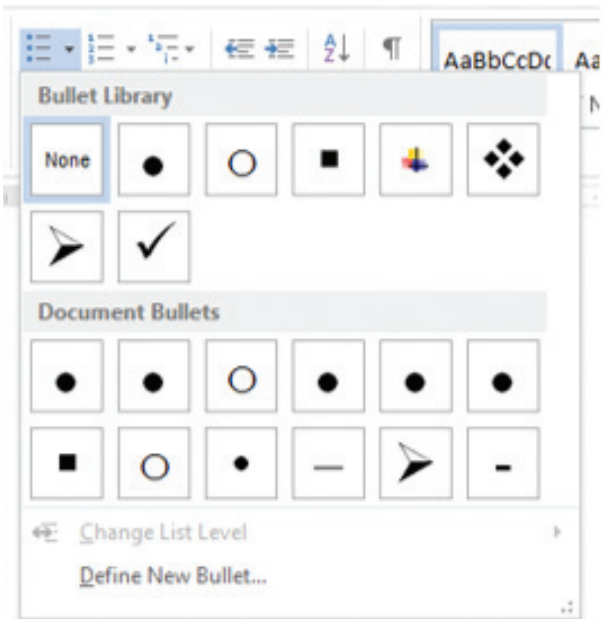
Format Painter 7.4.2.3

It is important to give any document you create a consistent look and feel. You will learn about managing styles in the coming chapters, but one way to provide consistency is to use format painting. This process takes the formatting modifications from the currently selected text and applies them to any text that is highlighted after you click the *Format*

Painter icon. This icon, which looks like a paintbrush, is located in the *Home* ribbon in Word 2013 and in the Quick Access toolbar in Word 2011.

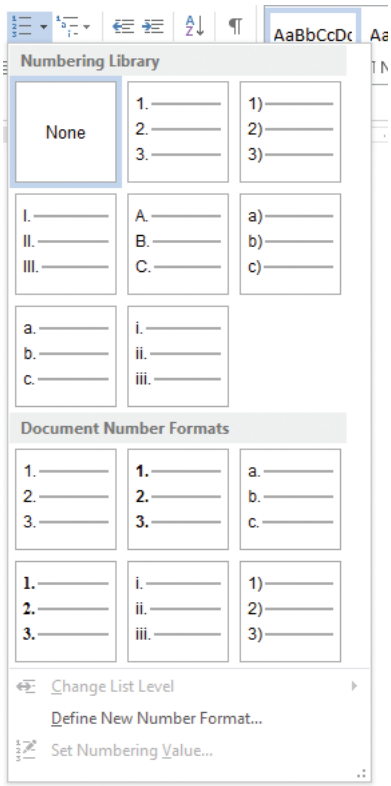
7.4.3 Bullets and Numbering

It is time to add bullet points to the three or four key items that you highlighted in your cover letter. Select the lines of text for your primary points and then click the *Bullets* icon in the *Paragraph* panel of the *Home* ribbon. This will automatically convert your items to an unordered list of elements. You can change the style of the bullet point by selecting from among the available options in the drop-down arrow menu for the *Bullets* icon, shown in Figure 7.27. You can also define a custom bullet style by selecting *Define New Bullet*. This will open a dialog box allowing you to select a symbol, image, or letter from a particular font (like *Wingdings* or *Webdings*) for your bullet point.



▼ **FIGURE 7.27**
Bullet Library in Word

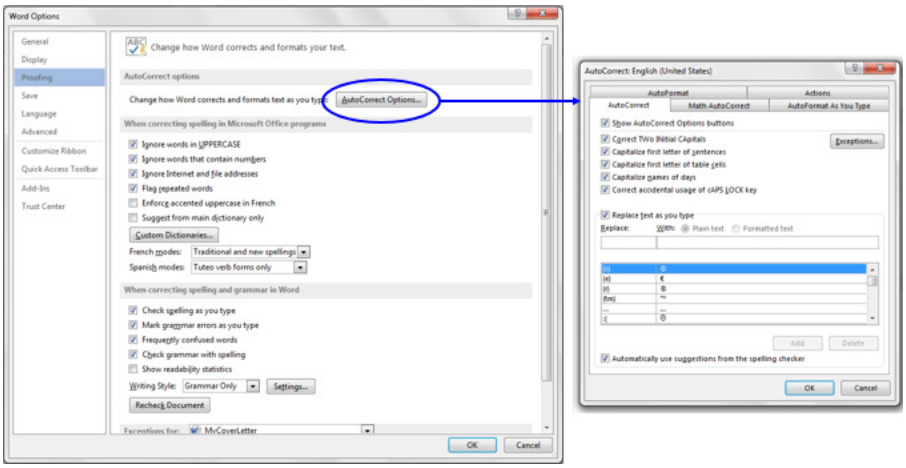
Though you are not using it for this project, there are similar options available from the *Numbering* icon's drop-down arrow menu (shown in Figure 7.28). The significant difference between numbering and bullets is the inclusion of ordering in a numbered list. The numbering options available include letters, numerals, and Roman numerals (a system that uses specific letters to represent numeric values such as *I* for one and *V* for five); you can choose from the predefined set or you can choose *Define New Number Format* to create custom styles.



▲ **FIGURE 7.28**
Numbering Library in Word

7.4.4 Document Review

One of the biggest mistakes you can make with a cover letter, resume, or any other professional document is not checking the spelling and grammar of the work before you submit it. Word has some excellent tools for checking spelling and grammar, but there are errors that it will not catch; for instance, typing the word "an" when you mean to type "and" may not register as a grammatical error and will not be flagged as a spelling error as it is a correctly spelled word. Because of this, it is a good idea to have someone else review your cover letter and resume before you submit them.



▲ **FIGURE 7.29**
AutoCorrect options in Word 2013

In addition to the manual tools for checking spelling and grammar, Word has several AutoCorrect features that will attempt to replace words as you type to correct common misspellings and to replace certain text entries with symbols.

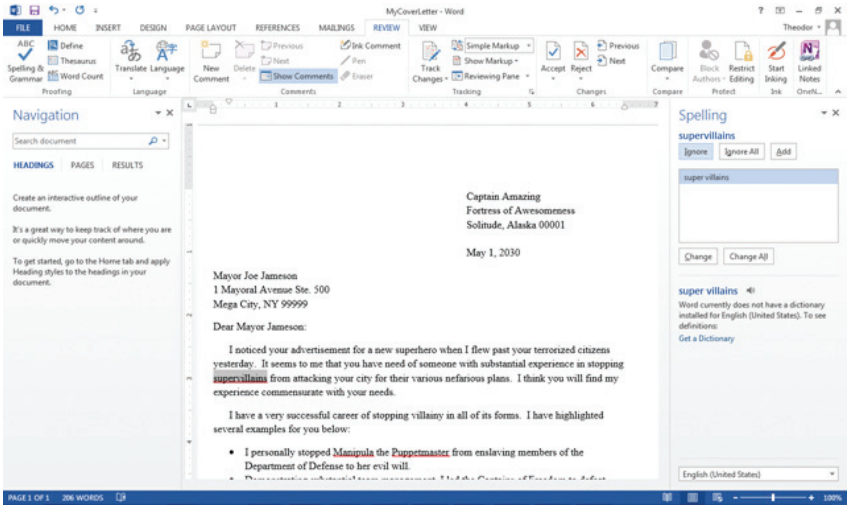
You can configure the AutoCorrect options if you want to add any additional rules or turn off any existing rules. To reach the AutoCorrect preferences in Word 2013, select the *File* menu and then choose *Options*. This will open the *Word Options* dialog box. From here, click *Proofing* in the menu on the left and select the *AutoCorrect Options* button. In Word 2011, select the *Tools* menu and *AutoCorrect*. The existing rules are displayed in a list at the bottom of the dialog box; you can add a rule by typing the misspelled word in the *Replace* field followed by the correct word in the *With* field and choosing *Add*. These dialog boxes are shown in Figure 7.29.

7.4.4.1 Spelling and Grammar

The spelling and grammar check will locate and alert you to any issues that it finds within your document. Clicking the *Spelling & Grammar* icon initiates an automated review of your document. In Word 2013, it is located in the *Review* ribbon. In Word 2011, select the *Tools* menu and then choose *Spelling and Grammar*. You will be prompted with any correction issues that the software locates.

All of the Office programs have a spelling check option. It is always a good idea to use the *Spelling* or *Spelling & Grammar* option to review your work before you submit it or share it.

An example correction prompt is shown in Figure 7.30. Any suggested alternatives are listed beneath the text field identifying the surrounding text in the document where the error was found. You can choose *Ignore* to retain what Word perceives as an error, *Ignore All* to ignore all equivalent perceived errors, and, if it is a spelling issue, *Add* to force Word to accept the word as a correct spelling now and in the future. If you wish to follow the suggestions for changing the perceived error, you can select *Change* to correct the highlighted instance and *Change All* to change all instances of the same type in the document. Note the location of the prompt on the right side of the interface in Word 2013. This is a common location for dialog boxes of this type to occur in the Office 2013 suite. The *X* icon at the far right will close this dialog.



▲ **FIGURE 7.30**
Spelling and Grammar check example in Word 2013

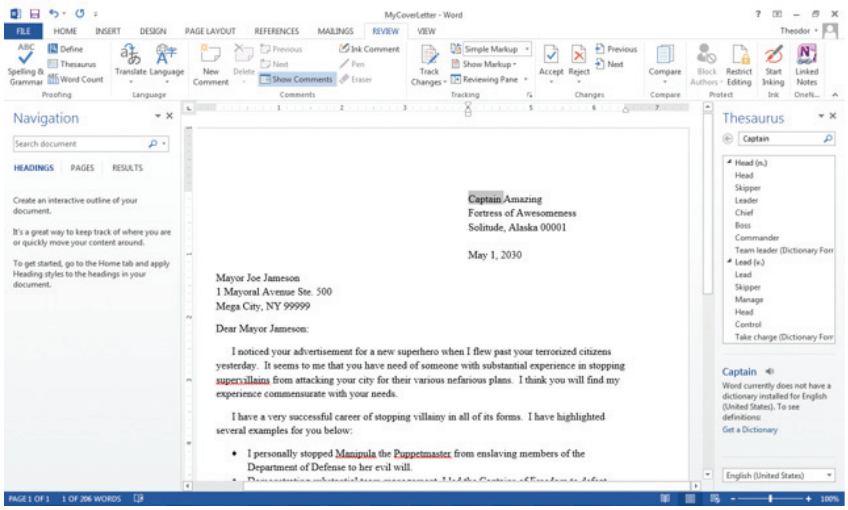
Word is not perfect when it comes to document proofreading and corrections. It may highlight items that are actually correct (called a false positive) and it will miss items that are grammatically correct and spelled correctly even if the word usage is wrong (called a false negative). You should always use the automated tool for proofing your document in case you do have easy corrections to make that you may not catch just by reading it, but you also need to make sure you (and possibly also a friend or colleague) review the document as well.

7.4.4.2 *Thesaurus*

A thesaurus is a tool for finding words with a similar meaning (called synonyms) as a word you want to replace. This is a useful tool if you find you are using a word too much in your writing and want to vary it throughout. If you find that you have used the same term too often in your cover letter, you probably need to find an alternative word to keep your audience from getting bored of the repetition; if this happens, the audience may start to skim your writing instead of reading every word of it.

You can access the Thesaurus in Word 2013 by opening the *Review* ribbon and choosing *Thesaurus*. This will open the pane on the right of the interface where you can type the word you want to replace and then click the magnifying glass icon to conduct the search. You can activate this search on a highlighted term in your text by just selecting the *Thesaurus* icon in the *Review* ribbon. An example is shown in Figure 7.31.

In Word 2011, select the *Tools* menu and choose *Thesaurus*. This will open a *Research* pane to the right side of your document. Type the word for which you want synonyms



▼ **FIGURE 7.31**
Thesaurus example in Word 2013

in the *Search for* field and select the correct Thesaurus from the drop-down menu. Hitting the *Enter* key (or pressing the *Start searching* icon) will populate the text area beneath it with potential replacement terms.

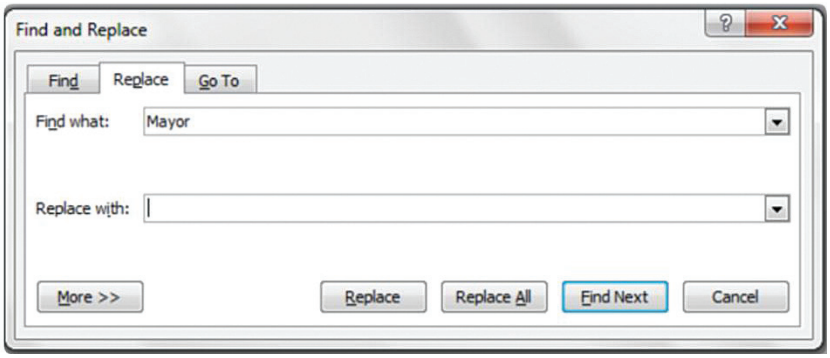
If you are unsure of the exact meaning of the word you are substituting into your document, it is always a good idea to look it up and make sure you are using it correctly. You can use online dictionaries like Dictionary.com (*www.dictionary.com*) to do this or you can use any built-in dictionaries like the one accessible in Word 2011 (by selecting the *Tools* menu and choosing *Dictionary*). In Word 2013, you can also search for the definition of a term using the *Define* icon on the *Review* ribbon. This will open a new dialog where you can select your dictionary and, once it is installed, you can search for the term you want to find.

7.4.4.3 Find and Replace

An additional tool that can help you with searching for repetitive terms or finding a particular word in your document is the *Find* command. This allows you to perform a simple keyword search of your document. In Word 2013, the *Find* icon is located on the *Home* ribbon; you can also access the *Find* command on a Windows machine using the shortcut *Ctrl-F*. In Word 2011, there is an existing search box in the top-right corner of the open document window that will allow you to enter text for a keyword search of your document; you can highlight this search box using the shortcut *Command-F*. This will highlight all instances of the keyword (or words) in your document.

> The keyword entry for the Find command in Word 2013 is located on the Navigation pane. If the Navigation pane is closed when you select the Find command (by icon or by using the shortcut, the Navigation pane will be displayed on the Browse Results tab. This tab will show all instances of the keyword in the document, and you can jump to a particular location by clicking on a result.

To replace the keyword with which you searched the document with another term, you use the Replace command. In Word 2013, this is located on the *Home* ribbon; when activated, it will open a *Find and Replace* dialog box where you can navigate instance by instance through the document (with the *Find Next* button) or simply replace every instance of the keyword with the text you enter in the *Replace* field. The *Find and Replace* dialog box is shown in Figure 7.32. In Word 2013, you can activate the *Replace* command using the shortcut *Ctrl-H*. To open this same dialog box in Word 2011, select the *Edit* menu, select *Find*, and then choose *Advanced Find and Replace*.



▼ FIGURE 7.32
Find and Replace dialog box in Word 2013

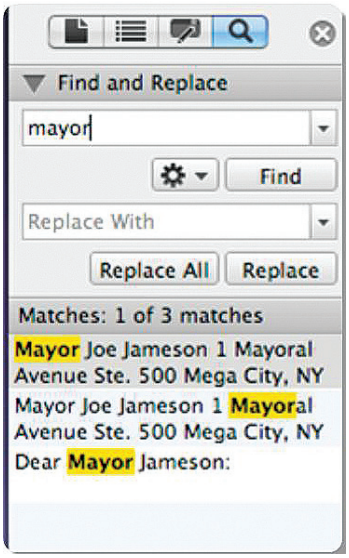


FIGURE 7.33
Search pane in Word 2011

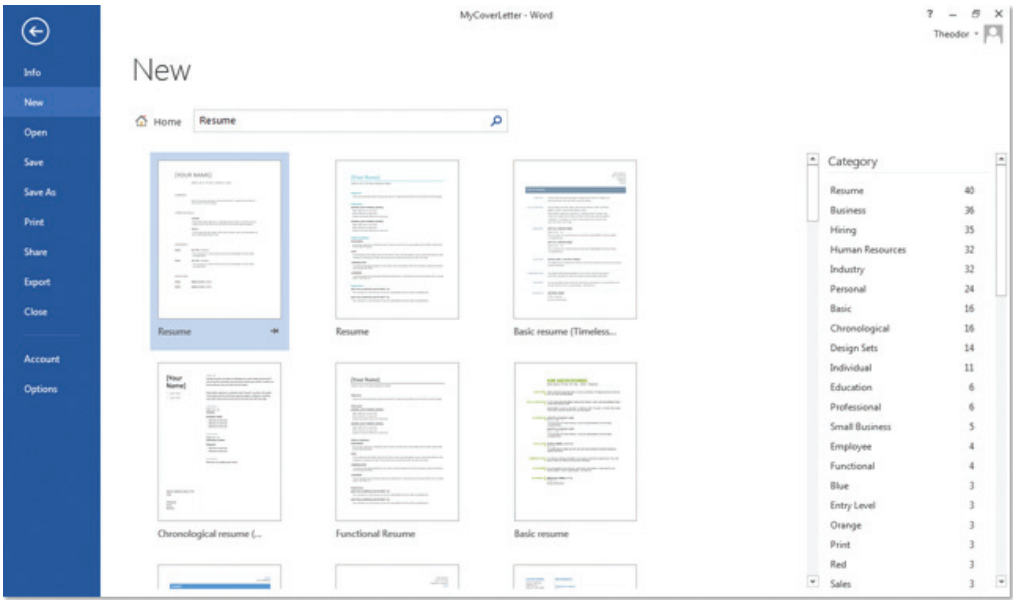
In Word 2011, you can also use the *Search* pane to perform the Find and Replace functionality. To activate the *Search* pane, select the *View* menu, choose *Sidebar*, and then choose *Search Pane*. This will open the side navigation pane if it is not already open; you can then utilize the Find functionality by itself or in conjunction with the Replace functionality. The *Search* pane is shown in Figure 7.33.

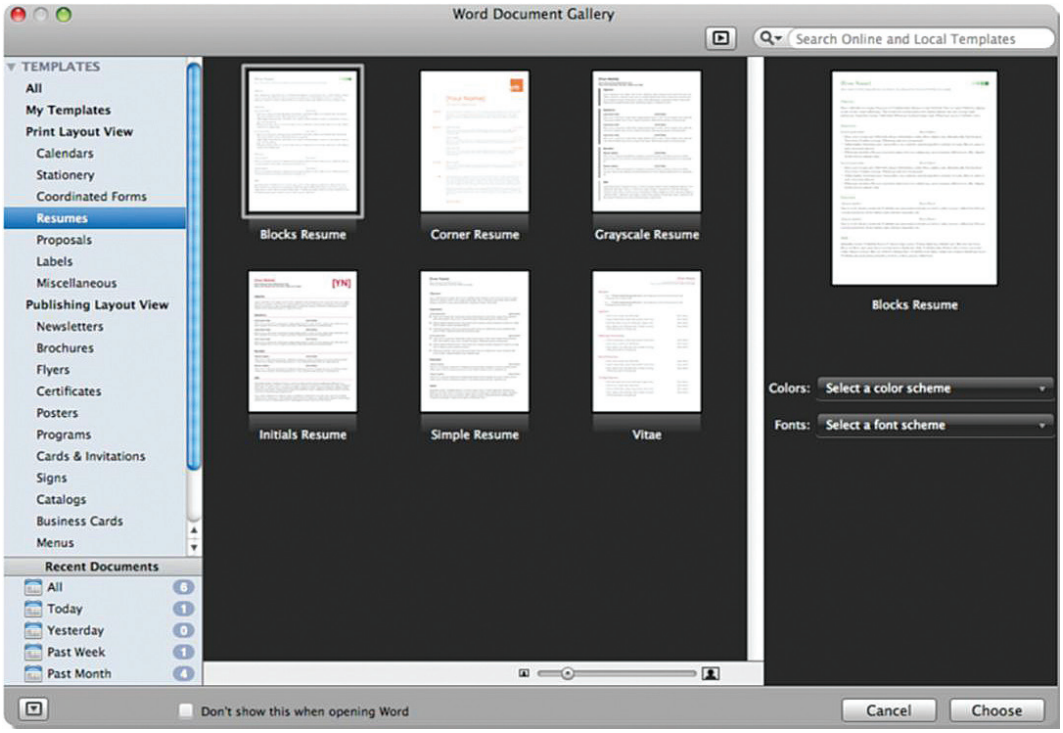
7.4.5 Using Document Templates

The next document you will create is a resume. Unlike cover letters, there is no standard formatting for a resume. Fortunately, you can get an idea of how to format a resume using the templates available in Word. A *template* is a preformatted placeholder document for your content; you can build your own instance of the document using the predefined areas where you can add objects and text, knowing what it will look like when you are finished. It is possible to modify templates just like any other document (you can even create custom templates), but templates save you work in formatting the document yourself or formatting the same document again. Document templates are a great way to get started with formatting if you are unsure of what your document should look like.

In Word 2013, you can create a new document from a template by selecting the *File* menu and choosing *New*. Beneath the blank document types that you can select are the template selections. In this case, you will select *Resumes* from the suggested search options and then choose one of the options from the window shown in Figure 7.34. You can use the search box to find almost any kind document template you need. Remember that an effective resume is clear and simple.

FIGURE 7.34
Template selection in Word 2013





➤ FIGURE 7.35
Template selection in Word 2011

In Word 2011, you can create a new document from a template either by selecting the *File* menu and choosing *New from Template* or by clicking the *New from Template* icon in the Quick Access toolbar. This will open the Word Document Gallery shown in Figure 7.35. From this interface, select *Resumes* and choose one of the templates. You can select whichever one you want, but the Blocks Resume is a versatile option.

Regardless of the version you are using, your new document will open in a new window of Word. Save the document as *MyResumeTemplate* in the *Projects* folder you created for your documents earlier. Note that all of the stylistic elements and categories of information that are necessary for a resume are included in the template. It is important to remember, though, that not all of these may apply to every job to which you may be applying.

Writing a Resume

7.4.6

A resume is an advertisement of you and your skills. The ultimate purpose of a resume is to get you an interview where you can showcase your skills on the phone or in person. It is difficult for a written document to accurately portray the abilities and experience you have to offer, so you have to be careful in constructing it. Your resume should be personalized to the job to which you are applying. You can maintain a comprehensive document for your own reference, but you should pick and choose which elements you want to include in the resume you actually submit. The resume you submit with your cover letter should not be a complete history of your entire life and experience but a showcase of what you have done

You can use the format of the template as an example, but be aware that many companies use scanners that perform optical recognition of words and characters; this means that your template-driven resume will not scan as well as one that is written with simplified headings, bullet points, and spacing. This actually makes the document easier to construct in terms of formatting; it just becomes a matter of knowing what to include. Because the document is being scanned for keywords, you should try to use the job posting to identify as many of the keywords as possible that the employer wants to see and use them where they are applicable in describing yourself and your accomplishments.

that is most relevant to the job for which you are applying.

The general guideline is that your resume should fit on a single page; you should only use a second page if you have more than 10 years of experience or an advanced degree in the relevant field. Your resume should have all of your current contact information at the top of the document. Any outdated information should be removed (such as an email account you rarely check); if the potential employer chooses to use any of the information at the top of the resume to contact you, they should be able to reach you quickly.

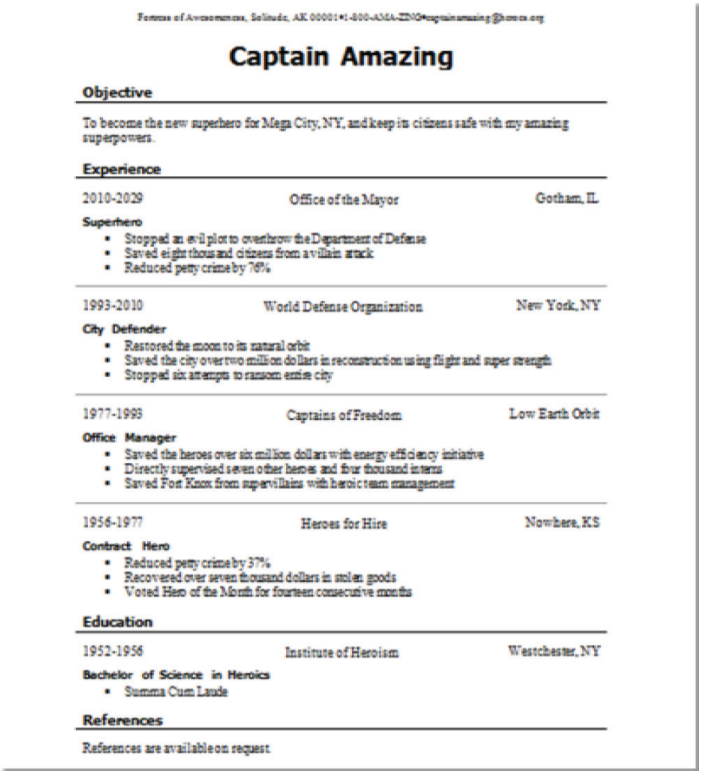
You should include an objective statement that addresses in brief what you want from the potential employer and what you can offer them in return; you should not include a specific title in this statement unless the title is relevant and clearly stated in the job description. According to JobStar Central, if you cannot deliver your objective

An employer spends on average between 10 and 30 seconds looking at a resume, so you need to make sure your text is concise and the person reviewing it can grasp the main topics in that amount of time; if they become interested in that time frame, they are likely to read more of it.

statement in a single sentence, it is too vague for you to use in your resume.

The body of the resume will generally consist of any relevant positions you have held, the degrees or certifications you have completed, and the awards or recognition you have received that are relevant to the position. It should be a showcase of your talents and abilities instead of just a list of what you have done. For any job you have listed, be sure to lead the bulleted list of accomplishments with the most impressive achievement or responsibility that you had in that position. Your bullet points should be brief and easy to scan. They should also be formatted to demonstrate a problem that existed, your actions, and the outcome that resulted. According to Resume-Help.org, you should be sure to include numbers, percentages, and currency figures wherever possible. An example of a resume using these suggestions is shown in Figure 7.36.

There are a lot of resources available on the Web if you search for "resume tips" or "resume help"; these tips can assist you in modifying the language of your resume to fit what the employer wants to see. For example, Resume-Help.org (*www.resume-help.org*) has a number of sample resumes for different positions and suggested wording and tips for creating professional resumes.



Fortress of Awesomeness, Solitude, AK 00001•1-800-ASSA-ZINO•captainamazing@heroes.org

Captain Amazing

Objective

To become the new superhero for Mega City, NY, and keep its citizens safe with my amazing superpowers.

Experience

2010-2029 — Office of the Mayor — Gotham, IL

Superhero

- Stopped an evil plot to overthrow the Department of Defense
- Saved eight thousand citizens from a villain attack
- Reduced petty crime by 76%

1993-2010 — World Defense Organization — New York, NY

City Defender

- Restored the moon to its natural orbit
- Saved the city over two million dollars in reconstruction using flight and super strength
- Stopped six attempts to ransom entire city

1977-1993 — Captains of Freedom — Low Earth Orbit

Office Manager

- Saved the heroes over six million dollars with energy efficiency initiative
- Directly supervised seven other heroes and four thousand interns
- Saved Fort Knox from supervillains with heroic team management

1956-1977 — Heroes for Hire — Nowhere, KS

Contract Hero

- Reduced petty crime by 37%
- Recovered over seven thousand dollars in stolen goods
- Voted Hero of the Month for fourteen consecutive months

Education

1952-1956 — Institute of Heroism — Westchester, NY

Bachelor of Science in Heroics

- Summa Cum Laude

References

References are available on request.

▲ **FIGURE 7.36**
Resume example

Remember that you want to perform some research on the company or organization to which you are applying so that you can tailor your resume to match what they are seeking.

Whether or not you are actually going to apply for the job you found earlier for this project it is good practice to tailor your resume to the specifics of that job. Enter your information and practice using the *Font* panel and *Paragraph* panel to format your text appropriately. When you are finished, be sure to use the automated tools to check spelling and grammar. Always remember to save your work.

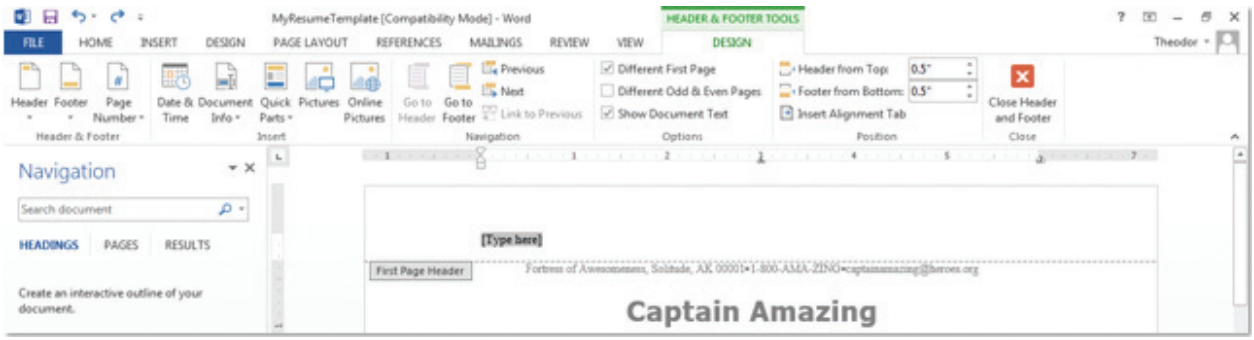
Using Headers and Footers

7.4.7

Headers and footers are often used in word processing documents. These allow you to maintain consistent elements on all pages of your document. A header, for example, may contain the title of the document. The footer may contain the page number or copyright information. For the purpose of the resume, you will use the header to enter your name and contact information. This is not a requirement, but it will allow you to format the body of your resume more consistently while keeping your contact information fixed.

You can activate the header of a document by double-clicking at the top of the visible document page. Similarly, you can double-click the bottom of the visible document page to activate the footer. When you do, you will get a context-sensitive *Header & Footer Tools* ribbon, as shown in Figure 7.37. From here, you can add

▼ **FIGURE 7.37**
Header & Footer Tools ribbon and example in Word 2013



common elements like the page number. You can also select predefined headers and footers from the respective *Header* and *Footer* icons. In Word 2013, these icons are also available in the *Insert* ribbon. In Word 2011, these are located in the *Document Elements* ribbon; you can also use the *View* menu and select *Header and Footer* to activate the header and footer for the document.

For your resume, make sure you prominently include your name, your email address, and your phone number. Additional information is at your discretion. You want to make sure a potential employer has the right information to contact you quickly. There is usually no need for a footer on a resume; even the header is optional (as long as your contact information is included elsewhere).

7.4.8 Document Types

There are several options for saving your files. You should pay close attention to the format in which the potential employer wants the document submitted and comply with that. Some employers may want the document in the native Word format. However, if there is no specification, a safe alternative is to use a PDF. A PDF file is constructed from printing commands and it produces a static document that cannot be edited or reformatted without specialized software. Unlike the native Word format, which can change depending on the software version and installed fonts, there is no variance in the display of a PDF file. This means it will display for the viewer exactly as you intend it to be seen. You can create a PDF file of your Word document by selecting *PDF* as the file type in the Save As dialog box in both Word 2013 and Word 2011.

Sometimes a potential employer will request that you send your resume via email. If you are including it as an attachment, you are safe using a PDF file. If you are including it only as text, you should strip out the formatting and use only standard text with bold and italic emphasis only (if these do not go through, your formatting will not suffer). One important aspect of this type of formatting is to replace any bullet points with the asterisk (*) character and change numbered lists to manually typed numbers; the formatting for bullets and numbering varies depending on the email program used and you want to retain as much control as possible over the display of your document.

Activity 7.4—Using the OneDrive to Store Documents

For this activity, you will add your resume and cover letter to your OneDrive account. Use a Web browser of your choice and login to your Windows Live account. Select the OneDrive and choose the Upload option. Select both files to upload to your account. You should not set sharing on these files at this time. Where do these files appear on the main page of your OneDrive account online? What options are you given when you select one of them?

CHAPTER SUMMARY

This chapter introduced you to the fundamental concepts and operations for creating simple word processing documents. This is the most common productivity application in businesses and organizations. In addition, this chapter covered the use of common *File* menu commands for most software applications, keyboard productivity shortcuts, and file and file type management. The next chapter expands on the use of word processing software to create more advanced documents and give you exposure to the more complex formatting available in document creation. The menus and tasks introduced in this chapter will carry forward into the other productivity tools covered in this text.

CHAPTER KNOWLEDGE CHECK

1 All of the following are operations that can typically be performed from the *File* menu in an application except:

- ◯ **A.** Opening a file
- ◯ **B.** Creating a new file
- ◯ **C.** Undoing the last command
- ◯ **D.** Saving a file

2 The following are all examples of productivity software except:

- ◯ **A.** Word processing
- ◯ **B.** Spreadsheet software
- ◯ **C.** Email management software
- ◯ **D.** Presentation software
- ◯ **E.** All of the above
- ◯ **F.** None of the above

3 The following are valid formatting shortcuts for a Windows machine except:

- ◯ **A.** Ctrl-B
- ◯ **B.** Ctrl-I
- ◯ **C.** Ctrl-S
- ◯ **D.** Ctrl-U
- ◯ **E.** All of the above
- ◯ **F.** None of the above

4 The following operation is used to create a duplicate of selected text or objects on the system clipboard and remove the original:

- ◯ **A.** Copy
- ◯ **B.** Paste
- ◯ **C.** Format Painter
- ◯ **D.** Cut

5 Automated spelling and grammar checks will catch every spelling mistake possible in the language that is selected.

- ◯ **A.** True
- ◯ **B.** False

6 The following is not a characteristic of a bulleted list:

- ◯ **A.** You can select different symbols to display as the bullet point.
- ◯ **B.** The order of the items in the list is significant.
- ◯ **C.** You can have multiple levels of bullet points in an outline format.
- ◯ **D.** All of the above
- ◯ **E.** None of the above

7 A resume and cover letter should be individualized for the job to which the applicant is applying.

- ◯ **A.** True
- ◯ **B.** False

8 The following document type is designed to display the same regardless of operating system or software application:

- ◯ **A.** Word Document
- ◯ **B.** ODF Text Document
- ◯ **C.** PDF Document
- ◯ **D.** Document Template

9 The system clipboard retains any formatting for text that is selected and copied to it.

- ◯ **A.** True
- ◯ **B.** False

10 Spelling and grammar checks should be performed for every document you create.

- ◯ **A.** True
- ◯ **B.** False

CHAPTER REVIEW QUESTIONS

1. Briefly explain the relationship between word processing and productivity software. What are some other examples of productivity software that complement word processing in business?

2. What is the importance of document management? What strategy or approach do you use for organizing projects, files, and folders?

3. How is a cover letter different than a resume? What information should be included in a resume that is not included in a cover letter?

4. How can Format Painter be used to increase productivity, efficiency, and consistency?

5. What is the advantage of using a PDF? Are there certain scenarios where you would not want to use a PDF file or could not use a PDF file?

6. How are headers and footers different from the body of a document? What makes these two elements useful and when are they most suitable for use?

7. Describe a situation in which the application of a thesaurus or dictionary would be helpful within a document. What alternatives would there be to get this information and why is it more convenient to have them as part of the word processing software itself?

8. Describe an instance in which a template would be beneficial for composing a Word document. Are there circumstances in which a template should not be used? Why or why not?

9. Why is it a best practice when using Replace to look at each instance rather than selecting the Replace All option? Is there a situation in which you could use the Replace All option with certainty?

10. Based upon your own exploration, determine if the Format Painter can be used to remove formatting from a document so it is left as plain text. If so, how was this accomplished? If not, what formatting elements were retained after Format Painter was applied?

PRACTICE EXERCISES

1. Select an additional job to which you would like to apply that has significantly different qualifications than the one you used for the example project. Revamp your resume and compose a new cover letter for this specific position. Reflect on the key changes you made and which elements of your qualifications applied to both jobs.

2. Compose a simple word processing document describing yourself in about 200 words. Format the document using text effects, bullet points, and different font sizes for emphasis. Use a header for your name.

3. Compose a formal business letter to a company of your choice. This can be a letter asking for information or a letter to customer service to express a compliment or complaint. Make sure the formatting is correct and the tone is professional. You should include the reason you are writing and any outcome you desire from the letter.

4. You should have already created a personal email account earlier in this text. You will now use this email account to mail your resume and cover letter to your instructor as though your instructor was a potential employer. Place your cover letter and resume in two separate attachments labeled accordingly. Create an appropriate subject heading and develop a body paragraph stating who you are, what you are seeking, and where you discovered the job listing.

5. Choose a Microsoft Word feature with which you are unfamiliar. Use the Help files to get more information about using your selected feature. If you need to do some additional research, you can use the World Wide Web. Then create a Word document explaining the feature you chose. Additionally, add a paragraph on how you used the Help Files to become more familiar with Microsoft Word.

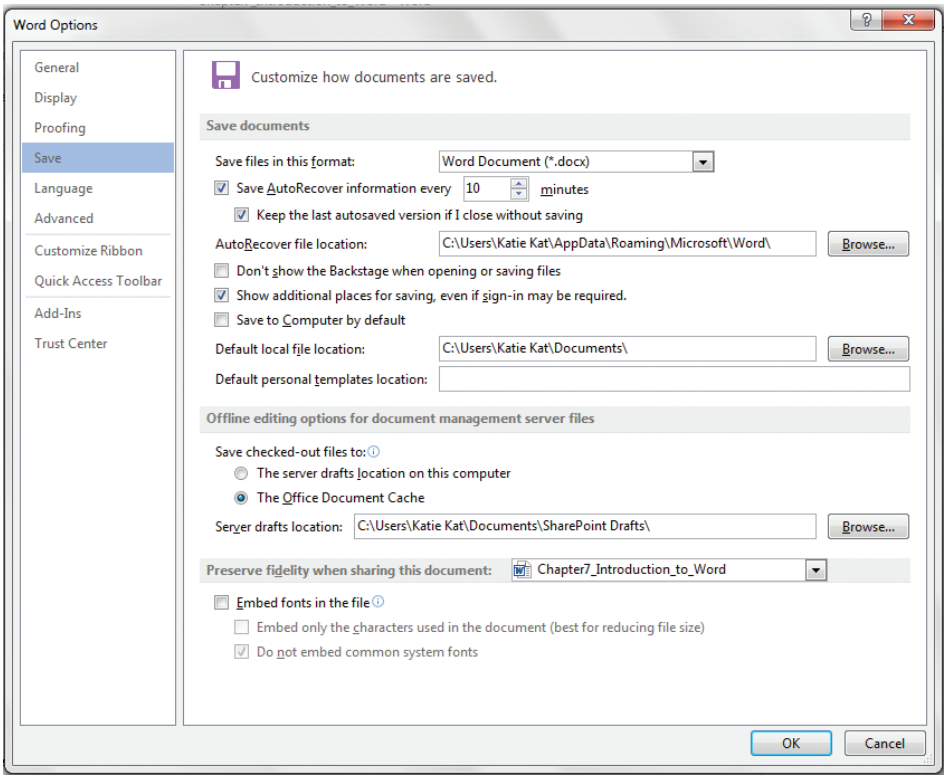
CHALLENGE EXERCISES

1. For your first exercise, open the Word application and use the New command to start a new document. Once you have opened the new document, enter a description of the process by which a file is created, saved, closed, and re-opened. Return to the *File* menu and select the Save As command. Use the Save As command to save the new file to the My Documents folder and select a name that will accurately describe the contents of the file. Close and re-open the file to verify that you included the correct instructions.

2. Open a new document from the Word application file menu. For this exercise you will learn to work with file types. The Word application allows you to save your document in a variety of file types. These file types can easily be recognized by looking at the three or four characters after the period contained in the file name you have chosen. A Word file extension is .docx. Save your new file with an easily identifiable name as you did in exercise 1, except this time when the Save As dialog window appears select a name and then select the Save as Type drop-down menu box and select a PDF type. Saving your file in this fashion will create a protected document that other users can open using a PDF reader such as Adobe Acrobat Reader. Add a brief summary of the benefits of PDF files to the contents of the Word file and resave the PDF file.

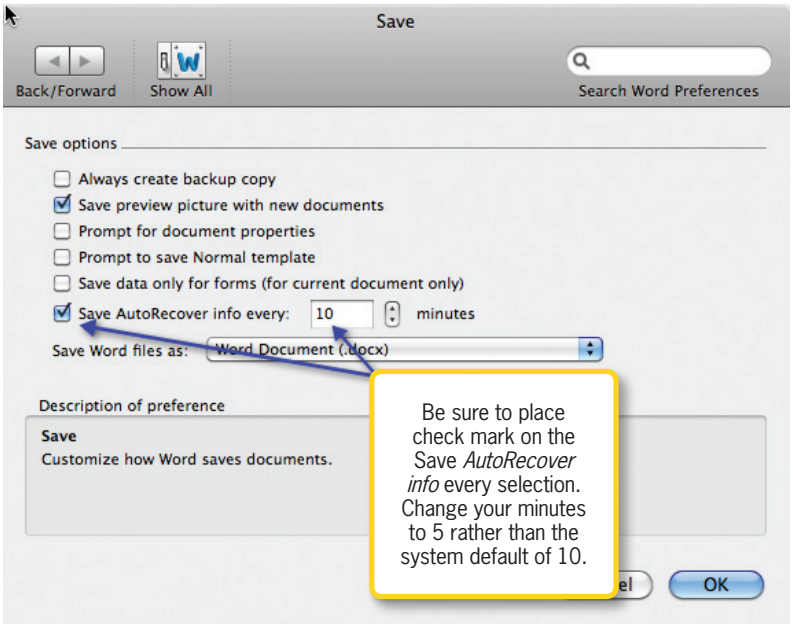
3. For this exercise you will learn how to apply templates within the Word application. Select the *File* menu and then select the New command. Search the available templates for a business letter template. Open the desired template and save the file to an appropriate location, such as to the My Documents locations on your computer. Be sure to name your file in a meaningful way.

4 Developing professional documents can be a time intensive process. This requires that you be sure you do everything possible to preserve your original documents. The Word application has several features that will help you safely recover your files from accidental deletions and even power outages. One of these features is the automatic save which is set to automatically save your documents every 10 minutes. For this exercise select the Options command from the *File* menu which results in the window displayed in Figure 7.38. Next you should be sure the *AutoRecover information every* selection has a checkmark in the check box and finally adjust the minutes to five so that your work is automatically saved every five minutes. To show your instructor you have completed this exercise, simply press the Print Screen key to copy your screen and then left click in a Word document at the position where you would like to paste your screen shot, press the shortcut command to paste the image, and your image will appear.



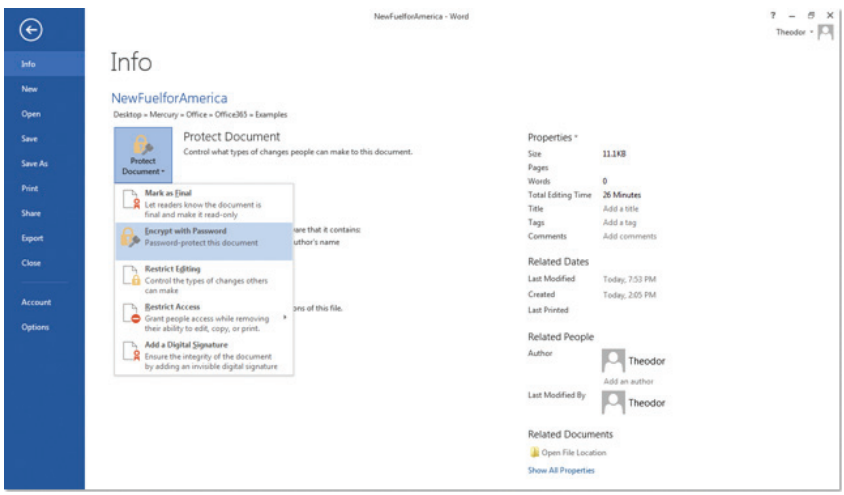
▲ **FIGURE 7.38**
Save options in Word 2013

If you're using a Macintosh computer, then you can complete the same exercise with the exception of a couple of different steps as shown in Figure 7.39 below. On the Mac you will need to open the *File* menu and select Save as. When the Save as dialogue window opens you will notice that on the bottom left side of the window there is an *Options* button. Select the Options button and the Save options window opens. Be sure to select the Save AutoRecover information every check box if it is already not checked and change your minutes to 5. To show your instructor you have completed this exercise, simply press the Command + Shift + 3 keys to copy your screen, which will be saved as a PNG file on your desktop. You can paste this image into a Word document that will show your instructor you completed the exercise.



▲ **FIGURE 7.39**
Save as options on a Macintosh

5 Organizations today constantly struggle to protect their intellectual capital. Intellectual capital is an organization's "know how" skills they develop over time. For this assignment, suppose you are working on an important memorandum that contains confidential information relating to a new fuel formula that helps vehicles run more efficiently. Create a new Word file and name it *NewFuelforAmerica.docx* and save it to your favorite location. With the document open, you will encrypt and password protect the document. (Note: The encryption option is not available for Word 2011.) Open the *File* menu and press the Info command and select the Protect Document as shown in Figure 7.40. For this assignment, select the Encrypt with Password option and select a password with no more that fifteen characters using a combination of numbers, letters, and characters.

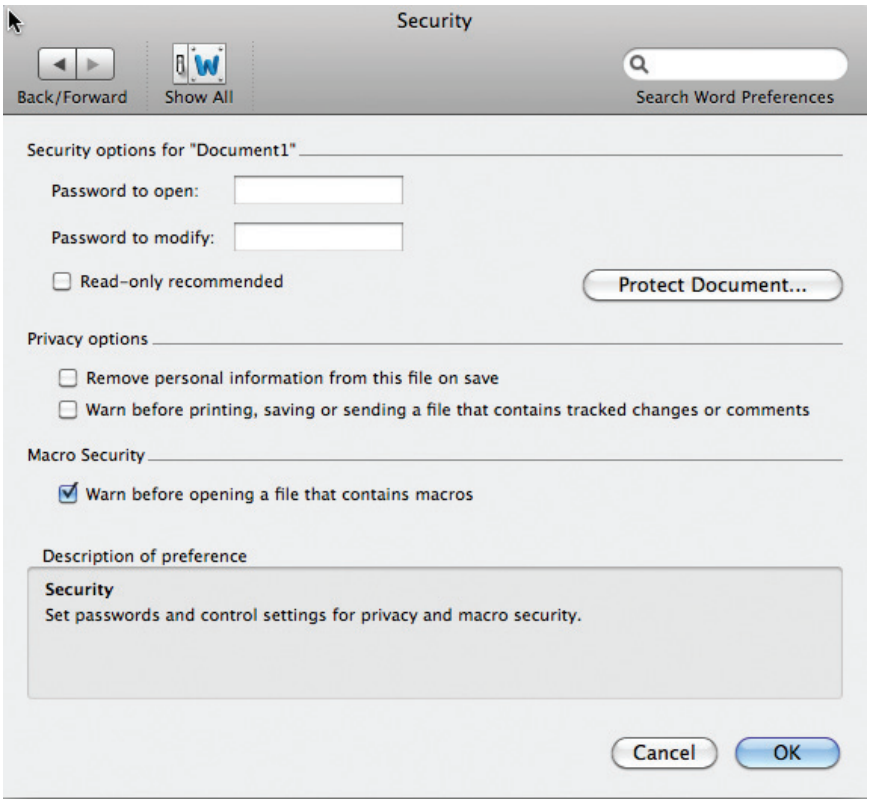


▲ **FIGURE 7.40**
Encrypt with Password options

If you are using a Macintosh computer with Word 2011 then you can complete the same exercise with the exception of a couple of different steps. Microsoft Word 2011 allows you to protect your document but does not use encryption, so this means you must also rely on keeping your files safe in a secure location. It is also important that you do not exceed fifteen characters or you will not be able to open the document on a Windows version of Word. To password protect the document, open Word 2011 and select Preferences, Personal Settings, and Security. Performing these steps produce a window as shown in Figure 7.41. There are three options to protect your document that include:

- Require a password to open
- Require a password to edit
- Suggest read-only mode

Make the changes, press OK, and re-enter your password in the confirm dialogue. To show your instructor you have completed this exercise, simply press the Command+Shift+3 keys to copy your screen, which will be saved as an image file (in PNG format) on your desktop. You can copy and paste this image into a Word document to show your instructor you completed the exercise.



▲ **FIGURE 7.41**
Word 2011 document password options

CHAPTER
8

Developing and Editing Documents

IN THIS CHAPTER

This chapter covers the construction of more involved and complex word processing documents. The example for this chapter is a research article, which introduces the concepts of style management, document elements like a table of contents and cover page, and the inclusion of graphic elements. You will also learn to use and manage references and external sources in your work. At the completion of this chapter, you will be able to:

- Apply, manage, and edit styles in your document
- Manage references and sources and insert document citations
- Customize the page layout
- Insert images and adjust their placement in your document
- Add document elements such as a bibliography, table of contents, and page breaks

8.1 TYPOGRAPHY

Typography is the process of arranging letters in a specific arrangement to make language readable from the outcome. This was once a specialized occupation, but with the advent of personal computing, typography is something in which everyone who types a document participates. The typeface, size, and spacing of the letters are all contributing factors to typography; these are all choices that are made in composing any document you write.

TYPOGRAPHY *is the process of arranging letters and punctuation to create a readable outcome in any document. Most typography is done for artistic reasons, but readability and clarity should be primary concerns in any typography effort.*

A **TYPEFACE** *is a complete set of keyboard characters in one particular style (the style is the name of the typeface). Most typefaces support standard sizes as well as bold and italic variants.*

A **FONT** *is a typeface combined with a set size, such as 10pt Arial. In most modern computing systems, fonts support use with size modifications, so the terms typeface and font are becoming synonymous.*

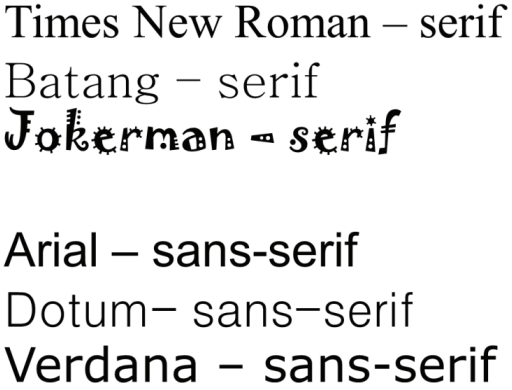
A **SERIF** *is a decoration on a letter of text. This is a nonessential element that graphically enhances a character without adding any new information; these are mostly used to enhance readability by distinguishing the letters from each other and for artistic effect.*

MONOSPACING *in terms of typing is the characteristics of all letters typed occupying the same horizontal space regardless of the inherent letter size.*

A typeface is a collection of symbols that form an alphabet; each typeface has its own unique style of display, such as the typefaces Times New Roman and Arial, two common typefaces installed on most machines. It is very likely that you will see the typeface confused with the term *font* (as in the case of Word) because they are almost synonymous. A font is actually a combination of a typeface and a size, so 10-point Arial would be a font. With the advent of digital typography, such as that used in Microsoft Word, the font selection is typically separate from the sizing, making the choice of typeface and font virtually indistinguishable. Now, you would simply select Arial as your font and set the size of the type separately.

There are two major classifications of fonts: serif and sans-serif. A *serif* is a text decoration added to letters of the font, such as you would find in Times New Roman. Sans-serif means a font without these text decorations present. You can see examples of both types of fonts in Figure 8.1.

The font is also determined by the size of the text. Most modern fonts accommodate multiple sizes with the same display. A pixel



▲ **FIGURE 8.1**
Examples of serif and sans-serif fonts

is the smallest unit of display on your computer monitor; the standard resolution for a computer is 72 pixels per inch. In the world of typesetting, there are 72 points per inch, meaning that a point is roughly equivalent to a pixel on the screen. Therefore, a 12-point (abbreviated *12pt*) font would occupy roughly 12 pixels of space on a digital display. A less common measurement you may see is a pica; a pica is equivalent to 12 points. Pica rulers are most common in desktop publishing applications.

There are two types of spacing available in the design of fonts: monospacing and proportional spacing. *Monospacing* is when all of the characters in the font occupy the same horizontal width when typed; this was the common case for most fonts in mechanical typewriters because the motion of the typing carriage was fixed. Proportional spacing on the other hand allows letters to occupy only the space each one needs to display. The spacing between adjacent letters in a font is also established by default, but you can adjust this manually; this process of adjustment is called kerning. Adjusting the spacing between words is called tracking. The spacing between lines (which is typically part of paragraph formatting) is called leading.

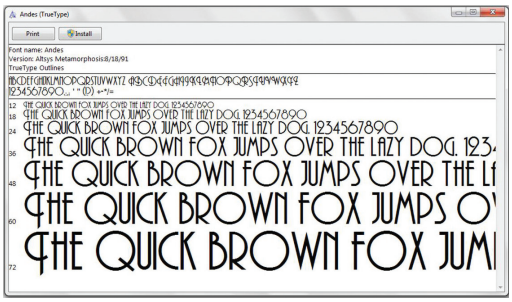
Activity 8.1—Typing Practice with Fonts

In this activity, you should create a new document called Activity8_1 *and save it in the* Activities *folder. Next, you will select 10 different fonts installed on your computer from the dropdown list in the Font panel of the Home ribbon and type one sentence in each font. Identify each font as either serif or sans-serif and then identify whether it is a monospaced font or a proportional font.*

The choice of font for a project varies greatly. When you are creating printed material, serif fonts are generally accepted as the standard. In digital display, such as PowerPoint slides, sans-serif is considered the better option. With the variety of fonts available from which to choose, it is a matter of creative choice. However, as a general rule of design, you should have no more than two fonts occupying the same document. More than this makes the arrangement look haphazard and poorly planned.

There are a variety of typefaces or fonts that come installed on any modern computer system, but it is possible to add new typefaces or fonts and install your own. The most common type of font that works on almost all systems is a TrueType font; this is a font that contains additional display information so it accommodates multiple size settings beyond the standard set common to most fonts. These are also noted for nearly identical display across different operating systems. A TrueType font file will have the extension *.ttf*; when you find a font file like this (whether you download it from the Web or get it from someone else) on a Windows machine you can double-click the file for a preview window like the one shown in Figure 8.2. This shows the font display for all of the available characters in the available common sizes.

➤ **FIGURE 8.2**
Windows 7 font preview



The button that says Install can be used to automatically add the font to the computer so it becomes available for use in any program that supports the use of fonts, like Word. You may need to restart the program in which you want to use the font after it is installed.

To install a typeface or font on a Mac OS X machine, you should start by double clicking the file. This will open a preview window showing examples of the text in specific sizes. At the bottom of the window is a button that says *Install Font*. If you click this, the typeface will be added to your machine as a choice in any program that supports the use of fonts.

Font selection for a project is important. For the example in this chapter, you will be creating a research paper, so you should tend toward serif fonts for printed documents. As part of this chapter, you will focus on applying styles in Word. A style is a consistent way to apply formatting to text, including the typeface, size, and any additional formatting such as bold or italics.

8.2 WRITING A RESEARCH ARTICLE

Word processing has a myriad of uses from constructing research reports to writing rules and regulations. The primary purpose of word processing software is to create the digital equivalent of a print medium. Whatever the purpose you may have in mind for your individual software, whether it is writing a novel or using it in the context of a business, the tools available are the same, and they provide a robust interface for creating professional documents.

For the purpose of this chapter, the process of creating a research report is used to explore common word processing tasks. If you are using your software for a report, whether for a class or for an organization, there are several considerations you should keep in mind:

- *Remember your point and do not deviate too far from it.* Your audience is reading your document to get information on one particular topic, so be sure you keep that topic in mind when you construct your document and make it as easy as possible for them to get that information. It is difficult for the human mind to maintain too many concurrent points when committing information to memory, so allowing your reader to identify a single overall message and then adding information to that message will maximize the impact of your document.
- *Adhere to any page or word limits.* Having a page or word limit conveys an expectation from the person who receives your work. You should try to get as close as possible to that value. Word allows you to easily view your word and page count at the bottom of the interface so you can remain on track. If you have a lower and upper bound for your document, you should not go below the lower limit or above the upper limit without a definitive need or the permission of the person to whom you are submitting the work.

If you are not given a page limit, try to remain thorough but concise with your document; saying more in less space is almost always a better approach.

- *Communicate your ideas clearly and efficiently.* Even if you are not a professional writer, you should strive to communicate clearly in your written work. Part of this is making sure what you write conveys what you want it to convey. You can enlist help from a friend or colleague if necessary to make sure your document is clear. No amount of fancy formatting will make up for a lack of clarity in the work. You should also try not to spend too long elaborating a single point of data or fact; your communication should continue to move forward from one point to another.
- *Set the necessary tone for the document.* The way in which your document will be used should be considered in your language choice. Informal elements like contractions should be omitted from professional documents. Use of any slang should also be restricted in a business setting. A document lacks personal interaction so there is no ability to explain yourself if your document is misunderstood. This also applies to making sure you distinguish fact from opinion in your text; your text can contain opinions, but they should be presented clearly as such.

When you are conducting any kind of research or using sources other than yourself, it is imperative to also observe the following to assist you in managing copyrighted material effectively.

- *Keep track of your sources and evaluate material.* It is important that you have access to your reference material and know where certain information was found so you can access it later and properly create citations. You should also try to make sure you use credible sources for your information, such as published text in books or articles. When you are using information from the Web, you should evaluate the authorship and how reliable the information is.
- *Reference any material that is not your own.* If you are using someone else's idea or work, you need to include that in the list of references for your document. Claiming any material as your own that you did not create or develop may be a violation of copyright laws. It is better to take a cautious approach and make sure that you reference any sources you used to construct the document. Any significant facts that you present that you had to research should have a citation to accompany them.
- *Check the availability for use of images that you did not create.* Using images can be a great way to convey information, but the use of images is also subject to copyright law. You cannot use an image you did not create without written permission from the author allowing you to use it; this permission can be stated in terms on a Website (where it may specify use or identify the image as royalty free) or via email from the author. This rule applies to all media, but its most common use in a printed document is for images.

Copyright law is a very serious matter. Violations can get you fined or expelled from academic institutions. Copying someone else's work and claiming it as your own is never permissible. In order to use someone else's work, you must always give the original author credit; other elements such as royalties on profits may also come into play depending on the use. Copyright laws of the United States can be reviewed at *www.copyright.gov/title17*.

8.2.1 Outlining the Document

Every document you create will have some purpose, even if it is just for your own reference or use. Before writing your document, it is important to know what you want to convey with the text. You should be able to summarize the document in one to two sentences; the rest of the document should just be an explanation and expansion of that. If you cannot summarize your document, you may need to narrow your focus or consult with the person to whom you are submitting the document. Even technical guidelines have an overall purpose, no matter how long they are. The summary goal for the example in this chapter is *to convey background information and instruction on the use of productivity software to increase the productivity and proficiency of the reader*. The rest of the text is a fulfillment of that purpose.

Once you have established your document's purpose, you will expand on it with particular topics to include. This is a process called *outlining*; it is the establishment of the major topics of the document. The example project in this chapter is a short report on a historical figure: Jean Lafitte, a renowned pirate and hero of the Battle of New Orleans in the War of 1812 between the United States and Britain. The report is limited to 1.5 pages in length, so there will not be a large number of topics to discuss. The two elements chosen were the beginning of Lafitte's piracy operation in Barataria Bay and the Battle of New Orleans. Therefore, an introduction, these two topics, and a conclusion are included in the outline for the text.

You are free to choose your own historical figure to follow along with the instructions. Once you have decided on your topic and what you want to convey, you should start gathering reference material for your subject. Remember that you need to evaluate the credibility of your sources before you use them; an important question to ask is "How do I know I can trust what this author has to say?" Make sure you are answering that question with a reason more substantial than its existence on the Internet.

8.2.2 Using and Managing Styles

Once you have established your outline, you need to add titles to each of your sections. For the example, the titles are *The Legend of Jean Lafitte*, *The King of Barataria Bay*, *The Hero of the Battle of New Orleans*, and *Later Years and Legacy*. Begin creating your document by opening a new document and saving it in your *Projects* folder as *MyReport*. Type the headers you will use into the word processing document. To assist in the outlining process, you can also apply styles to the text.

For these titles, you will use the style *Heading 1* from the *Styles* panel of the *Home*

A **STYLE** *is a collection of formatting effects and enhancements used to modify text in a consistent manner. Applying a style to a selection of text will add all of the defined formatting effects and enhancements of that style without the need to individually recreate them.*

The default style for any Word document is *Normal*. This is a predefined style that defaults to whatever setting is established at installation. You can edit the Normal style just as you can any other style, and all of the text that has Normal as a style will update to reflect the changes. The ability to update all of the text formatted with a style at once is one of the benefits of using styles in a document.

ribbon. Notice that there are six heading styles already defined for you to use; each of these will appear in the document outline when used. Heading 1 is the highest level and Heading 6 is the lowest level above plain text. You can add additional heading levels to create a more complex outline of your document.

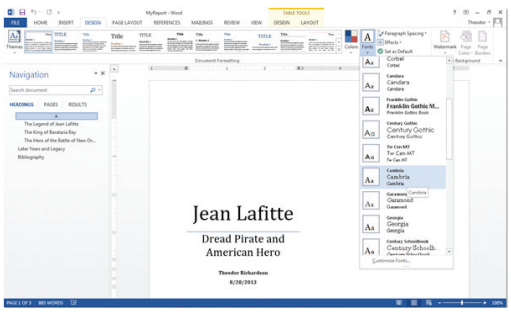
In Word 2013, you can select the *Design* ribbon to set the overall look of the page. For example, you can choose the *Font* icon and select from a number of paired choices for heading and text fonts from the drop-down list. You can see an example of this in Figure 8.3. In Word 2011, the equivalent to change the style settings for the document is the *Change Quick Styles settings* icon, from which you can also choose one of many options.

Click the expansion icon of the *Styles* panel to open the *Styles* pane in Word 2013. This is accessible in Word 2011 by selecting the *Manage styles* icon. The *Styles* pane is a listing of the current styles available in the document. An example of the *Styles* pane is shown in Figure 8.4.

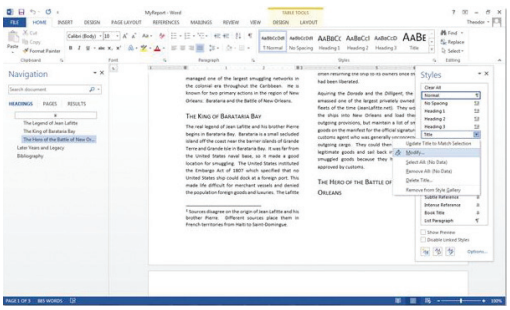
Select a style to apply it to selected text or use the drop-down arrow for the style and select *Modify* to adjust individual elements of the style, similar to how you used the Font dialog box in the previous chapter. You can create a new style using the *New Style* icon.

To duplicate styles from another document in Word 2013, click on the *Manage Styles* icon of the *Styles* pane. This will open the *Manage Styles* dialog box; click on the *Import/Export* button at the bottom of this dialog. To access this in Word 2011, select the *Format* menu and choose *Style*. When the dialog box opens, click the *Organize* button.

You will now see style listings for two files. The file you are developing is on the left and by default the global template *Normal.dotm* is on the right. You can close the Normal.dotm file (using the *Close File* button) and select the file whose styles you



▲ FIGURE 8.3
Design ribbon and Font icon selection in Word 2013



▲ FIGURE 8.4
Styles pane in Word

want to duplicate using the *Open File* button. Once you have the document open, you can use the mouse to select the styles you want to add to your current document and then use the *Copy* button (which will have a directional arrow showing you where the copies will be placed) to move them over to the current file.

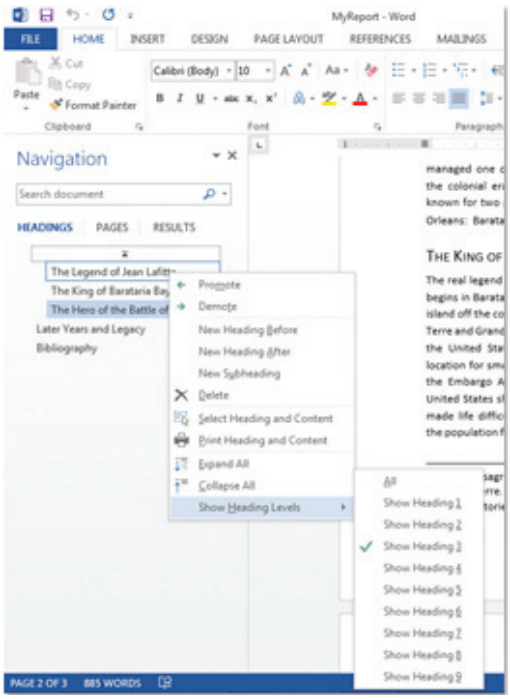
Activity 8.2—Using Styles

For this activity, you should create a new Activity8_2 *document and enter several lines of text. Apply a style to each line of text and modify the styles after you have applied them. What happens to the affected text? What are some of the options in the style modification dialog? Be sure to save your work in the* Activities *folder.*

8.2.3 Using the Navigation Pane and Document Map Pane

The *Navigation* pane in Word 2013 and the *Document Map* pane in Word 2011 allow you to see the evolving outline of your document as you add headings and subheadings to it. Activate the *Navigation* pane in Word 2013 by selecting the *View* ribbon and checking the box beside *Navigation Pane*. You should see it appear on the left side of the interface; it will contain the headings you added to your document. An example is shown in Figure 8.5.

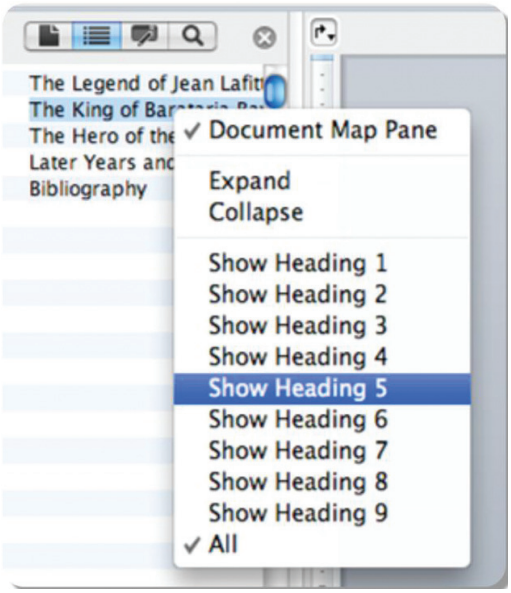
The default view in the *Navigation* pane is the headings for your document. You can set the level of headings you wish to appear by right-clicking any of the headings, selecting *Show Heading Levels*, and choosing the lowest level of heading you want to appear.



▲ **FIGURE 8.5**
Navigation pane in Word 2013 with Show Heading Levels active

You can navigate quickly through your document by clicking on any of the headings that appear; this will jump your position in the document to the location where the heading appears. The second tab in the *Navigation* pane is a page-by-page preview of your document; you can once again navigate quickly through it by clicking on the thumbnail preview image of the page. The last tab of the *Navigation* pane shows the results of any search you have performed.

The equivalent of the *Navigation* pane in Word 2011 is the *Document Map* pane. Access the *Document Map* pane by selecting the *View* menu, choosing *Sidebar*, and selecting *Document Map*. This will open the *Document Map* pane on the left side of the interface. You will see your headings and subheadings here, and you can navigate to



▲ **FIGURE 8.6**
Document Map pane in Word 2011 with the right-click menu active

them quickly in your document by clicking on any one of them. You can also right-click on any of the headings to select the lowest heading level you wish to display. An example of the *Document Map* pane is shown in Figure 8.6.

The *Document Map* pane is the second tab on the pane. The first tab is the *Thumbnail* pane, which displays a page-by-page preview of your document as thumbnail images; you can jump to any page by clicking on the thumbnail image representing it. The third tab is the *Review* pane, which is used in document correction and review. The final tab is the *Search* pane where you can perform find and replace operations in the document.

8.3 MANAGING CITATIONS

You should now be adding the content of your report for each of the headings you

A **CITATION** *is a reference to an external source you used to gather information, text, or other content for your work.*

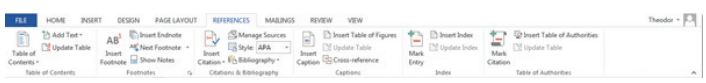
established. It is very important to keep track of your citations as you construct your document. A citation should be added whenever you are either using another source to provide information that is not common knowledge or drawing your own conclusions. It is necessary to manage your sources so you can include citations easily.

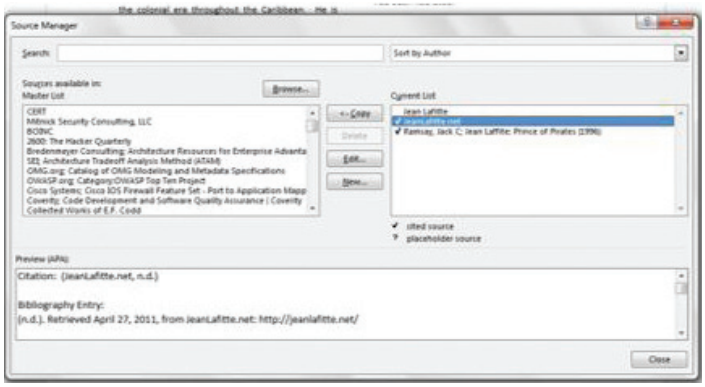
Word makes this task easier by giving you the ability to add and store references in conjunction with your document. The functionality for this is located in the *References* ribbon of Word 2010, as shown in Figure 8.7.

To add new sources or edit existing ones, open the Source Manager (shown in Figure 8.8) by clicking the *Manage Sources* icon. From this dialog box, you can add new citations by clicking *New*. This opens the *Create Source* dialog box, where you can select the source type from the drop-down list; this will adjust the fields needed to accurately cite the source. You should try to complete as many of these fields as you can to give the most complete citation possible.

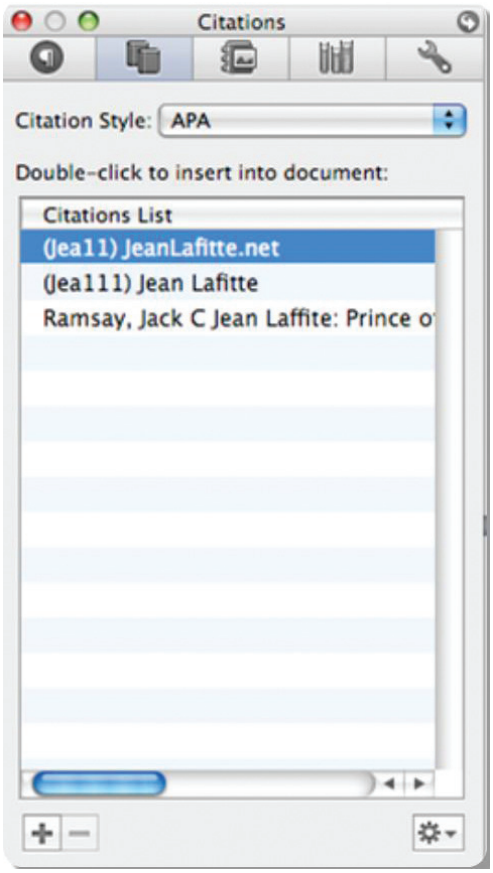
In Word 2011, you access your sources and add new sources by clicking on the *Manage* icon of the *References* panel on the *Document Elements* ribbon. This will open a new Citations window, as shown in Figure 8.9. To create a new citation entry, select the + icon in the lower-left corner and

▼ **FIGURE 8.7**
References ribbon in Word 2013





▲ FIGURE 8.8
References ribbon in Word 2013



➤ FIGURE 8.9
Citations window in Word 2011

It is always important to evaluate the credibility of a source you are using for your work. Textbooks, conference papers, and journals often go through rigorous peer review and technical editing, so they tend to be more trustworthy sources than something published only online. You can find reviews of the textbook, conference, or journal to evaluate whether it meets these criteria. Anything you find on the Web is a different matter; it is easy to create a personal Website and post any information you want, whether or not it is true. Whenever you encounter an online source, there are some things you should consider when deciding whether you can trust it. Here are a few questions to ask of a potential Website source before you use it:

Who is the author of the site? If the author is a reputable organization or an individual with expertise in the area, it is more likely to be a credible source.

What are the site extension and the domain name of the site? Once again, a company or organization site is generally more credible than an individual unless that individual is an expert in the field. A professional versus an unprofessional domain name can also indicate the level of trust that should be placed in the source. The site extension is also telling; for example, the site extension of *.gov* indicates a government publication.

Does the site use references and cite other sources? This can indicate whether the author has researched the subject sufficiently. Looking at any references used and evaluating them will help determine if the page is credible.

Is the site up to date? You should be able to check the date it was last updated to determine whether the document is current.

Is the site objective with its information or is there another motivation? You should try to use objective sources in your work and evaluate the reliability of the source; the author may have created the document with a particular motivation in mind to influence the reader.

then select the type of source to adjust the fields necessary for the citation. Clicking on the settings icon in the lower-right corner allows you to edit a citation or open the Citation Source Manager, which is similar in

appearance to the Source Manager in Word 2013.

Once you have entered your sources, you can insert in your text a citation to any of the existing sources. These citations are linked to the original citation entry, so editing the source information will update any citations in the document. To add a citation in your document in Word 2013, select the *References* ribbon, choose the style for the citation (APA was used in the example), click the *Insert Citation* icon, and then select the source you want to use. The reference to the source in the correct format for the citation style will be added to your document.

To add a citation to your document in Word 2011, select the citation style (in this case APA) in either the *Document Elements* ribbon or the Citations window. Then right-click (or double-click) the source you want to reference; the reference will be added to your document at the current location of the text cursor (where the last text was entered in the document). There are three main citation styles that are used in most publications, though other styles do exist. The following is a list of the common styles and a source to get more information on its use for manuscript production:

- American Psychological Association (APA) style—*www.apastyle.org*
- Modern Language Association (MLA) style—*www.mla.org/style*
- The Chicago Manual of Style—*www.chicagomanualofstyle.org*

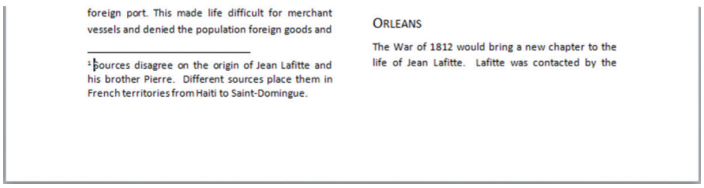
8.3.1 Footnotes and Endnotes

Footnotes are used to add explanation to an element of a document without interrupting the flow of the text. Whether to use footnotes or endnotes is a stylistic choice. The main difference between them is their placement within the text.

A **FOOTNOTE** *is an additional comment aside from the main point of the text that is placed at the bottom of the page and indicated by a reference mark in the main text. This is typically used to clarify a point or provide an explanation that would detract from the content of the document if left in line with the main text. An* **ENDNOTE** *is the same thing as a footnote except it is placed at the end of the document instead of on the same page with the reference mark.*

A footnote will be placed on the page to which the notation is added; the text will have a superscript number placed beside it and the footnote explanation will be placed in a separate section at the end of the page. To place a footnote in Word 2013, click on the *References* ribbon and choose *Insert Footnote*; your cursor should be placed beside the text you are annotating with the footnote. To add a footnote in Word 2011, select the *Document Elements* ribbon and choose the *Footnote* icon with the cursor in the location you want to annotate.

The current number of the footnote for that page (beginning with the number 1) will be added at the current cursor location and you will be taken to the section at the bottom-left corner of the page where you can add the footnote text. An example is shown


foreign port. This made life difficult for merchant vessels and denied the population foreign goods and

[1]Sources disagree on the origin of Jean Lafitte and his brother Pierre. Different sources place them in French territories from Haiti to Saint-Domingue.

ORLEANS

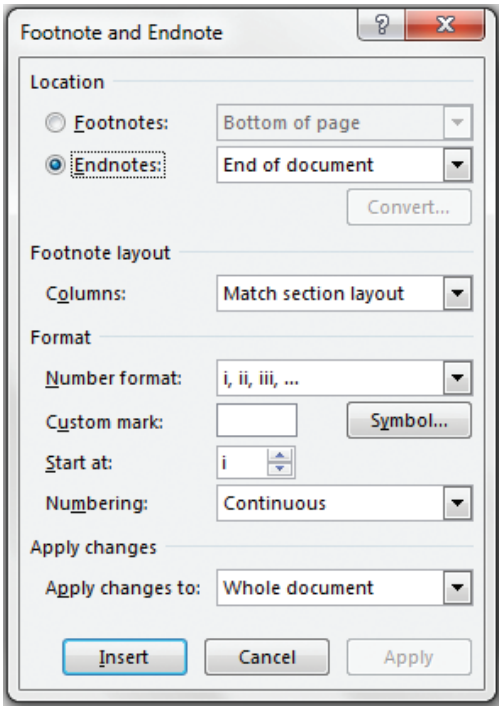
The War of 1812 would bring a new chapter to the life of Jean Lafitte. Lafitte was contacted by the

▼ **FIGURE 8.10** Footnote placement in Word 2013

in Figure 8.10. The numbering for the footnotes will be adjusted as text is moved; a link exists within the document connecting the mark in the text and the note.

An endnote is placed at the end of the entire document. By default, endnotes start with Roman numerals (beginning with lowercase i) and accumulate throughout the text. Adding an endnote is similar to adding a footnote. The annotation will be placed where the cursor is located in the document and you will be taken to the endnote section to enter the text describing the annotation. To add an endnote in Word 2013, select the *References* ribbon and choose *Insert Endnote*; in Word 2011, you add an endnote by selecting the *Document Elements* ribbon and choosing *Endnote*. While the default properties are sufficient for most documents, you can customize characteristics of your footnotes and endnotes in the *Footnote and Endnote* dialog box shown in Figure 8.11.

To access the advanced properties for footnotes and endnotes shown in Figure 8.11, select the expansion icon on the *Footnotes* panel of the *References* ribbon in Word 2013. This dialog box allows you to change the settings for both footnotes and endnotes, including placement of the notes, the starting value for the annotations, and the numbering format used. To access these advanced properties for inserting custom footnotes and endnotes in Word 2011, select the *Insert* menu and choose *Footnote*.



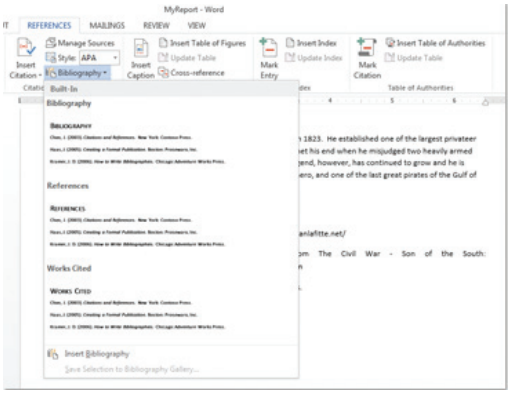
▲ **FIGURE 8.11**
Footnote and Endnote dialog box in Word 2013

Creating a Bibliography

8.3.2

In the new versions of Word, adding elements like an index, table of contents, and bibliography is almost a one-click action. If you have prepared your references correctly and added them to the Source Manager correctly, you can click on the *Bibliography* icon in the *References* ribbon in Word 2013 and insert a fully formatted bibliography (with the predefined options of using either Bibliography or Works Cited as the heading). This will add the references formatted according to the citation style you selected in the formatting defined for your document. A completed example and the selection menu are shown in Figure 8.12.

In Word 2011, the *Bibliography* icon is located in the *References* panel of the *Document Elements* ribbon. Clicking on



▲ **FIGURE 8.12**
Example bibliography and selection menu in Word 2013

the *Bibliography* icon opens a drop-down menu showing a preview of the built-in Bibliography and Works Cited options; you can click on either of these to insert the formatted result (arranged in the citation style you selected beside the icon; APA is used in the example) in your document wherever your cursor is placed. For the example project, the *Bibliography* entry was chosen and placed at the very end of the document.

8.4 SETTING A PAGE LAYOUT

At this point, you should have all of the text added to your document, so it is time to format the page for a more professional presentation. You have the flexibility in word processing documents to choose the size of your pages. While most home and office printers only accommodate 8 ½" by 11" paper, you can customize the document to whatever dimensions you need up to 22" by 22". There are predefined sizes for envelopes and legal documents as well. Select the page size in Word 2013 by activating the *Page Layout* ribbon and choosing the *Size* icon; this opens a menu for you to select an existing size or customize your own. In Word 2011, the *Size* icon is located in the *Layout* ribbon.

> If you want to make a document that is poster sized, PowerPoint is a better software package to use. It is covered in Chapters 10 through 12.

You can change other properties of your document as well. As mentioned previously, you have the ability to change your document from the default Portrait layout to the wide Landscape layout; this is accomplished using the *Orientation* icon in the *Page Layout* ribbon (or the *Layout* ribbon in Word 2011). The *Margins* icon is another useful tool and is found on the same panel with the *Orientation* and *Size* icons. Your report should use the *Normal* margin setting of 1" on all sides.

You can see the exact size of your document and the position of elements in your text using the rulers and gridlines built into Word. The ruler gives you the spacing of the text compared to real inches and centimeters on the printed document. This is helpful if you need to place elements within a certain range or in a confined area for printing (such as printing labels or envelopes). Gridlines give you a cross section of the ruler lines so you can position elements more precisely within the document; this is similar to using graph paper for a visual layout. The default gridlines are 1/8" apart.

In Word 2013, you can activate or deactivate these options using the checkboxes next to the *Ruler* and *Gridlines* text entries on the *Show* panel of the *View* ribbon. The ruler in Word 2011 can be activated

or deactivated by selecting the *View* menu and choosing *Ruler*. In Word 2011, the gridlines options are activated by selecting the *Gridlines* checkbox in the *Layout* ribbon. The gridlines will appear when you select an object that can be repositioned on the document. You can activate these elements for planning your document and then deactivate them later as needed.

Activity 8.3—Modifying Page Sizes

For this activity, you should create a new Activity8_3 *document. Using the options for page size, try to make your document as small as you can make it. What is the minimum size you can use for page dimensions in Word? Is there any application for a document this small? What would happen if you tried to print this document? Save your work in the* Activities *folder you created.*

8.4.1

Formatting Columns

While the format of the reports you create will vary, the example uses a two-column format for the first page. To change the number of columns for your document, simply select the text you want to change and choose the *Columns* icon. This is located on the *Page Layout* ribbon in Word 2013 and the *Layout* ribbon in Word 2011. You can select from any of the predefined column divisions for the selected text or you can select the *More Columns* option from the drop-down list to access more advanced options (this is labeled simply *Columns* in Word 2011). An example of the advanced menu and the two-column result of the report text are shown in Figure 8.13.

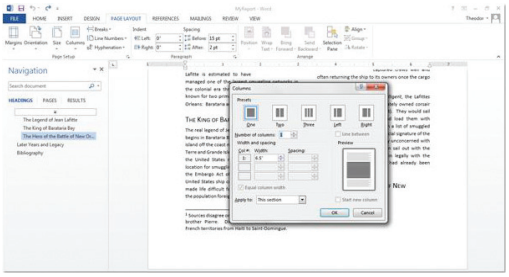


FIGURE 8.13
Advanced column configuration options and two-column formatting of text

Choose any of the predefined options in the *Columns* dialog box or create your own columns with customized widths. You can also choose whether you want to apply the column formatting to the entire document or just from that point forward. For the example report, you should estimate the amount of text you want to convert to the two-column first page. The rest of the document (which should amount to about half a page) will be formatted as a single column spanning the whole document width. You can convert the text back and forth as needed by highlighting what you want to change and by selecting the number of columns from the *Columns* icon. You will be adding an image to your document, so you will likely have to alter the columns again once the image is in place.

8.4.2

Adding Graphic Elements and Captions

To insert an image into your document, you must first have the image saved on your local machine. Typical image file formats are JPEG (Joint Photographic Experts Group) File Interchange Format, Graphics Interchange Format (GIF), Bitmap, Portable Network Graphic (PNG), and Tag Image

File Format (TIFF); any of these types of files can be inserted into a document. To insert an image into your word processing document in Word 2013, select the *Insert* ribbon and choose *Pictures*. This will open the *Insert Picture* dialog box where you can select the image you want to insert.

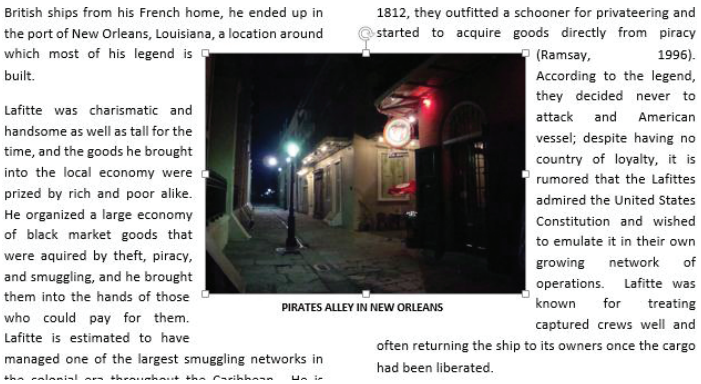
In Word 2011, you can insert an image from the *Home* ribbon by choosing the *Picture* icon and then choosing *Picture from File*. As with any content, you must make sure you have adequate permission to use an image file if you have not created it yourself. If you do not have an image to use as an example in your report, you can use the *MySampleImage* file, which is a photograph of Pirates Alley in New Orleans, Louisiana. You can resize the image using any of the grip points that appear around its edge when it is selected. The midpoint grip points change only one dimension at a time. The corner grip points change the two sides they connect at once. You can use the context-sensitive *Format* ribbon for *Picture Tools* to set the size of the image directly; this ribbon contains a large number of other features that will be more fully explored in Section III, "Presentation Software and Microsoft PowerPoint."

By default, the image will be placed in line with your text, expanding the current line size to fit the image; the image will act like another character in the text of the document in this format. You can click and drag it as you can with any other selected text. You can change how the image behaves by changing its text wrapping properties.

TEXT WRAPPING, *or text flow, is the setting in a document or Web page that determines how text behaves around an object. An example of this is how much space is left blank around the perimeter of the object and whether the object is treated as a character in the text or as a separate entity.*

The different text wrap options are *square* (where the image is given a padded rectangle to occupy and the text will surround it), *tight* (which acts like the square setting without the padding on the rectangle), *through* (where the text will come as close as possible to the outline of the shape itself), *top and bottom* (which clears the horizontal space of the entire column of text around the image), *behind text* (which places the image on the layer of the document beneath the text so the text overlaps the image), and *in front of text* (which places the image on a layer of the document above the text, obscuring any text behind the image without displacing it). The use of the *square* setting tends to be the most legible in printed documents; this is the setting used in the example. You can set the text wrap options in Word 2013 by selecting the image, activating the *Page Layout* ribbon, and choosing the *Wrap Text* icon. In Word 2011, you can change these settings by activating the context-sensitive *Format Picture* ribbon with the image selected and choosing *Wrap Text*. A completed example is shown in Figure 8.14.

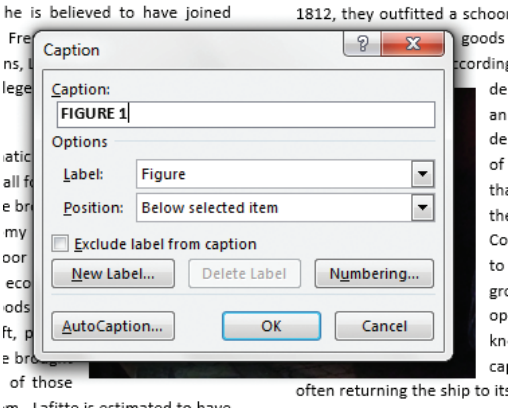
To insert a caption for the image, right-click on the image and choose *Insert Caption* from the menu that appears. This will open the *Insert Caption* dialog box shown in



▲ FIGURE 8.14
Image in Word with square text wrapping and visible grip points

Figure 8.15. You can add the caption text you want to display and specify how you want it labeled in the document (*Figure* should be the choice for this example). The text added here was "Pirates Alley in New Orleans." You can add a figure number (such as "Figure 1:") to the caption as well; this is recommended if there is more than one image in your document or if it is a more formal submission. It is also helpful to reference your figure by number in the text of the document and identify the enhancement to the text it provides.

There are a number of other formatting options for images in Word. In addition to altering the Word Wrap properties, you can select the positioning of the image at predefined places on the page; when you use this option, it defaults to wrapping the text around the image instead of keeping the image in line with the text. You can use the *Align* menu to change the alignment of the image to the page or to other elements in the page. You can also send the image forward or backward on the layers of the document (similar to stacking paper clippings where the topmost element is visible in front). This type of image manipulation is covered more extensively in the chapters on presentation software. You can access these advanced image options from the *Page Layout* ribbon in Word 2013 and from the context-sensitive *Format Picture* ribbon in Word 2011.



▲ FIGURE 8.15
Caption dialog box in Word 2013

Activity 8.4— Graphics Practice

For this activity, you should create a new Activity8_4 *document and enter several lines of text. Add a graphic to the page and explore the different options for text wrapping. How does this alter the behavior of the graphic within the page? Add a caption to the image and repeat the process. How does the caption move with the image? Save your work in the* Activities *folder.*

ADDITIONAL DOCUMENT ELEMENTS

8.5

There are a number of additional document elements you may need to include. Some of these relate more to larger

publications and larger organizations, but it is beneficial to know where to access these items if you need them. These optional document elements include an index, watermarks, borders, cover pages, blank pages, and a table of contents.

Some common elements you may want to use to enhance your document are the following:

- *Watermarks*—A *watermark* is a visual element on the pages of your document to signify either ownership or a certain classification for the document (such as Confidential or Do Not Copy). You can create your own watermark or use an existing logo for an organization or business so that any document created with the watermark will be imprinted with the logo, identifying ownership. To add a watermark to your document in Word 2013, select the *Design* ribbon and choose *Watermark*; from here you can select a predefined watermark or select *Custom Watermark* to build your own. In Word 2011, you can add a watermark by selecting the *Insert* menu and choosing *Watermark*.
- *Borders*—Adding a page border may be useful depending on the type of document you are creating. Page borders are most often seen on fliers and personal memos; they are not generally used in professional publications unless they are highlighting a particular element of text like an abstract for the document. To add a border to your page in Word 2013, select the *Design* ribbon and choose *Page Borders*. This will open a dialog box that allows you to select the type of border you want for your page and choose the width and style for it. To add a page border in Word 2011, select the *Format* menu, choose *Borders and Shading*, and then select the *Page Border* tab on the dialog box that opens.
- *Blank Pages*—Sometimes it is necessary to add a blank page to your document; this is commonly found behind the title page of a lengthy report. To create a blank page in Word 2013, select the *Insert* ribbon and choose *Blank Page*. In Word 2011, select the *Document Elements* ribbon and choose *Blank* in the *Insert Pages* panel.
- *Page Breaks*—A page break ends the current page regardless of any remaining space on the page and starts a new page. This is useful if you do not want chapters or sections of a document to run together. In Word 2013, you can select *Page Break* from the *Insert* ribbon. In Word 2011, select the *Document Elements* ribbon, choose the *Break* icon, and then select *Page*.

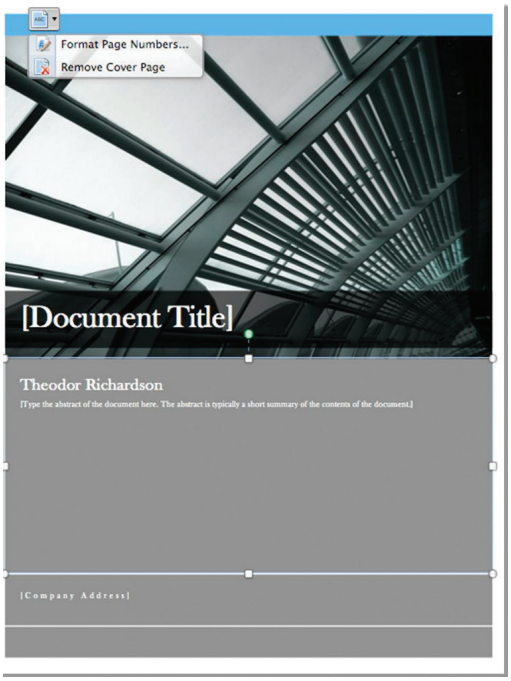
There are a number of additional media elements that can be added to a word processing document to enhance its visual display. These are covered in the next chapter as well as in Section III, which provides more detail on adding and using visual enhancements.

Adding a Cover Page

8.5.1

An optional but commonly used document element is a cover page. A cover page provides the title and author information for a document. A title page can also provide an abstract for the document; an *abstract* is a short paragraph or a few sentences summarizing the document contents or new ideas presented in the work. There are a variety of predefined cover pages available in Word.

To add a cover page to your report in Word 2013, choose *Cover Page* in the *Insert* ribbon. This will open a menu to select the cover page style you want to use. You can



▲ **FIGURE 8.16**
Example cover page with Word 2011 Cover Page menu active

also use this menu to delete the current cover page. In Word 2011, you insert a cover page by selecting *Cover* in the *Document Elements* ribbon. When you add a cover page in Word 2011, a small menu icon is placed on the page to allow you to click and select *Remove Cover Page*. An example cover page with this icon active is shown in Figure 8.16.

Once you have selected the cover page you want to use, you can start entering information in the predefined text boxes. This is similar to completing the resume from a document template in the previous chapter. You should at minimum include a title and the document ownership, whether it is an individual author or the company that owns the document material. Remember that a cover page should only be used when necessary. It is included in the example report as a demonstration, but a short report like the one presented here would be better served with a header on the first page rather than a cover page.

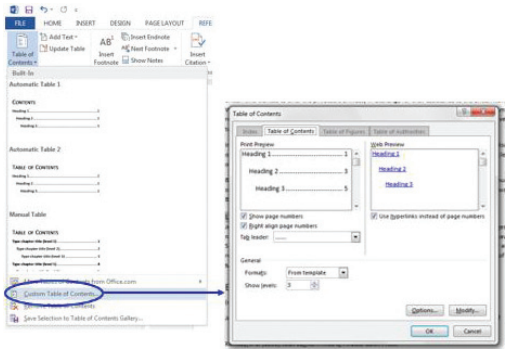
Adding a Table of Contents

8.5.2

Another common element to include in your document is a table of contents. This is not necessary for the short example report, but it is helpful for quick reference in longer documents. The table of contents is created automatically in Word based on the use of the header styles mentioned earlier.

To insert a table of contents into your document, you must first highlight where you want it in your document. A table of contents is typically located before any of the actual document content between the cover page and the first section of the material. In Word 2013, you insert a table of contents by selecting the *References* ribbon and choosing the *Table of Contents* icon. This opens a drop-down menu of predefined options for your table of contents; you can also select *Custom Table of Contents* at the bottom of this menu to access the dialog box shown in Figure 8.17. This dialog box allows you to set up the number of heading levels you want to include and to adjust certain visual elements, such as the character used to link the section heading and

A **TABLE OF CONTENTS** *is a list of chapter headings or major content divisions and the page numbers on which they are located. This allows for quick navigation of large documents to find desired elements and sections.*



▲ FIGURE 8.17
Table of Contents dialog box in Word 2013

the page number. The predefined options for the table of contents in Word 2011 are available from the *Document Elements* ribbon or you can click the *Options* icon on the same panel to open the dialog box for customizing your own style. You can also open this dialog box by selecting the *Insert* menu, choosing *Index and Tables*, and then selecting the *Table of Contents* tab in the dialog box that appears.

If you continue to edit or develop your document after you have added the table of contents, you can update it to reflect the current headings included in the text or to adjust the page numbers. In Word 2013, select the *Update Table* icon on the *Table of Contents* panel of the *References* ribbon to perform this task. In Word 2011, select the *Update* icon located on the *Table of Contents* panel of the *Document Elements* ribbon.

In addition to the table of contents, there are three other document elements of note that are similar. All of these are optional and may or may not be necessary for your document:

- *Index*—An *index* is a listing of key terms and concepts and where they are located throughout your document. You add an entry to the index in Word 2013 by selecting the *Mark Entry* icon on the *References* ribbon. You then click *Insert Index* to access the *Index* tab of the dialog box shown in Figure 8.17 to customize the index display in the text. To add an entry to the index in Word 2011, select the *Insert* menu, choose *Index and Tables*, and select the *Index* tab in the open dialog box; you can then click the *Mark Entry* button to enter the index entry information. You can add your index to the document from this same dialog box.
- *Table of Figures*—The table of figures is based on the captions that you add to your document. This works similarly to the table of contents by automatically determining the page number on which the captions reside. To insert a table of figures in Word 2013, select *Insert Table of Figures* on the *References* ribbon. You can update an existing table of figures by selecting the *Update Table* icon on the *Captions* panel in the *References* ribbon. In Word 2011, you add a table of figures by choosing the *Insert* menu, selecting *Index and Tables*, and choosing the *Table of Figures* tab in the dialog box. The table can be updated if new captions are added by selecting the table, pressing the *Control* key, and choosing the *Update* option.
- *Table of Authorities*—A *table of authorities* is a list of references in a legal document. For most works, you will not need to create one of these, but the option is available in Word. To add a citation in Word 2013, you can use the *Mark Citation* icon on the *Table of Authorities* panel of the *References* ribbon. To insert the table of authorities, use the *Insert Table of Authorities* icon on the *References* ribbon. The *Update Table* icon in the *Table of Authorities* panel can be used to update the table later as the

document is edited. In Word 2011, select the *Insert* menu, select *Index and Tables*, and then choose the *Table of Authorities* tab in the dialog box. The options to mark a citation and insert the table are in this dialog. You can update the table by selecting the table, pressing the *Control* key, and choosing the *Update* option.

CHAPTER SUMMARY

This chapter covered the common use of word processing software for constructing reports and articles. The document elements covered in this chapter are used in a variety of other publications including guidelines, policies, and reports for companies and organizations. You should now be familiar with most of the functions of the word processing software you are using. This includes the use of external references, formatting styles, and the handling of images within your document. The next chapter will cover advanced features of the software and the handling of additional media elements including equations and symbols. An example of the completed report for the chapter is shown in Figure 8.18. You can also view the report by opening the *MyReport* document.

▲ **FIGURE 8.18**
Completed example report

CHAPTER KNOWLEDGE CHECK

1 It is only important to evaluate sources from the Web; any printed source can be trusted.

- ◯ **A.** True
- ◯ **B.** False

2 Every document you create should have a table of contents.

- ◯ **A.** True
- ◯ **B.** False

3 The following document elements support automatic updates of their content to account for document changes in Word except:

- ◯ **A.** Table of contents
- ◯ **B.** Index
- ◯ **C.** Cover page
- ◯ **D.** Table of figures
- ◯ **E.** All of the above
- ◯ **F.** None of the above

4 The only difference between footnotes and endnotes is their placement within the document.

- ◯ **A.** True
- ◯ **B.** False

5 The following are common citation styles for a manuscript except:

- ◯ **A.** MLA
- ◯ **B.** Chicago
- ◯ **C.** ABA
- ◯ **D.** All of the above
- ◯ **E.** None of the above

6 A source should be cited whenever it is used for an idea even if the source is not directly quoted in the text of the document.

- ◯ **A.** True
- ◯ **B.** False

7 The following are possible values for text wrapping around an image:

- ◯ **A.** In line with text
- ◯ **B.** In front of text
- ◯ **C.** Behind text
- ◯ **D.** All of the above
- ◯ **E.** None of the above

8 To add an item to the index of a document, you must manually add it as an entry; the index is not constructed automatically from the text.

- ◯ **A.** True
- ◯ **B.** False

9 You can edit existing styles and create new styles for formatting text beyond what is predefined in the word processing program.

- ◯ **A.** True
- ◯ **B.** False

10 Headings are used to construct the table of contents for a document and can be used to jump quickly to a section of the document in the Navigation pane.

- ◯ **A.** True
- ◯ **B.** False

CHAPTER REVIEW QUESTIONS

1 Define and contrast a typeface and a font.

2 Explain the difference between text effects and styles. How can these be used to create a professional document?

3 How do you add a new style to Microsoft Word? Explain the steps used to perform the action.

4 Define and explain the term typography in your own words. How is typography used to change the appearance of a document? (Please be sure to use the terminology used throughout the chapter).

5 Define and compare the difference between setting a layout and margins within a Word document.

6 Please list the steps needed to access the page layout options in Word 2013 or Word 2011. When would you need to access this option?

7 List the steps needed to insert a cover page into your document. When is this item necessary to include?

8 Discuss and explain the differences between a Table of Contents and a List of Figures. List the situations when each might be used.

9 Define and explain the idea of a Watermark. What are the steps necessary to insert one into your document and what are situations that could warrant the use of this feature?

10 Provide examples of when you might use page breaks in a document and describe how they relate to the Table of Contents feature.

PRACTICE EXERCISES

1 Use word processing software to construct a two- to three-page report on evaluating sources. Make sure you add citations for the sources you use to gather your information and include a bibliography in your document.

2 Construct an outline for a research project of your choice. The document should have at least four level one headings with two to three subheadings each. Add a cover page to the document with a title, a blank page separating the cover from the document content, and a table of contents for the document. Add a page break after the table of contents so the actual content starts on a new page.

3 Draft a one page report on the history of either the typewriter or the QWERTY keyboard. Each paragraph should detail the significant developments and increase in mechanization or evolution to the computer environment. Add a header with your last name and format the report with 1.5" margins on the left, right, and bottom of the page.

4 Create a document with two column format and 2" margins on each side of the page. Add a header to the document with your name and the date the document was created. Now use the entire alphabet to create sentences with proper punctuation in your document. The text should be in complete sentences, but the sentences do not have to relate to each other. The key element is that you use each letter at least once in your document within a word used properly in a sentence.

5 Create a title page for a marketing proposal for a new product you want to sell to a large business. The target audience is upper management in a large organization, so it will be necessary to place an executive summary on the title page itself so the group can understand what is being covered in the report. Choosing the right kind of layout and presenting your content to your intended audience on the cover page should be the primary focus of this exercise even above the product you are proposing.

CHALLENGE EXERCISES

1. You were already asked to choose a research topic and construct an outline. Using this same topic, begin searching the World Wide Web for sources. Compile a list of 5–6 references and assess the validity of those selected sources. Using an outline document answer the following questions for each reference: Who is the author of the site? What are some of the author/organization's other publications? What is the site extension and domain name of the site? Does the site use references and cite other sources? If so, what are they? When was the site last updated, and what was the original publication date? Does the site provide objective information?

2. Locate an article using your school's online library or find one from the World Wide Web. Print off the article and label each Microsoft Word feature that the article used. Then write a 500-word report on how the author improved his article using any number of the Word features. Additionally, make recommendations on what features the author could have included. Make sure to explain the feature's function, how to use it, and how it would enhance his article.

3. Choose a three to five page article that does not already include a table of contents. (If your article from the previous exercise does not already have a table of contents. you may reuse it for this exercise). Read through the article, and then use Microsoft Word to construct a table of contents and index appropriate for your selected article. Then, write a short 150-word document explaining what a table of contents and index are, and how they can be constructed.

4. Construct a brief summary of the qualities of a credible source for a document. In your review, consider how the date of the publication affects the quality of the information in the source. What are the qualities the author should possess to be taken as credible? How does professionalism affect credibility? How do these considerations apply to developing a research document?

5. Create a new document to answer the following questions. How can columns be used to present information more effectively or more efficiently? How should you decide when to apply columns to a document? Are they only reserved for certain types of information or documents? When might a Landscape layout be utilized in a document? When would you change the size of the document to something other than the standard 8.5" by 11" size?

CHAPTER 9

Advanced Features of Word Processing

IN THIS CHAPTER

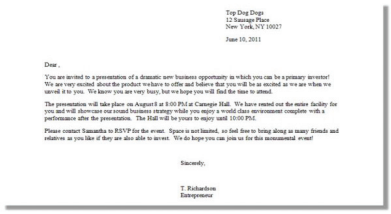
This chapter covers the use of more advanced features of word processing documents. Most of these have specific applications depending upon the nature and format of the document you are constructing, but it is beneficial to understand how they work and where they can be found regardless of your primary use of word processing software. You will learn about advanced features such as Mail Merge, additional document elements, and document editing and review. At the completion of this chapter, you will be able to:

- Complete a mail merge
- Construct equations using the equation editor
- Insert and manage tables in a document
- Add symbols and shapes
- Use the tracking and review options for document editing

9.1 MAIL MERGE

One of the tasks for which you will need word processing software is a Mail Merge. In business, you will often encounter the situation in which you want to send personalized copies of the same letter to a large number of recipients. The Mail Merge functionality in word processing allows you to perform this task with just a few steps. You should first create the document you wish to send to your recipients and then organize the list of contacts to which you want the document sent. Mail Merge is capable of constructing documents you can print directly and either printing labels for use on special paper to adhere to envelopes or printing the envelopes themselves. Most word processing applications have a wizard to guide you through this process.

For this chapter, you will use an existing set of contacts to construct a mail merge inviting potential investors to a big presentation for your new company. The example letter and the list of recipients are shown in Figure 9.1. These two files are included with the companion resources for this text; they


Top Dog Dogs
12 Sausage Place
New York, NY 10027

June 10, 2011

Dear ,

You are invited to a presentation of a dramatic new business opportunity in which you can be a primary investor! We are very excited about the product we have to offer and believe that you will be as excited as we are when we unveil it to you. We know you are very busy, but we hope you will find the time to attend.

The presentation will take place on August 8 at 8:00 PM at Carnegie Hall. We have rented out the entire facility for you and will showcase our sound business strategy while you enjoy a world-class environment complete with a performance after the presentation. The Hall will be yours to enjoy until 10:00 PM.

Please contact Samantha to RSVP for the event. Space is not limited, so feel free to bring along as many friends and relatives as you like if they are also able to invest. We do hope you can join us for this monumental event!

Sincerely,

T. Richardson
Entrepreneur

	A	B	C	D	E	F	G
1	Name	Address	City	State or Country	Postal Code	Phone	Email
2	Biggs Banker	1 Big Mansion Drive	New York	NY	10027	212-233-2227	bigbanker@richmail.com
3	Carl Cashman	102 Exchange Street	New York	NY	10027	212-337-5556	cash@ilikemoney.org
4	Martin Moneybags	4 Big Mansion Drive	New York	NY	10027	212-555-6789	moneybags@gmail.com
5	Richie Richardson	7 West Banker Street	New York	NY	10027	212-343-2332	rich@rich.net
6	Erik Euromaker	2 Large Palace Lane	New York	NY	10027	212-556-7778	euro@exchange.co.uk

▲ **FIGURE 9.1**
Example letter and recipient list for Mail Merge

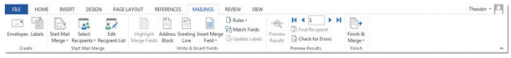
are called *MyMergeDocument* and *MyMergeList*, respectively. As a first step in the process, you should open *MyMergeDocument* in your word processing software and change the generic contact information at the top and after the signature line to reflect the business venture you want to advertise. Do not add any contact information for the recipient; this will be done via the list of recipients in the companion spreadsheet. You do not need to open the spreadsheet document; it will automatically be referenced by the wizard used to complete the project. Even though the results are the same, the functionality for performing a mail merge is significantly different in Word 2013 and Word 2011, so feel free to choose the section that applies to you.

MAIL MERGE *is a function in word processing software that allows you to construct form letters, identical documents that are personalized to individual contacts for fast mass mailing or printing.*

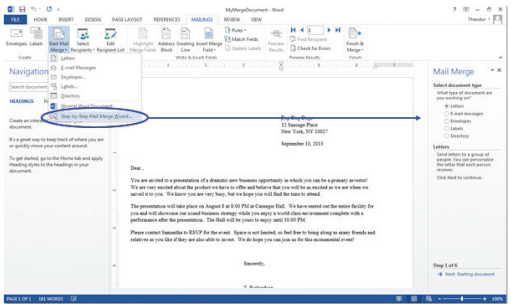
A **WIZARD** *in software is a form of assistant added to a software program to guide you through a complicated process by asking for small elements of input at a time; this typically breaks down larger tasks into manageable step-by-step instructions.*

9.1.1 Mail Merge in Microsoft Word 2013

In Word 2013, all of the functionality for performing a mail merge is found in the *Mailings* ribbon shown in Figure 9.2. This ribbon provides you the ability to create new documents for the mail merge and to select recipients. You can also edit the merge



▲ FIGURE 9.2
Mailings ribbon in Word 2013



▲ FIGURE 9.3
Mail Merge pane in Word 2013

result after the merge is complete. For this example, open the *MyMergeDocument* file, open the *Mailings* ribbon, select *Start Mail Merge*, and choose *Step by Step Mail Merge Wizard*.

When you activate this command, a Mail Merge pane will appear on the right side of your interface as shown in Figure 9.3. There are six steps to the Mail Merge in Word 2013. The first is choosing the document type you want to create; in this case, you want to select *Letters*. You should, however, take note of the other options available. For business mailings, it is common to need both letters and either envelopes or labels to accompany them. When you have made your selection, choose *Next: Starting Document*.

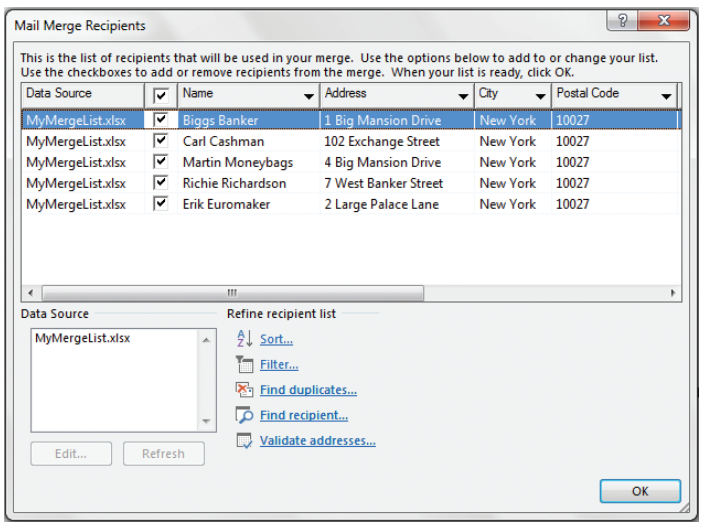
The options for selecting your starting document include the document in which you are currently working (which is the option used here), a new document from a template, or an existing document. You should be working within the *MyMergeDocument* file. Remember to save the changes to your

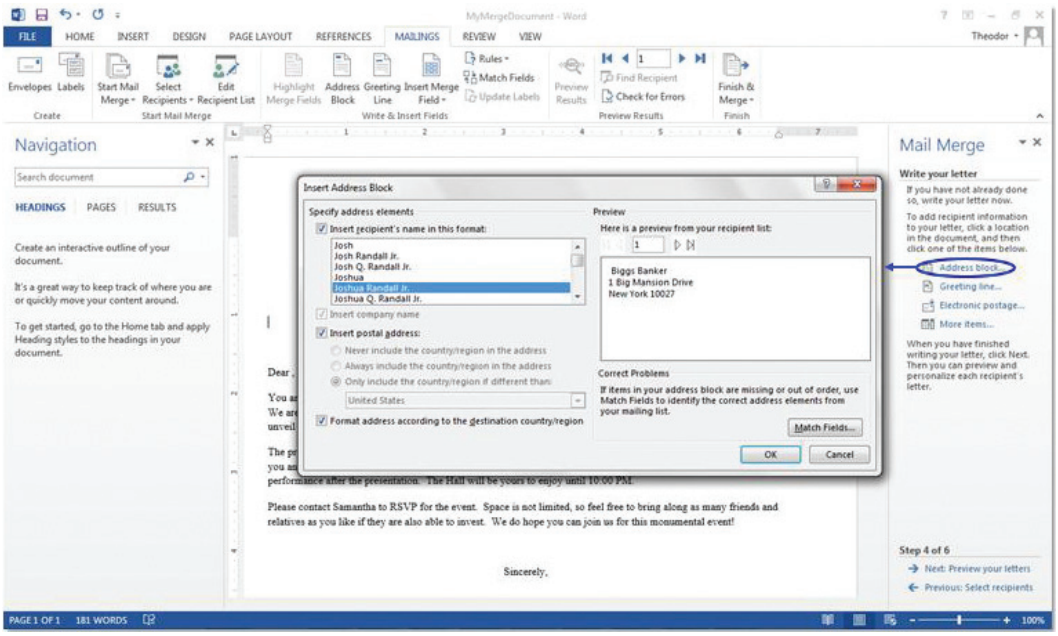
Notice that you have the option within the wizard to navigate to the next step or the previous one. If you make a mistake, you can always go backward in the wizard to correct it before the final step.

document in the *Projects* folder; then choose *Use the current document* and select *Next: Select Recipients*.

In the next step, you will select recipients for your document. You can create a new list of recipients, choose from your contacts in Outlook, or select recipients from a file or database. In this case, select *Use an existing list* and choose the *Browse* icon to navigate to the *MyMergeList* spreadsheet document. When you have opened this document (and selected the only sheet in the document as the data source), you can choose the option to Edit recipient list to select the contacts from the list you want to include in the merge. The Mail Merge Recipients dialog box is shown in Figure 9.4. You can select the *Name* field and sort them in ascending (A to Z) order; you should retain all of the recipients in the list for this example, but

▼ FIGURE 9.4
Mail Merge Recipients dialog box in Word 2013





➤ **FIGURE 9.5**
Insert Address Block dialog box in Word 2013

you can uncheck the selection box next to recipients you do not want to include in a real situation. Select *Next: Write your letter*.

Step 4 of the process is to edit your document by adding the merge fields. You should start by inserting an address block beneath the date entry in your document and place it all the way to the left above the greeting line. You can add an address block by selecting the *Address block* link, which will open the Insert Address Block dialog box in which you can select how you want your recipient's address to appear. This dialog box is shown in Figure 9.5.

When you have chosen your formatting options, you will see the text <<*AddressBlock*>> in your document; this is a merge field and it will change based on the information obtained from each record in your recipient list. Next, add a greeting line to your document. In Word 2013, the greeting line will replace the entire line, so you should remove the existing "Dear," from your document and place the greeting line entry there.

If you want to add any additional fields to your document from the recipient list (such as an account number or email address), you can select them individually by choosing the *More items* link. To add specific fields from your recipient list, use the *Insert Merge Field* icon from the *Mailings* ribbon. You can also add electronic postage to your envelopes or labels if you have the proper software and accounts set up from this step in the wizard. When you have finished adding fields to your document, choose the *Next: Preview your letters* link in the Mail Merge pane.

You will need to use the *Match Fields* button to get your names to display correctly. Select *Name* as the value for the First Name in order to get the automatic completion to work. You will know it is working correctly when you see one of your recipient's names in the preview display on the dialog box.

Top Dog Dogs

12 Sausage Place

New York, NY 10027

September 10, 2013

Biggs Banker

1 Big Mansion Drive

New York 10027

Dear Biggs Banker,

You are invited to a presentation of a dramatic new business opportunity in which you can be a primary investor! We are very excited about the product we have to offer and believe that you will be as excited as we are when we unveil it to you. We know you are very busy, but we hope you will find the time to attend.

The presentation will take place on August 8 at 8:00 PM at Carnegie Hall. We have rented out the entire facility for you and will showcase our sound business strategy while you enjoy a world class environment complete with a performance after the presentation. The Hall will be yours to enjoy until 10:00 PM.

Please contact Samantha to RSVP for the event. Space is not limited, so feel free to bring along as many friends and relatives as you like if they are also able to invest. We do hope you can join us for this monumental event!

Sincerely,

◀ FIGURE 9.6
Completed Mail Merge example

Step 5 provides a preview of your letters. You can use the left and right arrows to see how your results will look for each of the recipients in your list. You can go backward in the process to correct any errors. Formatting changes will apply to the merge fields just as they will to any other document element, so you can adjust the formatting as necessary. Note that the separator between the lines in the address block will always be a paragraph return. When you are satisfied with the results, choose the *Next: Complete the merge* link.

The final step of the Mail Merge wizard, Step 6, allows you to complete the merge and utilize the results. The options provided include the following:

- *Print*—This prints all of the letters with addresses selected from the data list you created earlier.
- *Edit Individual Letters*—This lets you edit letters. For example, if you wanted to include specific information for one or more of the recipients that was not in the list from which you selected the merge information, you could add it manually in the document and print the result when you are finished. You can also use this feature to save a copy of the personalized mailings as a record of what exactly was sent.

Electing to edit individual letters will create a new document with the fields completed. The fields will no longer register as merge fields but instead will act as static text. You can still save the document with the merge fields for later use. In this case, save it as *MyMergeDocumentCompleted*. You can use the *Mailings* ribbon in this document to adjust the properties of your merge fields, preview the results for recipients, or output a new merge result. An example of

the completed document for the first recipient in the list is shown in Figure 9.6.

9.1.2 Mail Merge in Microsoft Word 2011

In Word 2011, the Mail Merge Manager is the tool you use to complete a Mail Merge. You activate this by selecting the *Tools* menu and choosing *Mail Merge Manager*, which will open the dialog box shown in Figure 9.7. There are six steps to completing a Mail Merge in Word 2011. The first is to select the document type you want to create. In the example, *Form Letters* was selected; this uses the current document as a template for the merge, which should be the *MyMergeDocument* file. You can also select *Labels* or *Envelopes* if you need to create accompanying material for a business mailing.

The second step is to select your recipients. You can create a new list or use an existing document or contact list (such as an Office Address Book or Apple Address Book) as a base for your recipients. Choose *Get List*, select *Open Data Source*, select the file *MyMergeList*, and then choose *Entire Worksheet* to include all of the data it contains.

Unlike Word 2013, the manner of adding merge fields to your document in Word 2011 is to click on the field you want to add and drag it to the desired location in the document. To create the proper address block, drag the fields *Name*, *Address*, *City*, *State_or_Country*, and *Postal_Code* into your document. *Name* and *Address* should each occupy their own line. You should then

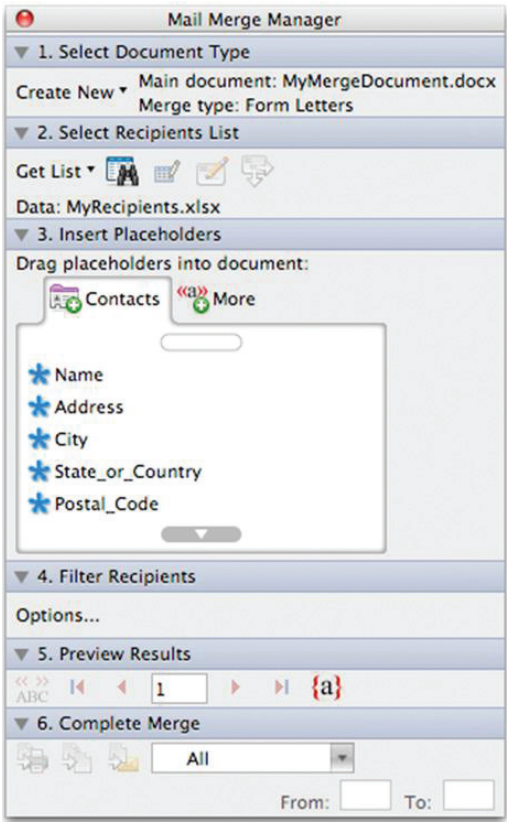


FIGURE 9.7
Mail Merge Manager in Word 2011

arrange the next line so it contains *City*, a comma, *State_or_Country*, a space, and then *Postal_Code*. Notice that the fields you drag into the document are surrounded by less-than and greater-than signs (such as <<*Name*>>); these indicate the fields are

«Name»

«Address»

«City», «State_or_Country» «Postal_Code»

Dear «Name»,

FIGURE 9.8
Merge fields added to document in Word 2011

merge fields that will be replaced with the text from the recipient list. You should then drag the *Name* field into the greeting line (to the right of *Dear* but before the comma). When you have finished adding the merge fields to your document, your result should be similar to Figure 9.8.

Step 4 is Filter Recipients, which allows you to define criteria to include or exclude certain recipients in the list. None of the recipients should be excluded in the example, but this is helpful if you are using a large list from your contacts and wish to specify criteria for who should be included in the mailing. Step 5 is Preview Results. Click the *View Merged Data* icon to toggle whether the current record is shown in the document or the generic merge field references are displayed. You can use the arrows here to scroll through the recipients to preview each of them in the document itself.

Step 6 is Complete Merge. This step allows you to send your results to the printer by using the *Merge to Printer* selection or to create a new document with all of the records appended for individual editing by using the *Merge to New Document* selection. You can choose whether you want to include all of the recipients or define a range of records you wish to use in the result. Defining a range can be helpful if you share printing resources and have hundreds of recipient letters to print.

9.2 ADDITIONAL DOCUMENT ELEMENTS

Word processing documents can include a number of visual elements beyond the typical text and images. There are several quick enhancements you can add to your document to adjust its visual style or utilize callouts within the main text. These include:

- *Text Boxes*—A text box in Word is a standalone object containing keyboard entered text; it behaves inside the document similarly to the images you previously inserted. You can set the text box to have the same text wrapping properties as an image, which is helpful if you want to add a quote or other note to your text to call it to the attention of your reader; these can enhance the visual style of the document without the use of graphics. Word 2013 has several options for text boxes that are available by choosing the *Text Box* icon on the *Insert* ribbon; you can choose a standard text box and format it yourself or use one of the predefined options available in the list. In Word 2011, you can add either a (horizontal) Text Box or a Vertical Text Box to your document from the *Text Box* icon on the *Home* ribbon. You can apply whatever formatting you like to the resulting text box, but there are no predefined options as there are in Word 2013.
- *Drop Cap*—This is a visual enhancement to a paragraph of text that can apply to the heading or first line of a paragraph. It sets the first letter of the text as an independent text box with a large print size that can be resized and formatted independently of the rest of the text. It is used to call attention to the paragraph and attract the eye of the viewer. This

is sometimes used in newspaper or magazine articles as a style choice. To activate this in Word 2013, select the text you want to enhance and choose the *Drop Cap* icon on the *Insert* ribbon and select whether you want it dropped into the paragraph of the text or into the margin. In Word 2011, you add a drop cap by highlighting the text to which you want the effect to apply, selecting the *Format* menu, and choosing *Drop Cap*.

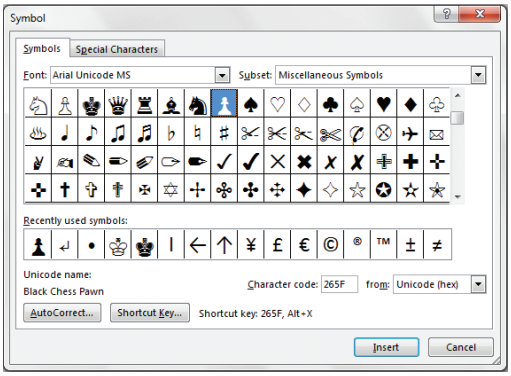
Some of the more advanced examples of visual enhancements are SmartArt in Word and charts. SmartArt is a great way to construct professional-quality graphics quickly using a bulleted list; because this is primarily for a more encapsulated visual medium of presentation, the full description of constructing SmartArt can be found in Section 12.2.4, "SmartArt." Charts are visual presentations of data that must be created from a data source. In Office, the program that manages that data is Excel, so you should reference Section IV, "Spreadsheet Software and Microsoft Excel," for a better understanding of how to construct charts. If you want to see how to create and insert a simple chart, see Section 12.2.3, "Charts."

There are four remaining areas of visual enhancement for creating effective word processing documents. It is common to include symbols, equations, tables, and drawing objects in your document to vary the visual style and present your information clearly. Each of these topics is described in the sections that follow.

9.2.1 Adding Symbols

Symbols are substitutions for a text character that cannot be found on a regular keyboard. Examples include foreign currency symbols, copyright symbols, and mathematical symbols. To insert a symbol in Word 2013, select the *Insert* ribbon and click the *Symbol* icon. A list of common symbols will appear. You can select the *More Symbols* option to access a dialog box which allows you to select symbols from different languages. An example of this dialog box being used to insert the symbol for British pounds into the report on Jean Lafitte is shown in Figure 9.9.

In addition to currency symbols and letters from other alphabets, there are a few unique fonts that contain symbol libraries instead of text characters. These fonts include Wingdings and Webdings. You can use the Font selection box to choose these symbols to see what is available. You can also select the Subset selection box to choose technical symbols or foreign alphabets that do not have representation on your own keyboard. When you have selected the symbol you want, click the *Insert* button to place it in line with your text.



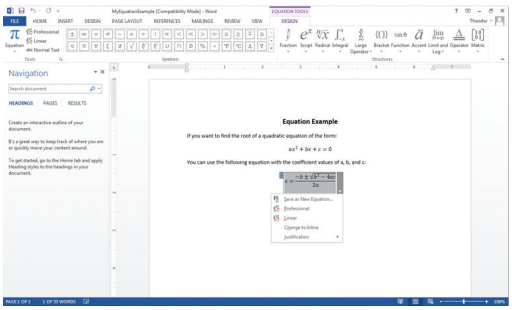
▲ **FIGURE 9.9**
Symbol selection in Word 2013

9.2.2 Editing Equations

Word has a library of symbols that allows you to construct equations within your document. To add an equation in Word 2013, select the *Insert* ribbon and choose the *Equation* icon; in Word 2011, select the *Equation* icon in the *Document Elements* ribbon. When you choose the *Equation* icon, a drop-down list will appear with several common equations that you can insert and modify or you can choose *Insert New Equation* to create your own. For this example, you will construct the equation for finding the root of the quadratic equation; this is commonly called the quadratic formula. When you insert an equation in Word and click within it, a context-sensitive ribbon will appear to help you construct and edit equations. In Word 2013, this is the *Design* ribbon for Equation Tools; in Word 2011, it is the *Equation Tools* ribbon, which chains off of the *Document Elements* ribbon. An example of the ribbon, the quadratic equation, and the completed solution for adding the quadratic formula is shown in Figure 9.10.

Equations are treated as unique objects in your document just like citations; by default, the equation is given its own line in the document. The context-sensitive ribbon for equations contains all of the common mathematical symbols, which you can simply click to insert. It also contains a variety of structures that can be used to format your equation such as *Fraction*, *Script*, *Radical*, *Integral*, etc.

To end equation entry, you must click outside of the equation box. Pressing the Enter key gives you a new equation line in the same formatting box.



▲ **FIGURE 9.10**
Equation example in Word 2013

When you click on any of these icons, a drop-down list will appear from which you can select the elements and formatting you need for your equation. The structures that you can select from these lists contain small boxes surrounded by dotted lines; these are the building blocks of your equation and you can think of the box as containing a set of parentheses in mathematics. Whatever you type inside of the box will become part of the structure. You can also nest structures within each other, which will be demonstrated in the example.

The other feature of the ribbon you should note is the ability to switch your equation from *Professional* to *Linear* format. Professional is the actual arrangement of symbols that you would see in a mathematics textbook; Linear is the arrangement of the symbols and elements in a

$$x = (-b \pm \sqrt{(b\text{^}2 - 4ac)})/2a$$

▲ **FIGURE 9.11**
Linear formatting for quadratic formula

The equation editor in Word is for formatting and displaying equations only. It cannot be used to compute or solve formulas.

single line. The Linear format automatically adds parentheses to separate elements of the equation that are implied by the structures in the Professional display. The Linear format for the quadratic formula is shown in Figure 9.11. When you click the outer box around an equation, you will get a drop-down list that allows you to select the formatting.

The steps to construct the generic quadratic equation are as follows:

1. Start the linear portion of the equation by typing $a + bx + c = 0$ in the equation editing box.
2. Add the exponent to the a coefficient by placing the cursor beside and to the right of the a and selecting *Script* and then *Superscript*. This will insert two formatting boxes into your equation. Type x in the base box and 2 in the exponent box.

The steps to construct the root solution equation are as follows:

1. After you insert a new equation, type $x =$ in the equation entry box.
2. Choose *Fractions* and select *Stacked Fraction* from the list.
3. Type $2a$ in the bottom box of the fraction formatting.
4. Type $-b$ in the top of the fraction formatting and insert the stacked +/– symbol from the available symbols.
5. Paste the symbol you inserted, choose *Radical*, and then select *Square Root*.
6. Beneath the radical symbol, type $b - 4ac$ in the formatting box.
7. Use the *Script* option *Superscript* to turn the b coefficient from the previous entry into b squared (this is the same procedure you used in the quadratic equation).

Adding Tables

9.2.3

A table is a great tool to manage information in your document. Tables do not have the computational power of the spreadsheets found in Excel, but they can be effective for presenting a lot of information in a small space. For instance, you can use a table to present a list of values or results, such as the comparison of different currencies shown in Figure 9.12. To insert a similar table in Word 2013, select the *Insert* ribbon and choose the *Table* icon; this will allow you to select the number of rows and columns you want the table to have. You can also select the *Insert Table* option from the submenu to access a dialog box that allows you to enter the number or rows and columns you wish to include. Word 2011 has a separate *Tables* ribbon that you use to add tables to your document; click the *New* icon to select the number of rows and columns or select the *Insert Table* option to define the table parameters manually.

When you add a table to your document in Word 2013, two context-sensitive ribbons will help you format your table; these are

World Currency Comparison (As of 9/10/2013)

Currency	In Euro (€)	Per Euro (€)
British Pound (£)	1.19	0.84
Australian Dollar ($)	0.70	1.42
US Dollar ($)	0.75	1.32
Chinese Yuan (¥)	0.12	8.11

Statistics taken from MSN Money on 9/10/13 (*http://investing.money.msn.com/investments/exchange-rates*)

▲ **FIGURE 9.12**
Example table showing currency comparison

▲ **FIGURE 9.13**
Context-sensitive Table ribbons in Word 2013

the *Design* ribbon and the *Layout* ribbon for Table Tools shown in Figure 9.13. You can select a style to format your table and choose whether you want to include elements like a header row from the *Design* ribbon. The *Layout* ribbon allows you to format the alignment of the text within each cell and add or remove rows. Word 2011 contains most of the formatting options on the existing *Tables* ribbon; when you add a table to your document, however, the context-sensitive *Table Layout* ribbon appears, which contains commands for table cell management and alignment.

In the example in Figure 9.12, a header row is included and the table is formatted with the *Light Shading* option. Internal borders have also been added (via the *Borders* icon) to show the delineation between table cells. For an additional example of using tables for visual presentation, see Section 12.2.2, "Tables." The commands for adding borders and shading in Word 2011 are found on the *Tables* ribbon.

Activity 9.1— Typing Tables

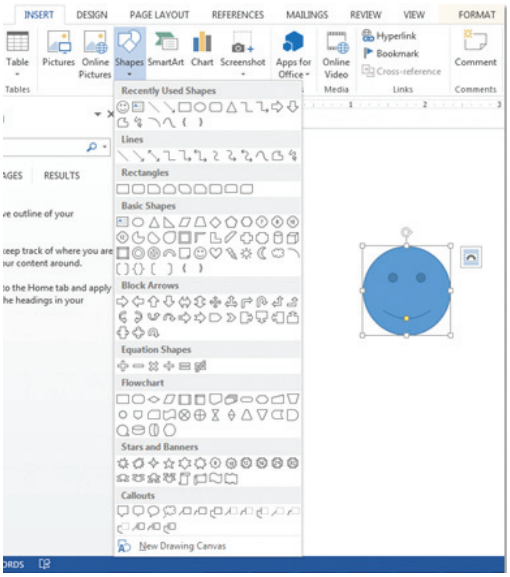
Create a new document called Activity9_1 *and save it in the* Activities *folder. Add a table to your document with three rows and three columns. Enter the values 1 through 9 by entering one value in each table cell. Use the tab key to move from cell to cell. What is the sequence of cells when you navigate by using the tab key? What happens when you press the tab key at the end of the table? Expand the table to accommodate the numbers from 1 to 15. Save your work.*

Adding Shapes

9.2.4

In Word, you can add simple shapes to your document and format them as you would an image. These shapes are treated as objects within your document for which you can set the color and formatting as well as the placement and text wrap properties. To insert a shape in Word 2012, select the *Insert* ribbon and choose the *Shapes* icon. In Word 2011, you add a shape to your document by selecting the *Shape* icon on the *Home* ribbon. The menu that appears is organized into categories rather than displaying all of the options at once. The list of these available shapes is shown in Figure 9.14.

When you insert a shape, a context-sensitive *Format* ribbon allows you to adjust its format and properties, including the fill,



▲ **FIGURE 9.14**
Shapes menu in Word 2013

line, and other effects. By default, the shape is set to layer above the text of your document, but you can adjust this property as well. Formatting shapes is covered in more detail in Chapter 10. In Word 2013, you can also use the *Shapes* menu to insert a drawing canvas, which is configured as a document object in line with your text where you can place multiple shapes; the entire canvas is treated as a single object.

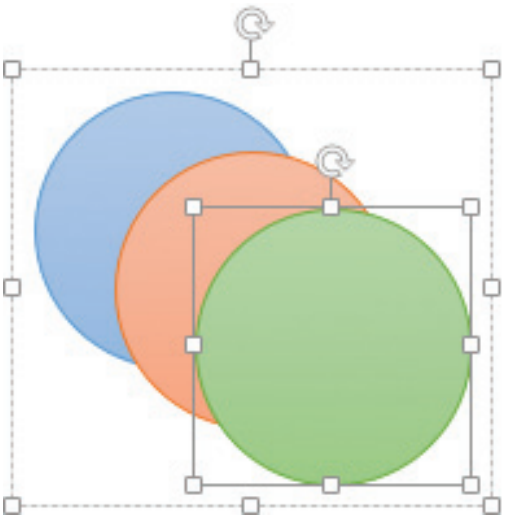
Activity 9.2—Adding and Formatting Shapes

For this activity, you will add three circles to a document using the Shapes *menu. You should format these so they are in front of the text in terms of layout, and they should fit inside of each other so that the largest is behind the middle size and the middle size is behind the smallest circle. Use the formatting ribbon for the shape objects and apply a different style to each one from the preset options. Save your work as* Activity9_2 *in the* Activities *folder you created.*

9.3 ARRANGING AND GROUPING ELEMENTS

One of the tools for managing document content is the ability to group objects in a document and format them as a group. This will only apply to objects that are not in line with the document text; anything with a Text Wrap setting of *In Line with Text* cannot be combined with other elements.

You can select multiple objects by holding down the shift key and clicking each of them (clicking them again will deselect the object) or by dragging the mouse from one end of the objects you wish to group to the other (only objects entirely within the drag area will be selected). When you have selected all of the objects you wish to group, you can activate the *Page Layout* ribbon, select the *Group* menu icon on the *Arrange* panel, and choose *Group*. You can now manipulate the entire set of objects as a single element. The objects within the group can still be individually edited by clicking directly on the object you wish to alter. You can see an example of object grouping in Figure 9.15. In Word 2011, to create a group you can select multiple objects in a document (when they are not part of the text layer) and open the context-sensitive *Format* ribbon which expands off of the *Home* ribbon. The *Group* menu is located on the *Arrange* panel of the *Format* ribbon.



▲ **FIGURE 9.15**
Example object grouping

Documents in Word are organized by layers. You can visualize this by imagining a stack of paper clippings containing your elements that must be arranged so you can look down on the stack and see the visualization

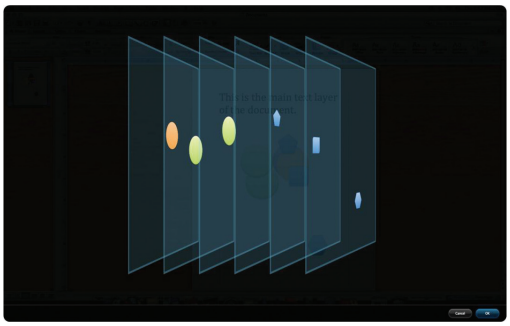
of the elements you desire. The standard text layer can be considered the default middle of the stack.

Activity 9.3—Layers and Groups

Create a new document and save it as Activity9_3 *in the* Activities *folder. Use the* Shape *menu to recreate the object grouping in Figure 9.15. Use the formatting commands to style each circle you add. When you have recreated the group, add another circle and place it behind the group and add another circle and place it in front of the group. Now group all five circles at once. What happens when you dissolve the group by using the Ungroup function? What happens to the new circles if you send the group of three circles to the back of the document? Ungroup all of the elements and create a single group of five circles in your document. Save your work.*

When you change the Text Wrap setting on an object, you move it to a different layer within the document, whether that is in front of the text or behind it. There are two options on the *Page Layout* ribbon in the *Arrange* panel that allow you to change the layer on which your object or group resides; these are the *Bring Forward* and *Send Backward* icons.

In Word 2011, you can reorder the layers of objects in your document by using the *Reorder* menu on the *Arrange* panel of the context-sensitive *Format* ribbon. In Publishing Layout View, the *Reorder Objects* menu selection opens a layer by layer view of your document which allows you to click and drag the layers to rearrange



▲ **FIGURE 9.16**
Layer visualization in Word 2011

the elements in your document. You can see an example of this in Figure 9.16.

Under the *Bring Forward* icon, you can choose to move the object or group a single layer forward (which will by default move it past the next object above it in the stack) or to move it to the front, which places it on the top layer of the document (which can be seen as closest to the viewer). The *Send Backward* icon gives you the option to send the object or group back one layer in the document or send it to the back of the document (farthest away from the viewer). Office 2011 has a great visualization tool that demonstrates this concept visually as shown in Figure 9.16.

The other way you can change the positioning of an object or group (in addition to dragging it) is by changing the *alignment* of it. In Word 2013, you can select a predefined position from the *Position* menu icon from the *Arrange* panel of the *Page Layout* ribbon. You can also select one of the options

ALIGNMENT *in terms of layout is the relative placement of an object with respect to the overall environment, which in this case is the slide.*

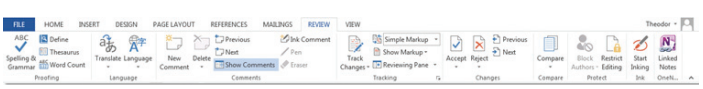
from the *Align* menu and choose whether you want it to align to the page or align to the margin. Align to Page aligns the element to the entire page size regardless of the margin settings for the page. Align to Margin realigns the object to the orientation of the page within the margin settings.

9.4 EDITING EXISTING DOCUMENTS

As mentioned earlier, you can use the *File* menu to open existing documents. This includes not only the documents you construct but also any documents on your computer that come from someone else. The *Open* command launches a dialog box that allows you to select the document you want to review or edit. Word has some excellent tools in the *Review* ribbon, shown in Figure 9.17, that are used to edit and review documents. This ribbon exists in both Word 2013 and Word 2011, although the commands available differ slightly.

Word 2013 and Word 2011 have different options for reviewing the formatting that is applied in your document. In Word 2013, you can show or hide formatting marks by clicking the *Show/Hide Paragraph* icon on the *Paragraph* panel of the *Home* ribbon. In Word 2011, you can use the *Reveal Formatting* tool available from the *View* menu to click inside the document and view the formatting that is applied at that location.

Word 2011 also allows you to manage the styles used in the document with the Toolbox available from the Quick Access toolbar; select the *Styles* tab to view the styles used in the current document. You can even color-code where the styles are applied by selecting the *Show Styles Guides* checkbox. You can apply styles directly from this panel or simply review the existing formatting.

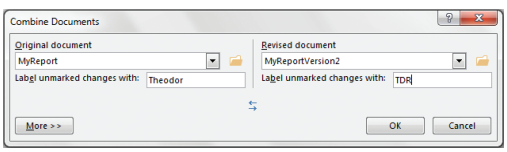


▼ **FIGURE 9.17**
Review ribbon in Word 2013

9.4.1 Document Comparison

If you have multiple versions of a document that you need to integrate, you can perform a document comparison to view the changes and decide whether you want to keep them. These versions do not have to have the same author so you can perform a comparison after you have sent your document to someone else for editing whether or not they have tracked their changes. As an example, you can use the *MyReport* document and the *MyReportVersion2* document to perform an example comparison.

To perform a document comparison in Word 2013, select the *Review* ribbon and choose *Compare*. There are two options available here: *Compare* and *Combine*. Both of these will create a new document that merges the two versions together. Compare is used to show the differences between versions from the same author whereas Combine is intended for documents from multiple authors. In Word 2011, you can perform a document comparison by selecting



▲ **FIGURE 9.18**
Compare Documents dialog box in Word 2013

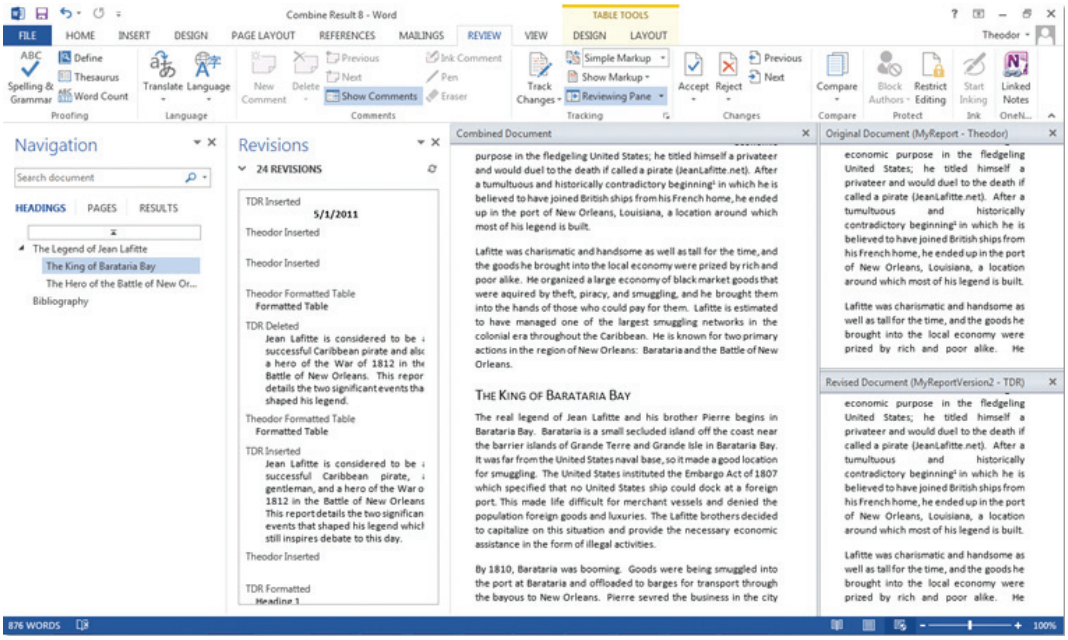


FIGURE 9.19 Document comparison in Word 2013

the *Tools* menu, choosing *Track Changes*, and then choosing *Compare Documents*. The interface for choosing the documents is shown in Figure 9.18. This process will create a new document as a result, so neither of the files needs to be open.

In Word 2013, the result of the comparison will display in a *Reviewing* pane that includes a top and bottom comparison of the documents beside the new merged document as shown in Figure 9.19. You can toggle the *Reviewing* pane from the *Review* ribbon, and you can manually close the version documents in the comparison. If you wish to retain the older versions, save your file with a new document name.

Word 2011 simply creates a new document based off of the original document where the updates in the revised version are tracked as changes. The Sidebar will display the *Reviewing* pane, which gives you a list of the changes that are included in the document. The differences between the two documents will be tracked as changes that must be either accepted or rejected, no matter which version you use. This is the topic of the next section where you will learn to manage tracked changes in a document.

Track Changes

9.4.2

When you use Track Changes on a document, every change you make will be registered in a different colored (traditionally red) markup. Words or characters that you delete will traditionally have a strikethrough effect and new words will be shown in the different color with an underline. This allows you to monitor changes or record them for someone else to review. If you are editing someone else's document, it is a courtesy to track changes so they can identify your edits.

To enable Track Changes in Word 2013, select the *Review* ribbon and choose the *Track Changes* icon; this is a toggle so it is active when it is highlighted. In Word 2013,

Enabling or disabling Track Changes does not affect any prior changes. If you were tracking changes and turned the function off, you will still need to accept or reject the changes that were tracked. Similarly, if you were not tracking changes, turning the functionality on will not affect prior alterations that were made without Track Changes active.

the markup will only be indicated on the left side of the document by default, allowing you to see the contents of the document clearly without the clutter of the strikethrough, color, and underline notations. You can use the submenu to customize options for tracking the document changes or edit the name you wish to use for the change tracking. In Word 2011, you can enable Track Changes on the *Review* ribbon by moving the slide bar from *OFF* to *ON*. You can slide it back to *OFF* to disable Track Changes.

You can navigate from one tracked change to another using the *Next* and *Previous* icons on the *Changes* panel of the *Review* ribbon. If you want to keep the currently active change, select the *Accept* icon. If you want to remove the change, select the *Reject* icon. These icons also have submenus attached that will allow you to accept or reject all of the changes in the document without going through them one by one. Word 2011 has these options on the *Changes* panel of the *Review* ribbon, along with a toggle icon for displaying the *Review* pane.

Examine the document that was created from merging the two versions of the report. Practice reviewing changes by navigating through the document and deciding whether you want to accept or reject the changes as appropriate. You should keep any beneficial change and reject any that are not wanted. Be sure to retain the concluding paragraph in the document.

Comments

9.4.3

Another way to mark a document for potential change when editing is to use comments. A comment in word processing is a note about the document that is written to the author or the editor of a document. You can use comments to identify areas of the document that may need to be changed or clarified. Comments identify the person who created them either by name or by initials, so multiple people can add comments to the same document and you can still identify the source of the comment. Comments are a helpful tool for collaboration and versioning in a document. They appear in the document margin to the right so they do not impede the visibility of the main text. Unlike Track Changes, you do not accept or reject comments; instead you simply add or remove them.

In Word 2013 and Word 2011, you add a new comment by selecting the text on which you want to comment, activating the *Review*

➤ **FIGURE 9.20**
Example comment in Word 2013

Comments attach to a particular selection of text in the document. You can select the text to which you want the comment to apply, but if you do not select the text, it will attach to the last word before the current cursor location.

ribbon, and choosing *New Comment* (or *New* on the *Comments* panel in Word 2011). The *Next* and *Previous* icons in the *Comments* panel allow you to move from one comment to another. To delete a comment, click on the comment you want to remove and select the *Delete* icon; the submenu of the *Delete* icon also allows you to delete all of the comments in the document, which should only be done once they have been reviewed. An example of a comment is shown in Figure 9.20.

You should practice adding comments to and deleting comments from the report document that resulted from the document comparison process. In Word 2013, when you activate the *Reviewing* pane you can see the comments included in the document. You can also select Show Comments from the *Comments* pane on the *Review* ribbon. In Word 2011, the comments added to the document will appear in the *Review* pane whenever it is active.

Activity 9.4—Comments

Create a new document called Activity9_4 *and save it in the* Activities *folder. Enter at least eight lines of text. Select two words from your document and add a comment to them. You can type random text in the comment. What elements are contained in the comment? How can you show and hide the comment within the document and what text is highlighted for the comment? Now select a new location in the document and click the mouse to place the cursor without adding text. Add another comment to your document without any text selected. What text is highlighted for the new comment? Use the comment navigation tools on the ribbon interface to navigate between the two comments and then delete the second comment. Save your work.*

CHAPTER SUMMARY

This chapter covered some of the more advanced features you can use in word processing documents. Word processing is the primary means of creating print documents in the workplace. Part of the business practice may be to send out periodic mailings for which Mail Merge can provide a tremendous shortcut. There is a lot of overlap between word processing and presentations because both are primarily visual media; however, one of the key differences is the interactive nature of presentations and the static nature of printed documents. Establishing visual appeal and clarity is necessary in both, but generating visual interest and document flow in word processing is much more important because you must convey your ideas solely through what is presented on the page. The next section of the text focuses on constructing presentations; you should notice the common elements between the two productivity applications.

CHAPTER KNOWLEDGE CHECK

1 When selecting recipients for a Mail Merge, you must only include the fields for recipient information you will use in your document; any additional fields will cause errors in the merge process.

- ◯ **A.** True
- ◯ **B.** False

2 You cannot personalize individual documents in a Mail Merge; the results of the merge can only be sent directly to the printer or to email.

- ◯ **A.** True
- ◯ **B.** False

3 Special fonts exist that allow you to substitute symbols for the letters on your keyboard.

- ◯ **A.** True
- ◯ **B.** False

4 The following applications are capable of including formulas formatted in traditional mathematic notation:

- ◯ **A.** Microsoft Word 2013
- ◯ **B.** Microsoft Word 2011
- ◯ **C.** Microsoft Word Web App
- ◯ **D.** All of the above
- ◯ **E.** Both A and B
- ◯ **F.** None of the above

5 Text wrapping can apply to objects other than images.

- ◯ **A.** True
- ◯ **B.** False

6 Comments added to a document will not be retained when the document is sent to another recipient; they are strictly for your own use.

- ◯ **A.** True
- ◯ **B.** False

7 Changes made to a document while Track Changes (or Record Changes) was not active will not be retained for later acceptance or rejection.

- ◯ **A.** True
- ◯ **B.** False

8 Activating Track Changes (or Record Changes) will affect all changes made to the document, including changes made before Track Changes was activated.

- ○ **A.** True
- ○ **B.** False

9 The standard options for resolving a tracked or recorded change to a document are as follows:

- ○ **A.** Accept the change
- ○ **B.** Reject the change
- ○ **C.** Move the change to a comment
- ○ **D.** All of the above
- ○ **E.** Both A and B
- ○ **F.** None of the above

10 Symbols (or special characters) are treated as images in your word processing document.

- ○ **A.** True
- ○ **B.** False

CHAPTER REVIEW QUESTIONS

1 Give an example where a table would summarize data better than using a text explanation other than the ones presented in the chapter. Would this data also lend itself to being displayed in a chart? Which one is a better data display and why?

2 Word allows you to include a special *Object* in your document (from the *Insert* menu in Word 2013), which is either an included file or a reference to another file. These files can contain any file from your operating system's file structure. When would it be a good idea to include such objects in your document? When would it be a bad idea to include them? What precautions should you take before opening a file included in a document as an object from an unknown source?

3 The productivity software PowerPoint that is part of the Microsoft Office suite allows you to add video and sound to your documents but Word does not support this inclusion (other than Word's Object inclusion which shows only an icon and name). Why would these types of media be excluded from a Word document?

4 Drop Cap is a type of emphasis that was placed on the first letter of an article in a newspaper, but it is largely unused today. What is the history and proper usage of the Drop Cap emphasis?

5 What are the benefits and dangers of using specific fonts as substitutions for symbols (such as Webdings or Wingdings) in a document? What are the alternatives for creating symbols in a document?

6 Tracking changes and using comments are two common ways in which collaboration is handled in word processing documents. Are either of these sufficient by themselves or do the two techniques complement each other in use? Justify your answer with examples.

7 Give at least three examples of documents used in business or education where you would need to collaborate among different authors. What would you suggest as a strategy for sharing the document and keeping control of the versioning among authors making changes to the document?

8 In addition to just tracking changes in the text of a document, Word also tracks changes to formatting and other modifications to the document. You must accept or reject these changes as well. What are the different areas of document modification which can be tracked in Word (you can find these under the *Show Markup* menu on the *Review* ribbon) and why would each of them be useful?

9 What are the benefits and drawbacks of the *Accept All Changes* and *Reject All Changes* options for resolving different versions of a document? Justify your answer with examples.

10 Word 2013 allows you to add Ink Comments (drawn with the mouse as shapes over your document) to your document as well as the standard comments described in the chapter. What is the benefit of using ink comments in a document? Would this type of comment be useful for utilizing handwritten proofreading symbols? Justify your answer with examples.

PRACTICE EXERCISES

1 Construct a set of mailing labels or envelopes to accompany the letters you have constructed in this chapter. You can use the *MyMergeList* file, but you should include both the recipient address and the return address. Make sure your page layout is formatted correctly for the type of document you want to print.

2 Make at least five changes to either the report you constructed in Chapter 8 or the resume you constructed in Chapter 7. Use a document comparison to view the changes. Add at least two comments to the document as well. Save the file with the markup.

3 Create a table within a document to track the temperature high and low for five days (you can get this information from a weather service). Format the table with a header row containing the city name and the days of the week for which the temperature is tracked and choose a table style. Add the weather information for another city to your table. Merge the cells so that the city name spans both the temperature high and low for each city. What types of data are suited for display in a table?

4 Create a new document and add a table to it with 7 rows and three columns. The columns should be: Symbol, Name, and Meaning. Now add one symbol to each row using the Symbol insertion ability in Word. For the name entry for each symbol, give the text description of the symbol name. For the meaning entry, describe its usage. Format the table using the table styles formatting commands. Add a header to the document and save your work.

5 Activate Track Changes in your document and enter at least six lines of type. Deactivate Track Changes and type another six lines. Activate Track Changes again and review the document changes using the navigation. Is there any way to detect the changes made when the Track Changes was off? How does this affect collaborative documents?

CHALLENGE EXERCISES

1 Use the equation editor in Word to construct Einstein's equation for relating matter and energy (E=mc2). Use the building blocks to create the equation and display it in both Professional and Linear format. What is the difference between the two display modes? Explain the tools you used to construct the equation.

2 Arrows are a kind of shape that behaves differently from most. With an arrow, you can attach one or both ends of the arrow shape to one of the grab points around the edge of the shape (that can typically be used to modify the shape). When it is attached, the grab point to which it is attached will run red and moving the shape will move the arrow with it. Create three circles in a document and attach one of the arrow types to link each of the circles to the other circles. Spread them out in a triangle formation on the document while the arrows are attached. How do the arrows behave when one end of the arrow is disconnected from the shape and the attached shape is moved? Compare the behavior of the three types of arrows.

3 Create two documents and type entirely different text in each of them. Now use the document comparison functionality in Word to merge the two documents into one. Because the content is different, one of the documents will appear as new text and the other will register as removed text. Which document appeared as which type of text? Resolve the document changes to retain the maximum amount of text in the resulting document. What steps did you take for the resolution?

4 *WordArt* is a special type of display for creating unique text effects in a document. Prior to the extensive *Text Effects* menu for formatting text, using WordArt was the only way to create professional text effects in a document. Create a document heading using the *WordArt* menu. Try to recreate it using the *Styles* menu and *Text Effects* menus available for standard text. Are the results the same? Which of the processes is easier or are the two processes equivalent?

5 Create a new document in Word and save it to your computer as *MyObject*. Add content to your *MyObject* document and save it. Using Word's Object insertion (on the *Insert* ribbon in Word 2013 and the *Insert* menu and Object choice in Word 2011) add the *MyObject* object to your document. How is the content added to the new document? When would this functionality be useful?

CHAPTER
10

Introduction to PowerPoint and Presentation Software

IN THIS CHAPTER

This chapter is an introduction to presentation software and basic elements of constructing a presentation. You will create, edit, and save a simple presentation while learning to use the common tools required for developing professional presentations. Once you have completed the chapter, you will be able to:

- Create and save a new presentation document
- Insert and format text and text boxes in a presentation document
- Insert drawing shapes, clip art, and stored images into a presentation document
- Rearrange slides in a presentation document
- Add slide transitions to a presentation document

10.1 INTRODUCTION TO PRESENTATION SOFTWARE

In the past, lecturers, business leaders, researchers, teachers, and anyone wishing to present an idea had to construct their own visual aids on paper or chalkboards to supplement their oral presentations. This was time consuming and generally was not easily transferrable to another venue. Technology like slide projectors and overhead projectors made this process easier, but it still carried a significant development requirement to produce the slides or the overhead sheets. Presentation software is the digital equivalent to these analog technologies and lowers the barrier to creating effective visual supplements to any presentation.

An example of presentation software is Microsoft PowerPoint, which comes with the Microsoft Office suite. The native format for this software is the presentation document, and it takes the form of a slide show. Presentation documents are primarily a visual supplement to an oral presentation, although they can also be used as a standalone slide show playing in the background of an event or as a demonstration that can be shared or posted on the Web. A critical thing to remember is that presentation software is not useful for a large volume of written text; that belongs in word processing software. Any text contained in a presentation should be short and to the point (the power point, if you will).

PRESENTATION SOFTWARE *is a computer program that typically runs on a personal computer and allows the user to create visual aids, handouts, and graphics that may include sound and animation.*

10.2 ANATOMY OF MICROSOFT POWERPOINT

Whenever you open PowerPoint from a menu or from a desktop icon, a new presentation document (typically named *Presentation1*) will open. Once you have opened PowerPoint, take a look at the *File* menu; this is the orange square at the top-left side of the interface in Office 2013 and the first menu in the list beside the apple symbol and the word *PowerPoint* in Office 2011. The *File* menu options are shown in Figure 10.1. This view is called the Backstage view in Office 2013. The detailed options here will be explored later and should be somewhat familiar to you already from your use of Word, but for now you should focus on the process of creating and saving a presentation document.

To create a new document in PowerPoint 2013, select the *File* menu and then select *New*. A list of document templates from which you can create your presentation will appear. Select *Blank Presentation* and either

Remember that Microsoft Office 2013 (including PowerPoint 2013) is the latest version available for the Windows operating system. Microsoft Office 2011 (including PowerPoint 2011) is the latest version available for the Macintosh operating system. These versions are both included in the Office 365 subscription service.

double-click the icon or click the *Create* button. You can also use the *Ctrl-N* shortcut to create a new presentation with the default settings.

In PowerPoint 2011, select the *File* menu and then choose *New Presentation*, or use the shortcut *Command-N*. You can also create a new presentation from an existing template under the *File* menu, but for now you should just create a new blank presentation.

Whenever you are working on a document, it is imperative to save often. You should always start saving when the document is first created. With your new *Presentation1* (the default file) open, click *File* to open the interface for the file options. On the main list in the open menu, you have the Save and Save As options. Save will attempt to save the document to an existing location, but if you have not yet saved the document, it will act like Save As. Just as in Word, Save As prompts you for a location and filename to store the file. For a refresher on how this works, you can revisit Section 7.1.1, "The File Menu." Go ahead and save your presentation as *MyPowerPoint*; the native file type is *PowerPoint Presentation* (*.pptx*).

Now you should be at the main slide of your new presentation. PowerPoint has an interface that is very similar to Word. A few of the ribbons contain almost identical tools. PowerPoint is designed for visualization, so the ability to format text and insert media quickly is the essential element that distinguishes PowerPoint from the rest of the Office suite. When you look at the default interface, you will see the initial *title* slide and the available ribbons and commands. A quick tour of the interface is provided first and then you will learn the steps to creating a successful presentation. The interfaces for PowerPoint 2013 and PowerPoint 2011

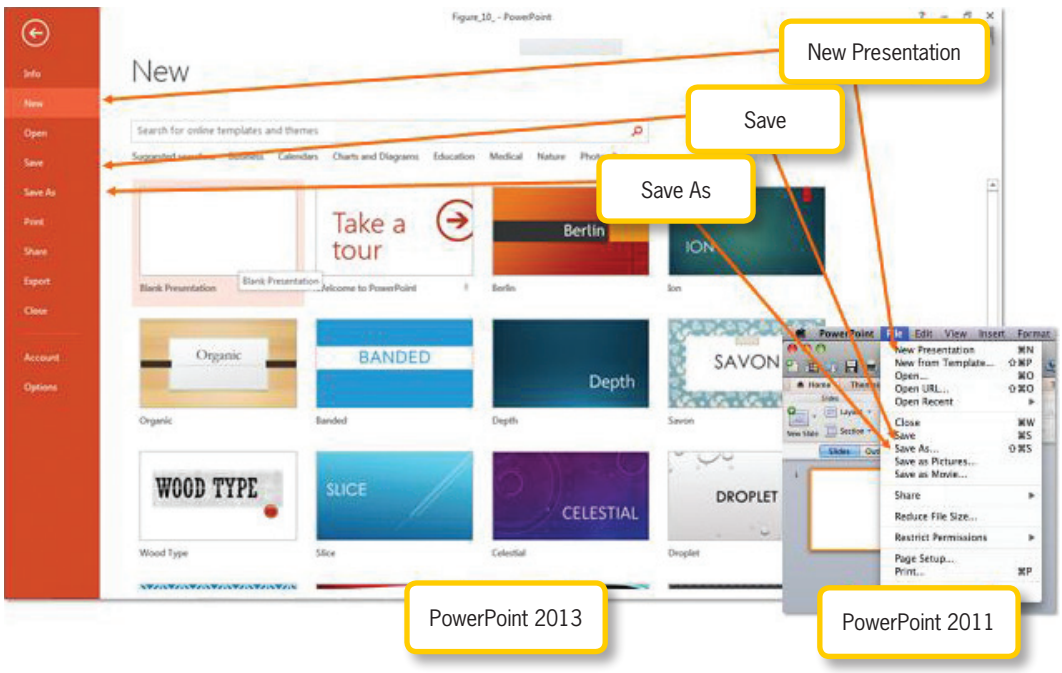


FIGURE 10.1
File menu for PowerPoint 2013 and PowerPoint 2011

are slightly different, so feel free to jump to the section that is relevant to you. The Microsoft PowerPoint Web App is also available for anyone with a OneDrive account. Just like the other app versions of the Office programs, the PowerPoint Web App is limited in functionality compared to the full installation versions.

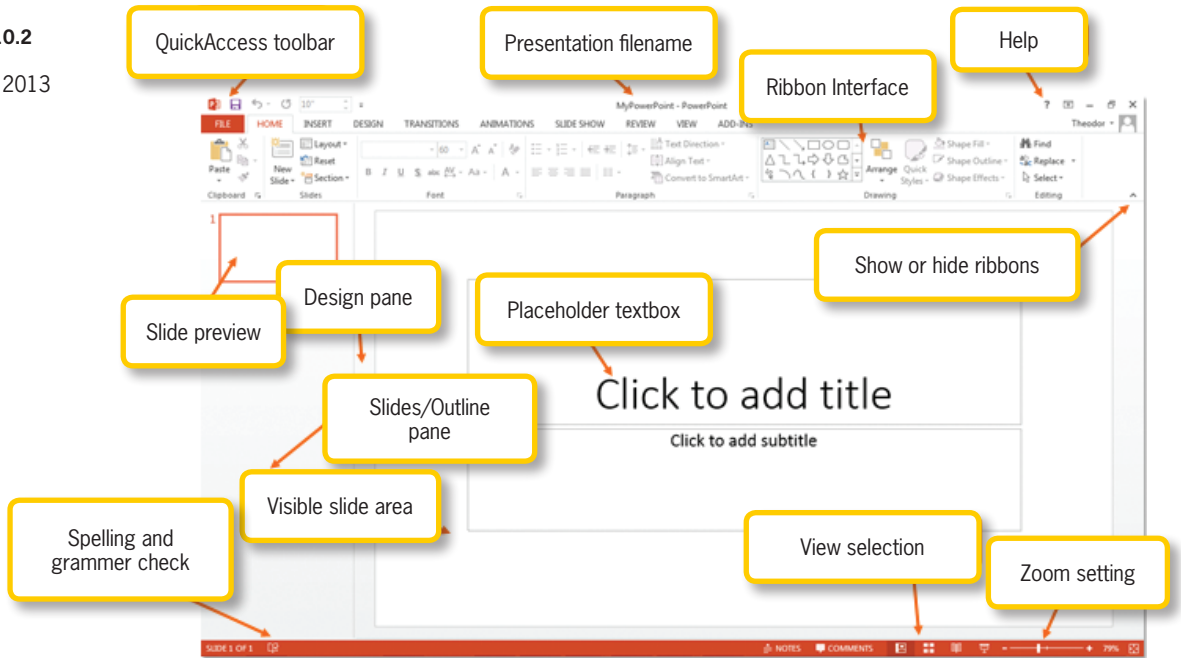
10.2.1 Microsoft PowerPoint 2013

Along the top of the PowerPoint 2013 interface (which is shown in Figure 10.2) is a series of icons that act as quick commands; this is the Quick Access toolbar. The *PowerPoint* icon itself contains a short list of commands that allow you to move and change the size of your interface window.

Clicking the icon that looks like a floppy disk lets you save your document quickly after you have made changes (it acts like the Save command, but if you have never saved your document it will act as the Save As command).

By default, the Quick Access toolbar also has the Undo command to erase the effects of your last action as though it had never happened; the drop-down arrow beside the icon opens a menu of several prior actions and lets you select how many of them you want to undo. The Redo command allows you to redo what you undid. These two icons allow you to step forward and backward through your changes in case you made a mistake along the way.

On the right side at the top of the interface are icons to minimize, maximize, and close your presentation (make sure you save before you click this button) and an icon to access the help files. Beneath these icons, there is an arrow to show or hide your ribbons. The first ribbon beside the *File* button is the *Home* ribbon. From here, you can insert new slides, modify text, insert



➤ **FIGURE 10.2** Anatomy of PowerPoint 2013

quick drawing elements, arrange items, and find and replace text in the presentation document.

The main departure from Word you will encounter here is that PowerPoint is arranged into slides and sections instead of pages. To insert a slide, either click the *New Slide* command on the *Home* ribbon or right-click the *Slides/Outline* pane on the left side of the interface. When you select the *New Slide* command, you can choose the type of layout you want for the slide you are inserting. If you use the right-click option, you will get a new slide with the default layout.

The *Insert* ribbon, shown in Figure 10.3, is the next one in line. You will visit this ribbon a lot if you plan to work frequently with media, which is really the main purpose of using PowerPoint. From this ribbon, you can insert just about anything you can imagine, from text boxes and pictures to clip art and equations, not to mention sounds and videos. You can try it out by clicking *Shapes* in the *Illustrations* panel. Select a shape you like and place it into your slide. If you select a shape and just click on the slide, a predefined instance of the shape will be stamped into the slide. You can also click and drag to set the size of the shape yourself.

The next ribbon is the *Design* ribbon, shown in Figure 10.4; this is where you can select how you want your presentation to look. Go ahead and select something from the *Themes* panel. Notice how doing so reformats your text and recolors any shapes that you did not modify. Each theme has a set color scheme and font choice, but you can change these using the *Colors and Fonts* menus; each of these has a drop-down list of predefined selections from which you can choose. You can also change the default effects that are applied to shapes within the presentation by clicking on *Effects*. The *Background* panel lets you change a number of settings, but for now select how you want your background to appear from a preset drop-down list of options under *Background Styles*. These will change based on the overall theme you have selected. Your presentation is starting to look fancy already!

The next ribbon to consider at this point is the *Slide Show* ribbon, shown in Figure 10.5. (The *Transitions* ribbon is discussed later in this chapter, and the *Animations* ribbon is covered in Chapter 12, "Advanced Features of Presentation Software.") The *Slide Show* ribbon is useful for previewing how your slide show will look when it is presented. On the *Start Slide Show* panel, you can select either *From Beginning* or *From Current Slide* to start your show. Select *From Beginning*. You can also start your slide show from the beginning by pressing *F5* on your keyboard.

You should now be in the *Slide Show* view; this is the view you will use whenever you are presenting. It resets your slides to the full size of the screen and hides the design interface of the software. You can move forward in your slides by clicking the

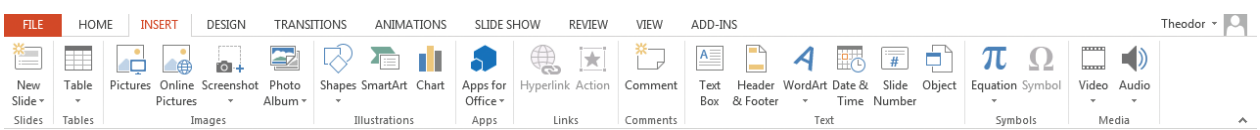
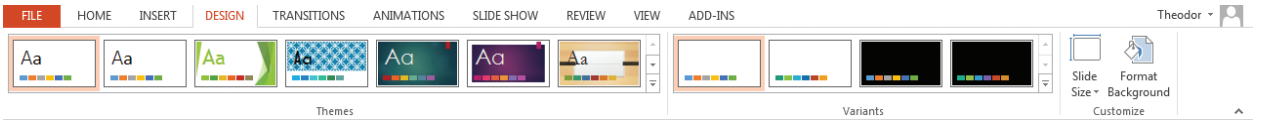
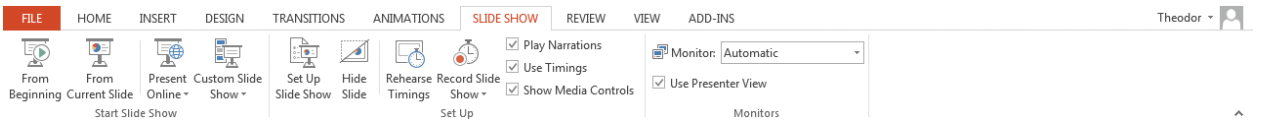


FIGURE 10.3
Insert ribbon in PowerPoint 2013



▲ FIGURE 10.4
Design ribbon in PowerPoint 2013

mouse, pressing the spacebar, the enter key, or using the right arrow key. You can move backward through your presentation by using the left arrow key. When you get to the end of your show, moving the presentation forward will display a black screen that says "End of slide show. Click to exit." Moving the presentation forward from this slide will take you out of the presentation mode and back into the Normal view you use for creation. You can also end the slide show at any time by pressing the Escape (ESC) key.

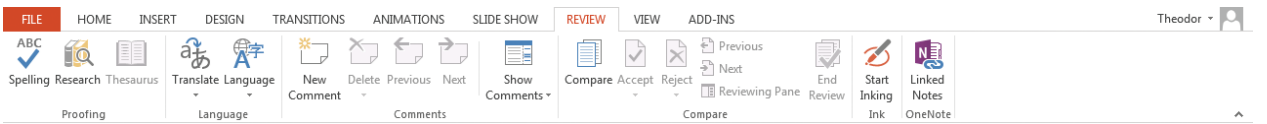


▲ FIGURE 10.5
Slide Show ribbon in PowerPoint 2013

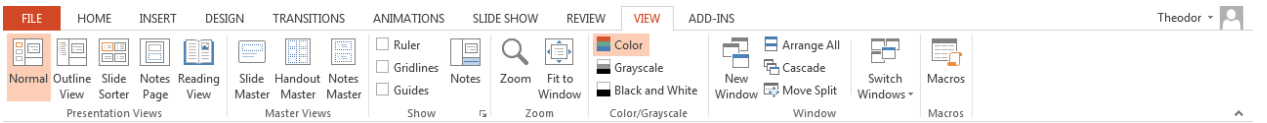
The *Review* ribbon, shown in Figure 10.6, is similar to the one found in Word. You can use the *Proofing* panel to check spelling for your entire presentation, find research references, and use the thesaurus to find alternate words. You can also set your language preferences from this ribbon. Go ahead and click the *Spelling* icon. You should have no errors if you have not yet typed content into the slides! To run a check of spelling at any time, you can press the *Spelling & Grammar Check* icon at the bottom of the interface; the icon status will indicate if errors are found (an *X* will appear in this case).

The *View* ribbon, shown in Figure 10.7, is where you customize the user interface for PowerPoint and format your slides. You can also select your view and arrange your slides from this ribbon and edit the Slide Master for your presentation. The *Slide Master* is a parent of all of the individual slides in your presentation. Formatting changes made to the Slide Master will affect all of the existing and future slides in your presentation. (This tool is covered in Chapter 11, "Creating Effective Presentations").

There is also an *Add-Ins* ribbon on your interface for any software that interacts with the Office suite. If you have Adobe Acrobat



▼ FIGURE 10.6
Review ribbon in PowerPoint 2013



▼ FIGURE 10.7
View ribbon in PowerPoint 2013

installed on your computer, you may also see a ribbon for that (called the *Acrobat* ribbon); this is an example of other programs that interoperate with the Office suite.

The largest portion of the interface is devoted to the current slide view. The left side of the interface contains the *Slides/Outline* pane, which allows you to preview your slides and navigate between them quickly. The bottom of the interface displays the slide count and several valuable quick links. You can toggle the display of the *Notes* pane from the bottom of the interface as well; these are notes that accompany the slide but do not display in the presentation.

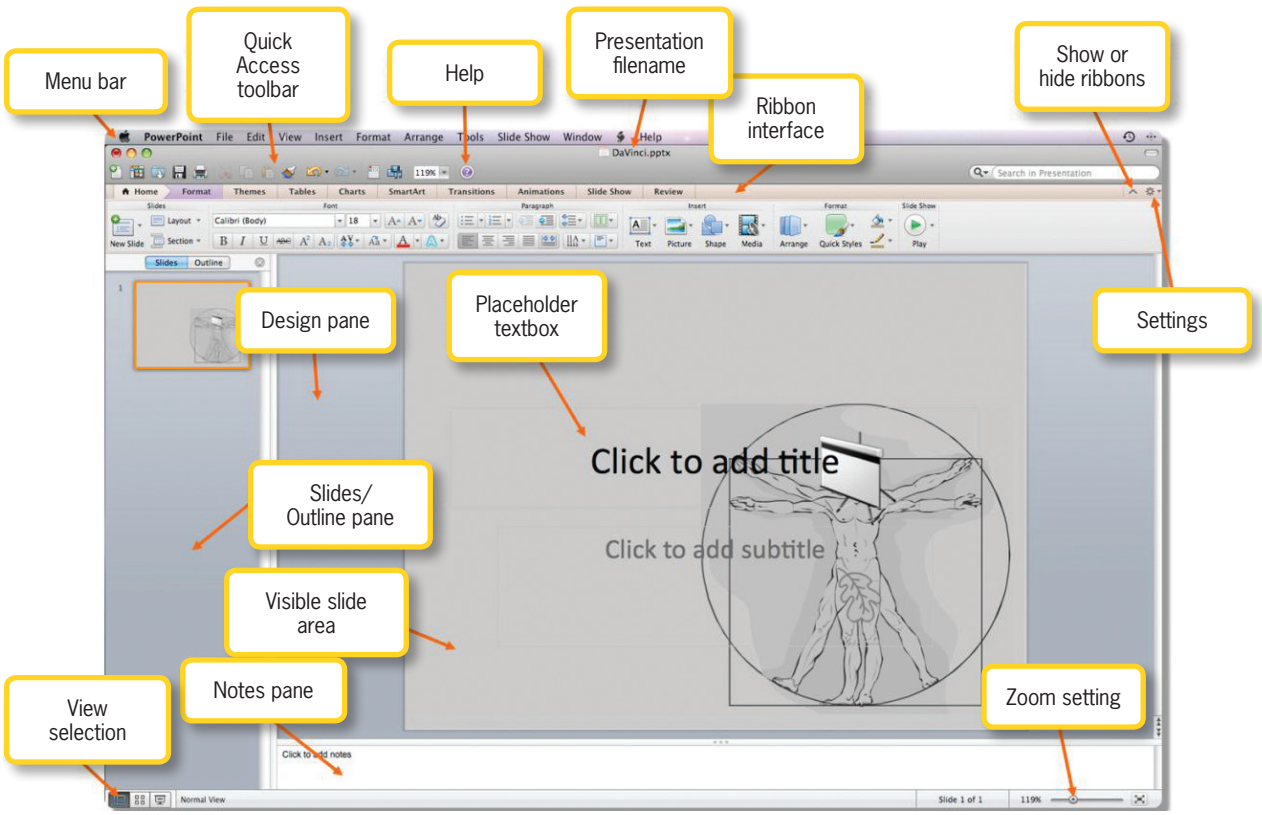
You can select the view you want by clicking one of the view icons; this includes the *Normal* view for design, the *Slide Sorter* view for arranging your slides, and the *Slide Show* view for watching and presenting your slide show. Finally, you can shift the zoom percentage by moving the slide bar or fit your slide to the current window size by clicking the icon in the far-right corner. It is now time to go deeper into the software and start creating your first presentation.

Microsoft PowerPoint 2011

10.2.2

PowerPoint 2011 has a concise interface, shown in Figure 10.8, which is very similar to its PowerPoint 2013 counterpart. Aside from some placement differences for certain tools, almost all of the functionality of PowerPoint 2013 is mirrored in PowerPoint 2011 and vice versa. The main menu of the software contains the *File* menu and a series of additional menus that provide shortcuts

FIGURE 10.8
Anatomy of PowerPoint 2011



to commonly used tools, such as the *Insert* menu and the *Arrange* menu. The ribbons contain these functions as well, so it is up to you to decide your preferred method of accessing them.

The common icons to close, minimize, or maximize the presentation are directly beneath the main menu at the top of the free-floating window containing your presentation. As in all Mac software, clicking the close icon will exit your current presentation, but it will not quit the software; to do this, you must select the *PowerPoint* menu and then select *Quit PowerPoint*.

The *Quick Access* toolbar for PowerPoint 2011 contains icons to allow you to save your work quickly, print your presentation, create a new presentation, open a presentation, and access help. There is also the *Undo* icon to allow you to undo any actions you made and the *Redo* icon to put back any changes you made with Undo. At the far right side of the interface is a text box to search your presentation for any keywords you enter.

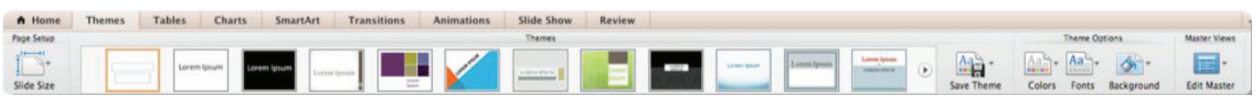
The ribbon interface is directly beneath the *Quick Access* toolbar. The default ribbon is the *Home* ribbon, which contains tools to modify text, change fonts, and insert new elements into your slides. PowerPoint 2011 combines most of the functionality of the *Home* ribbon and the *Insert* ribbon from PowerPoint 2013 into its *Home* ribbon. The *New Slide* icon is at the far left of the *Home* ribbon; this is used to add slides to your presentation. The *Home* ribbon also contains the *Arrange* icon, which is used to arrange elements in your presentation; this will be visited often in the course of developing your presentation.

The next ribbon of interest is the *Themes* ribbon, shown in Figure 10.9. This is where you set the look and feel of your presentation. There are a number of preset options from which you can select. Go ahead and choose one that you like and click on your selection to apply it to the presentation. The new theme will set defaults for the color, font, and background settings of your slides. You can make changes to these defaults at any time using the *Colors*, *Fonts*, and *Background* icons. There is a large selection of preset color schemes and font styles available; you can also use these menus to define your own.

The next several ribbons are used for more advanced functionality, so skip to the *Slide Show* ribbon, shown in Figure 10.10. This is used to set up your presentation views and timing for when you are presenting your slide show. Go ahead and click the *From Start* icon. This will put you into the

A **SLIDE** *was originally a small color transparency that was intended to be projected to a larger surface to assist in visualization. This term has been carried over to digital presentation software as the unit of the presentation, similar to a page in a text document.*

▼ FIGURE 10.9
Themes ribbon in PowerPoint 2011



Slide Show view, which is the view you will use to present your document to an audience. You can move your presentation forward by using the spacebar or the right arrow key and backward by using the left arrow key. To get out of *Slide Show* view and back to the *Normal* view used to design your slides, press the *Escape* (ESC) key.

Microsoft PowerPoint Web App

10.2.3

Just like Word, PowerPoint is also available as a Web app on the OneDrive. From the homepage of OneDrive, click *Create* and then choose PowerPoint presentation. You will be prompted to choose the type of presentation you want (selecting "New blank presentation" is a good place to start for any presentation). The interface for the PowerPoint Web App is similar to the PowerPoint 2013 interface with less options and a fewer number of ribbons. You can see the interface for the PowerPoint Web App in Figure 10.12.

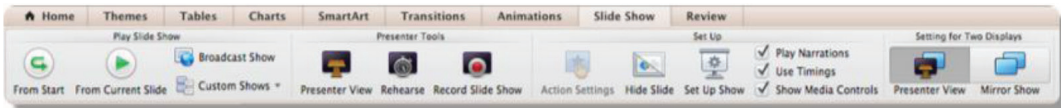


FIGURE 10.10 Slide Show ribbon in PowerPoint 2011

The *Review* ribbon, shown in Figure 10.11, contains the functionality to compare versions of your presentation. It also allows you to add and delete comments in your slides and to set permissions for the presentation. Beneath the ribbon interface to the left is the *Slides/Outline* pane, which allows you to preview and quickly navigate to your slides by clicking on them. The main pane of the interface window is the *Slide Design* pane. This contains the editable copy of your slide.

At the bottom of the interface, you can select your view via quick links; these include the *Normal* view for editing, the *Slide Sorter* view for arranging your slides, and the *Slide Show* view for watching or presenting your slide show. You can also adjust the zoom of your slides by changing the slide bar at the lower-right corner. Now that you have taken the tour of the software interface, you can start using the tools to construct your first presentation.

The *Home* ribbon for the PowerPoint Web app contains the formatting commands for text as well as a set of drawing objects that can be added to your presentation quickly. The *Insert* ribbon, which is shown in Figure 10.13, allows you to add images, clip art, and the same illustration objects available from the *Home* ribbon. You can also add comments to a selected element from the *Insert* ribbon.

The *Design* ribbon allows you to select the theme you want for your presentation.

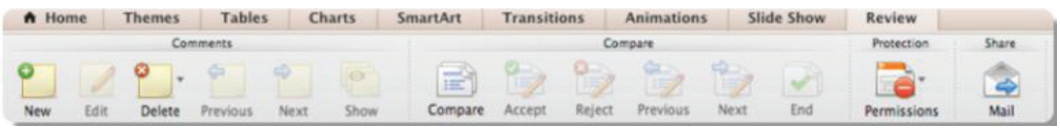
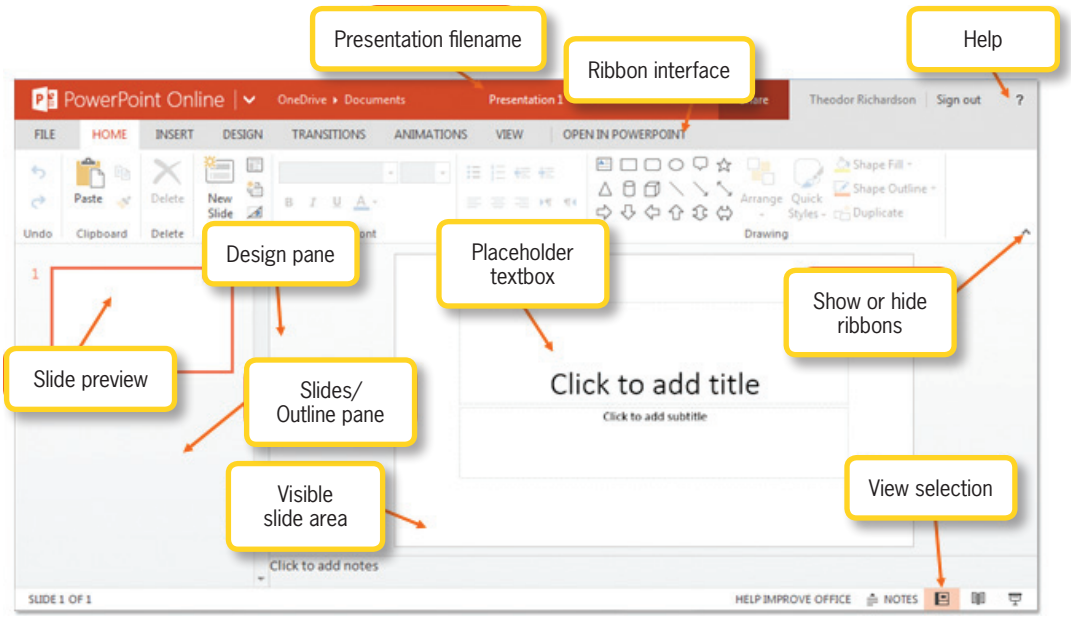


FIGURE 10.11 Review ribbon in PowerPoint 2011

➤ **FIGURE 10.12**
Anatomy of the PowerPoint Web App



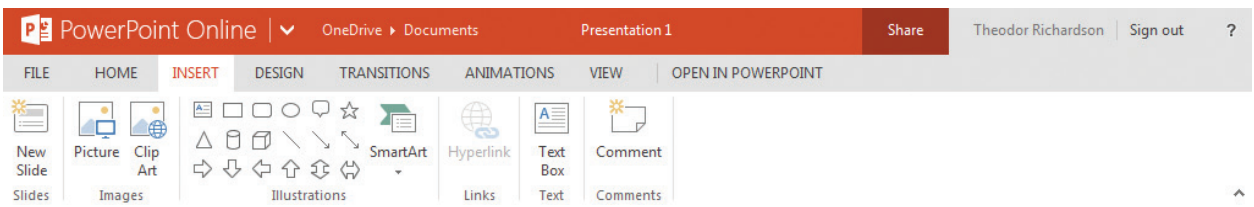
You can also select variants from the theme for changing specific colors or other appearance elements once you have selected a theme. You can see the *Design* ribbon in Figure 10.14.

The *Animations* ribbon and *Transitions* ribbon control the more advanced functionality of PowerPoint. The *Transitions* ribbon will be covered later in this chapter, but animation is a more advanced topic. You can see these ribbons in Figure 10.15 for later reference.

The *View* ribbon allows you to change the view and to show or hide comments and the *Notes* pane for adding notes to your slides for presenters or audience handouts. The Reading View shows only the content of the slide in the Internet browser, the Normal View shows the design interface, and the Slide Show View starts the slide show on your computer in full screen mode. You can see the *View* ribbon in Figure 10.16.

Note that there is no *Save* icon on the interface for the PowerPoint Web App because changes are saved as soon as an action is completed. The bottom of the interface has the toggle for opening and closing the Notes section and a selection of views. The ribbon interface also has the option to open the presentation in an installed version of PowerPoint on the host computer and the option to share your presentation using the *Share* icon.

▼ **FIGURE 10.13**
Insert ribbon in the PowerPoint Web App



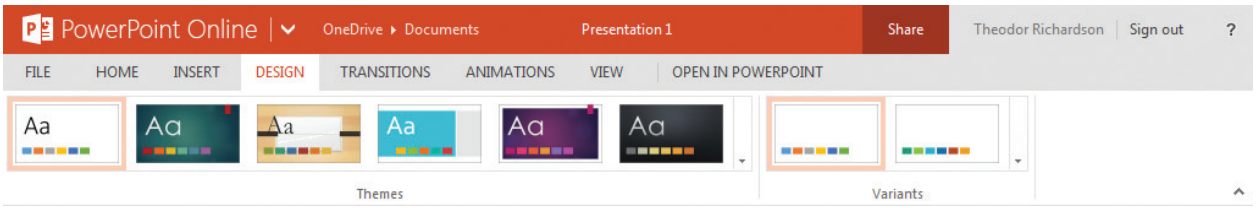


FIGURE 10.14
Design ribbon in the PowerPoint Web App

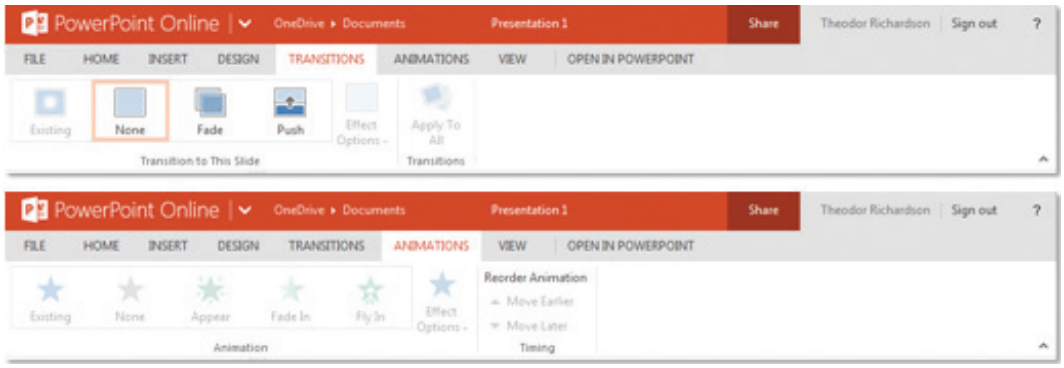


FIGURE 10.15
Transitions and Animations ribbons in the PowerPoint Web App

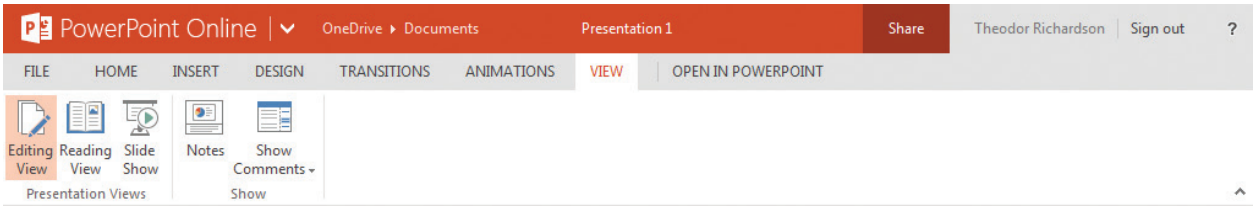


FIGURE 10.16
View ribbon in the PowerPoint Web App

Activity 10.1—Adding Slides

Create a new presentation and save it as Activity10_1 *in the* Activities *folder you created. Practice adding slides to your presentation. What are the different layout options for the slides that you add? What do each of these have in common and what is different for the layouts? Save your work.*

10.3 DIVING INTO PRESENTATIONS

For your first foray into the media aspects of PowerPoint, you will construct a presentation on a very familiar subject: you! On the first slide, the *title slide*, you will see two *placeholder text boxes*. These text boxes contain text such as "Click to add …" that will disappear the instant you start typing in one of them. An example of the title slide is shown in Figure 10.17. Go ahead and type your name in the title placeholder.

Activity 10.2—Themes

Save the presentation Activity10_1 *in the* Activities *folder as* Activity10_2. *Next, you will apply a theme to your presentation. You can choose from any of the preset options. Now, alter the theme using the available tools. You can adjust colors and fonts as well as the background. Be sure to remember the*

➤ **FIGURE 10.17**
Example title slide

process you used because this will be a common activity when you are creating presentations. The theme options available may differ depending upon the version of PowerPoint you are using. Be sure to save your work.

10.3.1

Text Formatting

After you have entered your name, you will add some text formatting to make it look spectacular. PowerPoint offers most of the same text effects as Word. The differences are that there is no highlighting in PowerPoint and the Text Effects feature in PowerPoint 2013 is located on a separate, context-sensitive *Format* ribbon. Right-clicking on a text box activates a formatting menu with common links for text modification. You can see both of these in Figure 10.18.

Change the font of the text to something suitable and stylish and change the text to bold by clicking the *Bold* icon or pressing the *Ctrl-B* keys at the same time. Increase the font size by a single increment using the *Increase Font Size* icon. Note that you must select either the box surrounding the text or all of the text to apply your font changes to everything in the box; otherwise the changes will affect only the word in which the cursor is placed. You can change the size to a specific value with the drop-down box; this will accept a number (with or without a decimal point) as input, so you can define a size that is not part of the predefined selection options. Increase the font until the text covers most of the slide.

If you have a long name, it may split into two lines. To keep your first name and last name on the same line, you can widen the placeholder box by clicking on one of the square selection points around the perimeter of the text box, as shown in Figure 10.19. The left square selection point will only move the left edge of the box, and the right square selection point will only move the right edge of the box. Picking one of the round corner selection points lets you

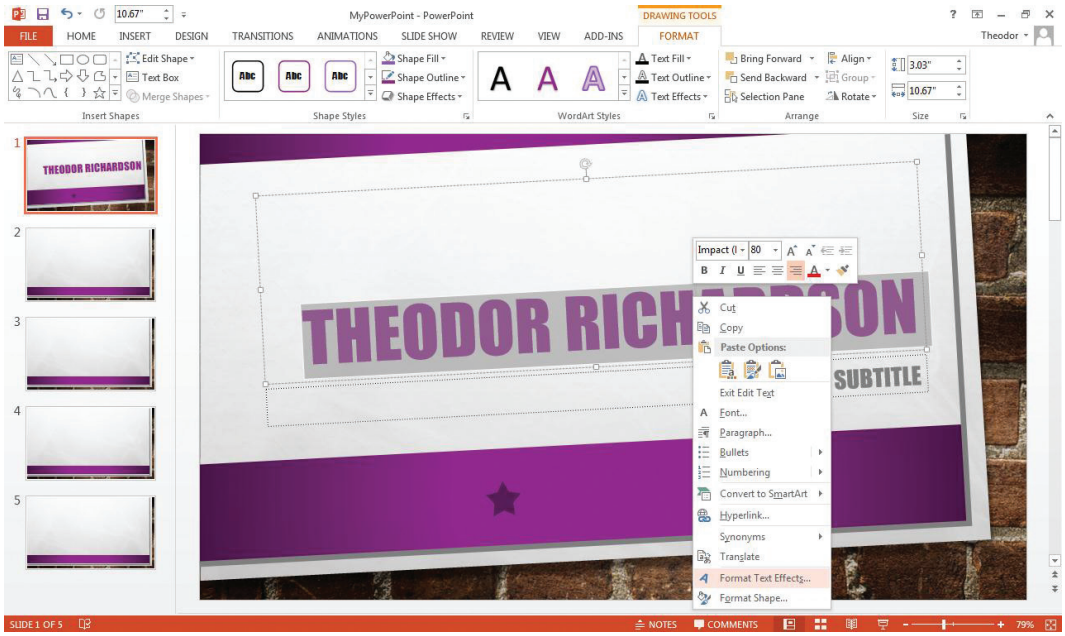


FIGURE 10.18
Format ribbon and right-click menu for text boxes

FIGURE 10.19
Selection points on a text box

change both the width and height at the same time.

Switch the text alignment to the left by selecting the *Align Text Left* icon (or by pressing *Ctrl-L*) or to the right by selecting the *Align Text Right* icon (*Ctrl-R*). This is helpful to remember when you need to line up headings and text with one edge or the other. Titles, however, look better centered, so put your name back where it was by clicking the *Align Text Center* icon (*Ctrl-E*).

Now your name is starting to show some pizzazz, but you should give it more flair by adding text effects. The various text effects are in the *Format* ribbon for Drawing Tools, which is context sensitive and appears whenever you click in a text box. Text effects are another type of formatting

If you are using a Mac, the Control (Ctrl) key shortcuts all work the same way, but they use the Command (or Apple) key instead of the Control key.

that adds elements like shadow, glow, reflection, and outlines to the letters in the text box. To apply an effect, you must select the text to which you want the effect to apply. To apply the effect to all of the text in the box, you can select the box surrounding the text. Some text effects, like 3-D Rotation and Transform, apply to the entire content of the text box and cannot be applied to individual letters or words.

PowerPoint 2011 places a *Text Effects* icon on the lower-right corner of the *Font* panel of the *Home* ribbon.

You can select a predefined overall style from the *Word Art Styles* panel of the context-sensitive *Format* ribbon or you can change elements individually. Too many text effects at once can ruin the appeal of your display. To test these on plain text, select *Text Effects*, then *Reflection*, and choose a reflection variation you like. Keep the reflection effect for this project, but to cancel it, select the *No Reflection* option in the drop-down menu. You can also fine-tune the reflection by selecting *Reflection Options* just as you did for the shadow effect.

Activity 10.3—Text Effects

Using the presentation you are constructing for the lesson project, save a copy of it as Activity10_3. *Give your name depth by adding a shadow. To do so, click the* Text Effects *icon, select* Shadow *from the drop-down list, and then select the one you want. You can also set the perspective of the shadow (the angle of the implied light source) by selecting one of the options at the end of the drop-down menu. Clicking* Shadow Options *will allow you to fine-tune the parameters to get your shadow effect just right. The* Distance *parameter, for example, will determine how far away the shadow is from your object. Now cancel the shadow by selecting* Text Effects*, then* Shadow*, and* No Shadow. *Save your work and test these steps on other text effects to see how they vary and what stays the same.*

Click on the *subtitle* placeholder. Rather than enter text here, click on the outer perimeter of the subtitle placeholder box and get rid of it by pressing the *Delete* key or the *Backspace* key. You can do this to remove any placeholders that you do not want or to remove any objects you have added that you no longer like. You should now see a slide similar to Figure 10.20 except with your name in the box and the background style that you chose earlier.

Inserting and Formatting Shapes

10.3.2

Now you are going to show everyone what a superstar you are. If you are using PowerPoint 2013, switch over to the *Insert* ribbon and select the *Shapes* icon; if you are using PowerPoint 2011, the *Shape* icon is on the *Home* ribbon. Pick a star from the drop-down list and click inside the slide. This should stamp an instance of the shape wherever you click.

You can format the star by using the right-click menu or the familiar *Format*

FIGURE 10.20
Completed example

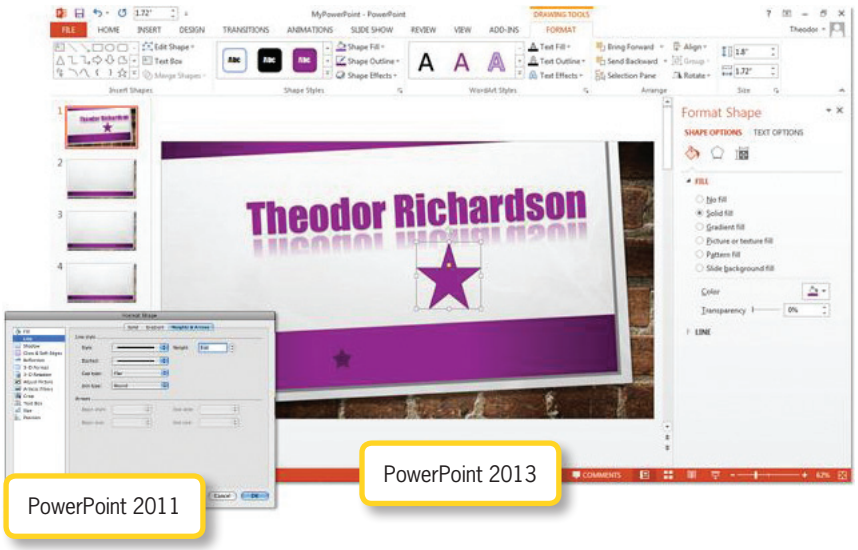


FIGURE 10.21
Format Shape dialog box for line settings

ribbon that appears whenever you click on a shape. This time it will be the *Shape Styles* panel in which you will find what you need. With the shape selected, right-clicking and selecting *Format Shape* will open a dialog box that lets you alter the properties of your star (this is the same dialog box that you get by selecting the expansion icon on the *Shape Styles* panel in PowerPoint 2013). The *Format Shape* dialog box is shown in Figure 10.21. Note that it appears as a dialog box in PowerPoint 2011 and as a new pane in PowerPoint 2013.

First, change the star's outline to something thick. Select *Line Style* in PowerPoint 2013; select *Line*, then *Weights & Arrows*, then *Style* in PowerPoint 2011. Increase the *Width* to *3 pt*. This should make the outline nice and bold. The *Dash Type* (or *Dashed*) setting determines how the line appears, whether you want a solid line or a dotted line that implies the shape.

In PowerPoint 2013, click on the *Line Color* item in the menu. You have a choice of No Line, Solid Line, or Gradient Line.

Having no line would defeat the purpose of making it thicker, so opt for *Solid Line*. In PowerPoint 2011, select either the *Solid* or *Gradient* tab of the *Line* menu to change these settings; select *Solid,* and you should see the *Color* setting. Next, you need to choose a color that will work with your background but make the star stand out all the same; choose whatever color you like.

On the *Fill* menu, shown in Figure 10.22, you are going to make your star stand out by selecting a *Gradient* option. This menu will allow you to select from a set number of different gradients; if you are using PowerPoint 2013, you can pick one of the predefined gradients from the Preset Colors list.

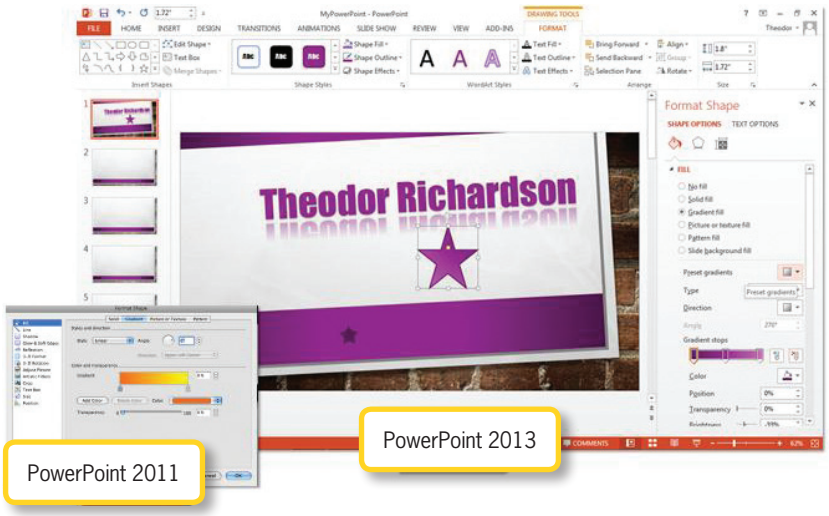
You can set Type to *Linear* if you want the gradient to go from left to right or top to bottom or to *Radial* if you want it to start in the center and work its way around a curve. The stops of the gradient are shown on the bar beneath these settings. You can add or delete stops, but the program will interpolate the color from one stop to the next. Click on any of the stops to change the color yourself. The Rotate with shape option determines whether the gradient is created based on the orientation of the slide or the orientation of the shape itself.

Shortcuts to the Line and Fill menu options are available on the *Format* ribbon.

When you are done setting the color, click *Close* (or *OK*) to exit the dialog box in PowerPoint 2011 or click the X at the right of the pane in PowerPoint 2013. You can now resize the star based on just how big of a superstar you are. Use either the round corner grab points or the square midpoint grab points to change the size of the shape. The circle at the top of the shape (which looks like an arrow turning in PowerPoint 2013) can be used to rotate the shape. Simply click and hold the circle and give your shape a spin. You may see one or more small yellow diamonds or circle inside your shape. These control internal parameters of the shape; for instance, this will set how fat or skinny the triangular legs of your star become.

Finally, make that star shine. Click on the star and select the *Format* ribbon. Click the *Shape Effects* icon, select *Glow*, and pick a glow that fits your star. You can also set the color of the glow by selecting *More Glow Colors* (or *Glow Options* in PowerPoint 2011) from the menu. This will open a color picker from which you can choose the color you want your star to shine. When you are done, you should have a shining star beneath your name as in Figure 10.23.

▼ FIGURE 10.22
Format Shape dialog box for gradient fill settings



▲ **FIGURE 10.23** Completed example

Now you need to add the "Super" to your star. To do this in PowerPoint 2013, select the *Insert* ribbon and pick the *WordArt* icon; in PowerPoint 2011, select *WordArt* from the drop-down list under *Text* on the *Home* ribbon. This works similarly to using the predefined styles for text formatting on the *Format* ribbon. In PowerPoint 2013, choose a style from the menu that appears.

This action will create a text box in your slide. Change the text inside to *Super* and position it where you want it on the slide. This works just like any other text box with some of the settings completed for you. You can still change the font and the size, along with any other properties.

Click on your new text box and go to the *Format* ribbon that appears. Select the *Text Effects* icon and then select *Transform*. Pick a transformation for your text. Now go back to the *Home* ribbon and change the font color or the font. The transformation and overall formatting that was defined should remain intact. Small pink diamonds in your text box will control properties like the angle of the text slant when you click on them and slide them in one direction or another.

Maybe you are more of a rockstar than a superstar. It is easy enough to change the text to represent that. Just double-click the text box to select it and all of its contents. Now type *Rock* in the box. There you go! Now you have instant "Rockstar" status, and you are just getting started! Compare your rockstar results to Figure 10.24, which shows the elements you should have when you are finished.

▼ **FIGURE 10.24** Completed example

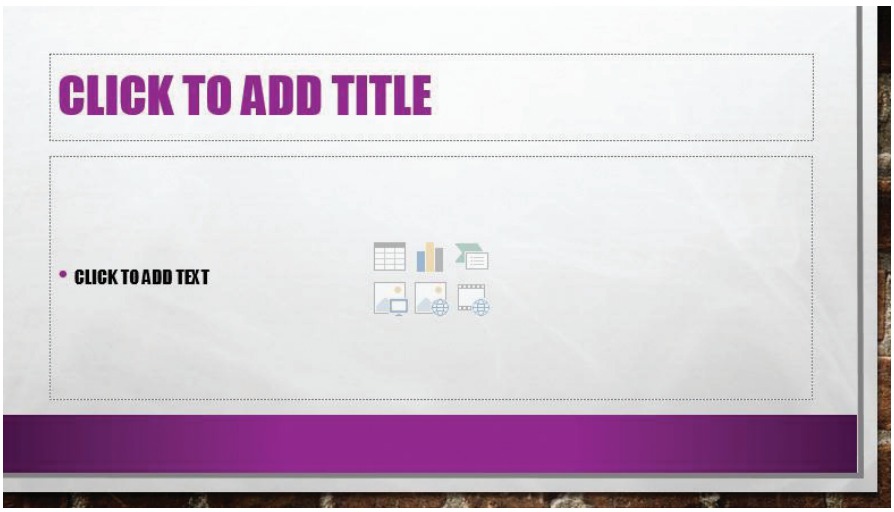
10.3.3 Inserting, Manipulating, and Cropping Images

It is time to show your smiling face to the world. Go to the second slide in your presentation. If you have not added a second slide yet, simply right-click in the *Slides/Outline* pane and select *New Slide*. This second slide should have the default layout for a slide, which consists of a slide title placeholder text box and a single box for content, as shown in Figure 10.25. You are going to add a picture here, so you may want to pick a nice image of yourself. For those of you who are camera shy, you can use an image of a monkey making a silly face instead.

Before you start typing in the content box, which will eliminate the quick links, select the *Insert Picture from File* icon on the slide. This is the same as selecting *Picture* on the *Insert* ribbon (*Picture* is on the *Home* ribbon in PowerPoint 2011); it just saves you a few clicks of the mouse. Using the quick link allows you to select the image and then insert and center it under the title of the slide. Notice that this will replace the placeholder text box entirely. Go ahead and give your slide a title and make sure it is appropriate for what the slide contains. Quickly practice your text modification techniques and create a style to make your title stand out from the background.

Now click back on the image you just inserted. You will see a new ribbon along the top of the interface. This is the *Format ribbon for Picture Tools* (the *Format Picture ribbon* in PowerPoint 2011). As you can see from Figure 10.26, this ribbon contains a lot of tools for making your picture look superb.

On the *Picture Styles* panel, select one of the predefined styles that will make the image look like an old printout from a handheld instant camera. Something with a nice thick white border will be perfect. On the *Adjust* panel, select the *Corrections* icon; this allows you to increase or decrease the brightness, contrast, and sharpness of the image. The original image will appear in the center of the options, and you can adjust it by clicking one of the options around it. Increase the contrast slightly to give your photo a richer tone.



◀ FIGURE 10.25
New slide with the default layout

FIGURE 10.26
Format ribbon for Picture Tools in PowerPoint 2013 and Format Picture ribbon in PowerPoint 2011

There are a number of settings that can be used to correct a picture that is inserted into PowerPoint. There is a preview visualization of the effect whenever a transformation is selected, but the following list will help you understand these transformation terms:

- *Color Saturation*—This is the term for how pure the color is; the higher the saturation, the purer the color. The primary colors red, blue, and green are the purest (and most saturated) colors.
- *Color Tone*—The color tone is how light or dark the color is. Each color can produce a spectrum of tones. The tone value is relative, so the surrounding colors will affect the perception of the tone.
- *Sharpen and Soften*—This setting will vary how clear the differentiation is between neighboring pixels of the image. Sharpen will increase the differentiation by more strongly defining boundaries in the image. Soften will decrease the differentiation by blending together the colors of the image.
- *Brightness and Contrast*—Brightness is the threshold for the color level that registers as black; higher brightness means there are more colors allowed between pure white and pure black. Contrast is a measure of the spectrum of colors between pure white and pure black; higher contrast will generally show more granular detail of the image.

Now turn your photo to grayscale. You can do this by selecting the *Color* icon in the *Adjust* panel (this is called *Recolor* in PowerPoint 2011). This gives you options to select the color saturation, color tone, and recolor options. Under *Recolor*, select *Grayscale*. The *Adjust* panel has some other useful items as well. Along the right side of the *Adjust* panel are the following options:

- *Compress Picture* will reduce the file size of the PowerPoint file by sampling the picture to the necessary resolution for the screen.
- *Reset Picture* will undo all of the formatting you added since inserting the image at the beginning.

The next thing you need to do is crop the image so that it focuses better on the subject. Cropping allows you to remove parts from the top, bottom, left, or right of the image that you do not want to display. Click on the image and then select *Crop* on the *(Picture) Format* ribbon. Now you can use any of the grab points on the image and move them in toward the center to cut off portions of the image you do not want instead of just resizing the image in place. This process is shown in Figure 10.27.

The *Crop* icon has some other useful options. For instance, you can crop your image to a drawing shape. Selecting any of these options will override your manual

CROPPING *is the act of cutting off outer portions of an image or object. This is the digital equivalent of using scissors to cut off pieces of an image on paper.*

▲ **FIGURE 10.27**
Cropping an image

cropping. There are two more predefined options that you may find useful:

- *Crop to Fill* causes the entire image to be forced to the area defined by cropping. This will fill the cropped space with as much of the image as possible, cutting off only what is necessary to preserve the defined space.
- *Crop to Fit* causes the image to be forced in its entirety to the defined space. This may cause gaps in the display if no image information is available to match the space defined.

You can click and drag the image you have inserted to resize it just like any other drawing or graphic object inserted into your slides. The one thing you must remember with pictures is that you should always maintain the original aspect ratio of the image. Otherwise, faces and bodies will look stretched or pinched when you distort the image. This not only looks bad, but it will also grab the attention of your audience in a negative way because their eyes will be drawn to the distortion instead of what you want them to see.

ASPECT RATIO *is the longer dimension of an object divided by the shorter dimension. This is the ratio that should be preserved whenever any changes are made to an object to avoid distortion. The aspect ratio of a standard 5 × 3 photograph is 5:3.*

Arranging, Linking, and Grouping Elements

10.3.4

The old saying is that a picture is worth a thousand words. Well, you are going to add a few more for your picture. Before you get to that, though, you need to move the image back into alignment after it has been cropped. The image was originally centered in the placeholder, but the changes made to it have altered its position on the slide.

ALIGNMENT *in terms of layout is the relative placement of an object with respect to the overall environment, which in this case is the slide.*

The alignment commands are under the *Arrange* icon in the *Home* ribbon. Click on *Arrange* and scroll down to *Align*; you should see all of the options for orienting your picture around the screen. The full path is shown in Figure 10.28. These alignment commands work on any element you insert into your presentation. You can also find a shortcut to the alignment options (as an *Align* icon) on the context-sensitive *Format* ribbons that appear.

Make sure the *Align to Slide* box has a check mark beside it. This will make all of your alignment adjustments relative to the slide itself. If this is not checked, the

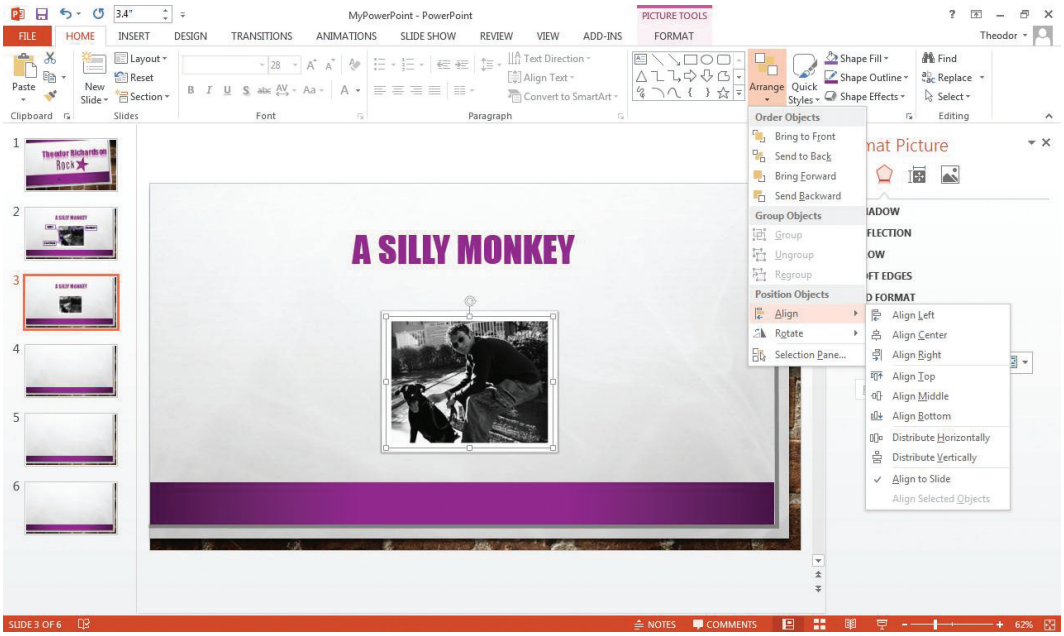


FIGURE 10.28
Menu path to alignment options

elements will align relative to each other. Click the *Align Center* item in the menu to line up your photo to the center of the slide. Click on the photo and press the up or down arrow keys to move it to the center of the lower portion of the slide beneath the title. You can hold down the *Control* (Ctrl) key on your keyboard and press the arrows to move it a smaller distance for each arrow press.

Now you are going to revisit the *Shapes* icon and select a rectangle. You can just pick one and click in your slide to stamp it down, or you can make your selection and click and drag on the slide to set the size yourself. Click on your new rectangle and copy it. You can do this by right-clicking on the object and selecting *Copy* or you can press *Ctrl-C* on the keyboard with the object selected. Now paste two more rectangles into your slide.

In PowerPoint 2013, you can do this by right-clicking where you want the rectangle to appear and selecting *Picture* under the *Paste Options*. You can also do this by pressing *Ctrl-V* on the keyboard, which will give you the default paste settings. In PowerPoint 2011, selecting *Paste* from the right-click menu or pressing the shortcut keys to paste will result in a copy placed on top of the original but slightly to the right and down.

Click on one of the rectangles and start typing. Type a descriptive word for the image, such as *Charming*, and notice how the shape automatically accepts the text. Now add two more descriptive words to the other rectangles; you could try *Witty* and *Slobbery*, for instance. Almost all of the drawing shapes allow you to directly insert text into them; the area of the shape allocated for text will vary, so the length of text may be limited depending on the shape you choose. You can format these shapes just as you did the star in the previous example, and you can format the text inside the shapes as well.

There is a special kind of shape that can connect two elements in your slide. These

are found under the *Line* (or *Lines and Connectors*) heading in the *Shapes* menu. Click on an arrow that you like and your cursor will change to a crosshair. Whenever you roll your mouse over an element, you will see small red squares appear; these are linking points for the shape. You can connect a line from one of these linking points to another or draw a line without linking it. For this example, you will place one end of the line on the rectangles containing the descriptive words and link the other end to the picture.

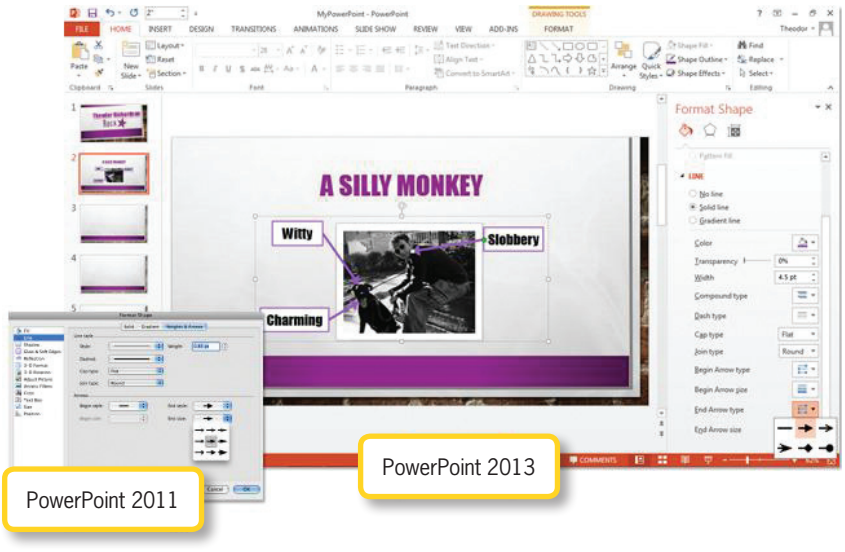
In PowerPoint 2013, you can hold down the *Alt* key to allow you to freely move the line's endpoint when you are dragging an arrow; otherwise, the endpoint will align to the closest internal grid point available.

If you connect an endpoint of your line to an element, the line will stay connected even if that element is moved. An unconnected end will not stay where it is placed when an object to which it is connected is moved; it will move around with the rest of the object to which it is connected. If neither end is connected, the object will have to be moved manually just like any other object.

To format the ends of your arrows and change how they are displayed, you can use both the usual tools for formatting and the *Format Shape* dialog box, which contains the arrow settings in the panel under *Line Styles* (you need to select *Line* and then *Weights & Arrows* in PowerPoint 2011). Here you can change the Begin Type (Begin Style) or End Type (Begin Style) for the arrow (which affects either the initial or final point of the arrow, respectively) and set the size you want for each; this is shown in Figure 10.29.

Link the rest of your rectangles to your photo with arrows. Format the arrows so they are clearly visible on the slide. You may notice that the arrows you place are on top of the rectangles; this is because any new element added to your slide automatically gets placed in the highest layer available. You will want to put your rectangles on top of the arrows to make the slide look more presentable. To do this, you will need to change the layer on which these elements reside. Think of these items like sheets of paper in a stack. To move an element to the top of the stack, you need to bring it forward. To move it to the bottom of the stack, you

FIGURE 10.29
Arrow settings



need to send it back. You can think of the slide background as the table on which this stack is sitting; nothing can be sent behind the slide itself.

There are two ways to change the layer of an element. You can right-click the element and choose either *Bring to Front* or *Send to Back* (to put it on the very top or bottom, respectively) or use *Bring Forward* or *Send Backward* to change the layer by one position at a time. You can also select the element and click the *Arrange* icon. In PowerPoint 2013, *Order Objects* is the first heading you will see on this menu, and it contains all of your options for adjusting the layer. Select each rectangle and choose *Bring to Front*.

Now that you have a nice arrangement for your elements (you should have all of the same elements as in Figure 10.31), you do not want anyone to accidentally move something around if they edit your presentation. A good solution to this is to create a *group* for these objects so they all act like a single element in the slide.

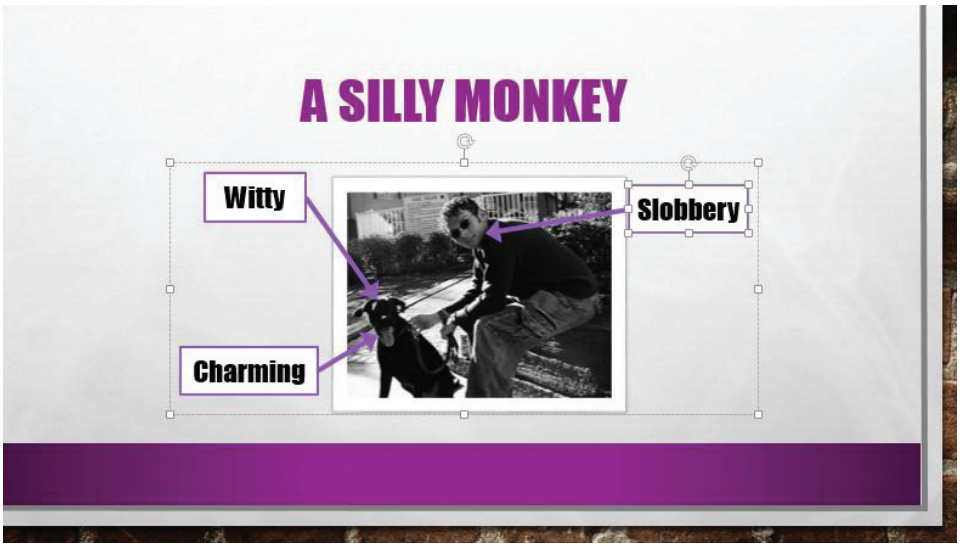
To create a group, click outside of the group and hold down the mouse button while you drag your cursor over all of the items you want to group. Then you can either right-click within the group and select *Group* or you can go to the *Home* ribbon, select the *Arrange* icon, and select *Group*. You can also hold down the *Shift* key while clicking on each object you want to group and then follow the steps to create the group.

PowerPoint 2011 has a great feature to visualize the layers on the slide and allow you to rearrange them. Under the *Arrange* icon, you can select *Reorder Objects* or *Reorder Overlapping Objects*. This launches a visual display of the layers in your slide that you can click and drag to reorder as shown in Figure 10.30. This is also a great visualization of the layers to determine what is visible to the viewer.

FIGURE 10.30
Visualizing layers in PowerPoint 2011

Note that if an object is inserted into a placeholder, it cannot be included in a group. To get around this, copy the element, paste the copy, and delete the original and the placeholder. The copy can then be included in the group.

You can still select individual objects from the group by clicking on any one of them (as in Figure 10.31). If you decide these objects need to be separated, click on the whole group, right-click, and select *Ungroup* (this is also available as an option under the *Arrange* icon on the *Home* ribbon). If they need to be put back together, select *Regroup* and the old group will be back together again.



➤ **FIGURE 10.31**
Completed example with grouping

10.3.5

Adding Text and Hyperlinks

Now it is time to start adding text to the PowerPoint presentation. Before you use PowerPoint to write that novel you have been planning, there are some things you should know about what PowerPoint should and should not be. First of all, there are two main reasons to construct a PowerPoint document: to create a visual supplement to a presentation and to create a small multimedia presentation for sharing on a computer. PowerPoint text should be brief and easy to read, no matter what purpose the presentation has. You should always keep your bullet points short and meaningful. Presentation software is excellent at showcasing information when it is used in this manner. If you are giving your PowerPoint presentation to an audience, you have to keep readability in mind. Small fonts and changing styles on the same slide are difficult to read.

Add a third slide for your presentation about yourself. Here you are going to explore some of the tools for adding and modifying text in a PowerPoint slide. You can choose here whether you want to include a list of foods you like to eat or a list of hobbies you enjoy; both of these would help describe you and are a good fit for a casual presentation like this. Whichever you choose, go ahead and type a title for your slide. Practice your formatting skills by making sure it matches the appearance of the title text on the slide with your photo on it.

Now choose four or five items to support your title. The example in Figure 10.32 shows five things to eat that begin with the letter *P*. Click in the placeholder text box of the slide (with a default layout) and type your items in a similar manner. You should notice that these are formatted as a list; this is the default format and it makes it easy to distinguish your points. In a presentation, the text does not have to be in complete sentences; the essential thing is to get your points across in as clear and concise a manner as possible.

FIGURE 10.32
Bulleted list in the default slide arrangement

You should also notice how you have a lot of space left over on this slide. You can either add subtext to each bullet or increase the font size to take up more space. If this is being used for a visual presentation on a projector or screen behind you, make sure you change the font to a sans serif font (such as Arial or Calibri). All those text decorations (the serifs) make the text more difficult to read on a projection. If the presentation is being shared by computer, serif fonts are fine because it is closer to print media format.

Expand your list a little bit by choosing a topic for which you want to add subtext. Note that you should only add subtext if you have at least two things to say about a topic. A single element of subtext looks messy and unorganized; it is also a violation of the rules of outlining. Click on the line for which you want to add text; place your cursor at the end of the text and hit the *Enter* key.

You should see a new line beneath your text with a new bullet beside it that looks grayed out as if it is not completely there. If you start typing now, you will enter text at the same level (level 1) as the original item, so press the *Tab* key to turn this line into subtext for the line above it. Now you should see the bullet type change and the text cursor indent farther into the page to the right. Your text will now be smaller and it will be formatted as the next level down (level 2) in terms of your outline. You can see this in action in Figure 10.33.

You can modify your text using the *Paragraph* panel of the *Home* ribbon. This

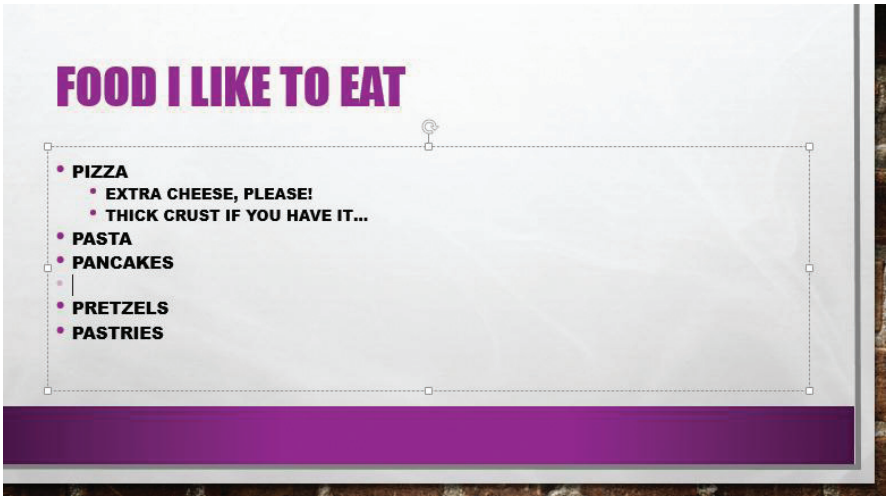


FIGURE 10.33
Two-level bullet list

is where you can change the bullet styles for your slide or even change them to numbers if you need your list to be in a specific order. Unless you make the change in the *Slide Master*, this only changes the bullet style for the current slide in which you are working and only for the bullet points that you have highlighted when you click the icon.

In PowerPoint 2013, if you type too much text for one slide, a little box will pop up to give you options on what to do. You can choose to change your slide layout or split the content of the text box between two slides. You should always take note when this box appears because it means your slide is starting to get too crowded.

You can set a number of other useful properties with the *Paragraph* panel, including changing the direction of your text, the number of columns, or the text alignment inside the text box. You can adjust the line spacing and indentation of the text as well.

Now create a new slide (this should be the fourth slide of your presentation); this is where you are going to add some contact information so all of your fans can reach you once they see how great you are. For the title of the slide, add the text *How to Reach Me* and make sure you format it to match the titles of the rest of your slides. This is good practice and it keeps your slides from looking out of place when you click from one to the next.

Consider carefully what you want to add to this page. You probably do not want to give out your home address or personal phone number on a slide that can be seen by anyone. If you have a Facebook page or an email address that you don't mind being seen (and used) by the public, you can add those here. When you type any text into PowerPoint that matches the format for a Website or email address, PowerPoint will automatically convert the text into a hyperlink. Just like a hyperlink on the Web, when you click on this text, it will either take you to the location specified or open your email account so you can send a message to this address.

Unless you have multiple links or addresses, you probably do not need a bullet point for this slide. To get rid of bullet points on this or any slide, just click at the beginning of the text and press the *Backspace* key (or the *Delete* key for PowerPoint 2011). The bullet point will disappear and your text will no longer be in outline format. With just one item on the page, there is a lot of empty space that can make your slide look bad, even if you increase the font size dramatically.

To correct this, move your link to the horizontal center of the slide by selecting the *Center* icon to center the text (which you can find under the *Paragraph* panel of the *Home* ribbon). You can also move your text to the vertical center of the text box by selecting the *Middle* item in the *Align Text* menu that opens; this icon is in the same panel as the horizontal text alignment options. Your text should now be centered within the text box; note that this does not center it on the slide or center the text box itself.

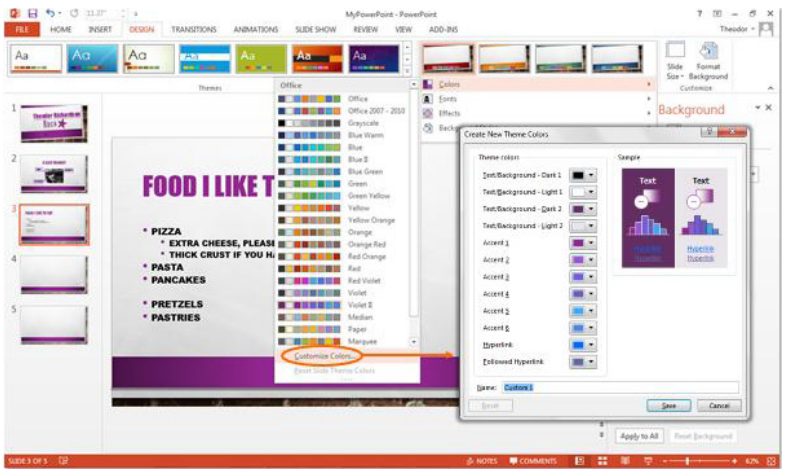
Now you can use the font tools to increase the size of the link so it takes up more space. Remember that readability is crucial for a presentation, so you may want

to stretch your text box so you can increase the size of the hyperlink beyond the original box size to make it easier to see. If you change the width of the text box, make sure you use the selections in the *Arrange* icon to align it back to the horizontal center of your slide. You can change the font, text effects, and style just like you would any other text in your presentation. The exception to this is the color of the hyperlink text.

To give the color of the link a higher level of contrast to the background, you must set the Hyperlink color in the theme color settings. In PowerPoint 2013, you access this setting in the *Design* ribbon by selecting the dropdown icon of the *Variants* panel and selecting *Colors* and then *Customize Colors*. In PowerPoint 2011, you access this setting by selecting the *Themes* ribbon, selecting *Colors*, and then selecting *Create Theme Colors*. A dialog box like the one in Figure 10.34 will open and you can select the color you want for your link by using the color picker for *Hyperlink*.

Once you click *Save* (or *Apply to All* in PowerPoint 2011) in this dialog box, all of the hyperlinks in your presentation will be updated to the new color. PowerPoint treats your hyperlink colors as all or nothing, so you should be sure that the color you choose works on all of your slides. Note that you can give a name to your custom color scheme in this dialog box as well if you want to use it later. If you do not, it will still appear with the default name *Custom1* in this presentation because it is now in use.

If you want your text to display something other than an email address or the URL to which you are linking, you can use the *Hyperlink* icon. In PowerPoint 2013, you will find this under the *Links* panel of the *Insert* ribbon; in PowerPoint 2011, you will find the *Hyperlink* icon as an entry in the *Text* icon menu on the *Home* ribbon. Clicking this icon will open a dialog box in which you can select another document, enter a URL for a Website, or enter an email address. You can change the text that will be visible on the document for the link in the *Text to display* (or *Display*) box. You can also click on the *ScreenTip* button to enter text that will appear if the mouse hovers over the link. If you are not using the address of the link itself, you may want to add the address to the ScreenTip text so a user will know where they are headed when they click the hyperlink. The ScreenTip will only display in the *Slide Show* view, as



◀ FIGURE 10.34
Create New Theme Colors dialog box in PowerPoint 2013

shown in Figure 10.35. It will not appear in the *Normal* view as you are editing the document.

If you add a hyperlink that you later decide you do not want, you can select any part of the text that contains the hyperlink, right-click, and select *Remove Hyperlink* in PowerPoint 2013 or you can click on the *Hyperlink* icon and click *Remove Link* on the open *Edit Hyperlink* dialog box. In PowerPoint 2011, right-click the link, select *Hyperlink*, then *Edit Hyperlink*, and then click *Remove Hyperlink* on the dialog box that opens. Another way to remove the link in either version is to place your cursor just past the last letter of the hyperlink. Click *Backspace* (or *Delete* in PowerPoint 2011) on the keyboard and you should see the underline disappear; now your link is gone.

If you have typed a URL or email address, pressing the spacebar after the address will create an automatic link, no matter how many times you have removed it!

10.3.6 Clip Art and Screenshots

Because presentation software is a visual medium for expression, it makes sense to add some visual elements to your last two slides. The most common of these elements by far is clip art. Microsoft maintains an enormous repository of clip art images for you to use to enhance your documents. Select the slide with the list of items you created. If you have been following along, this should be Slide 3. You are going to add an element of clip art to this page to enhance your presentation. The handling of clip art is significantly different in PowerPoint 2013 and PowerPoint 2011, so separate sections have been provided to guide you on how to get the same results in either program.

Clip Art in Office 2013 10.3.6.1

Adding clip art is fully integrated into the PowerPoint 2013 and Word 2013 environments. Go to the *Images* panel in the *Insert* ribbon and select *Online Pictures*. A dialog box will open, allowing you to select the source of the media you want, as shown in Figure 10.36. This contains a search box for your selection. In this case, you will select *Office.com Clip Art*.

When you press enter, the search will begin and a new screen will appear to display the results of the search. You can select one or more items from the list that appears and then choose *Insert* to add them to your slide. You can see an example of this in Figure 10.37. If you select more than one item, you should take note that they will all be added to the active slide.

➤ **FIGURE 10.35** ScreenTip in Slide Show view

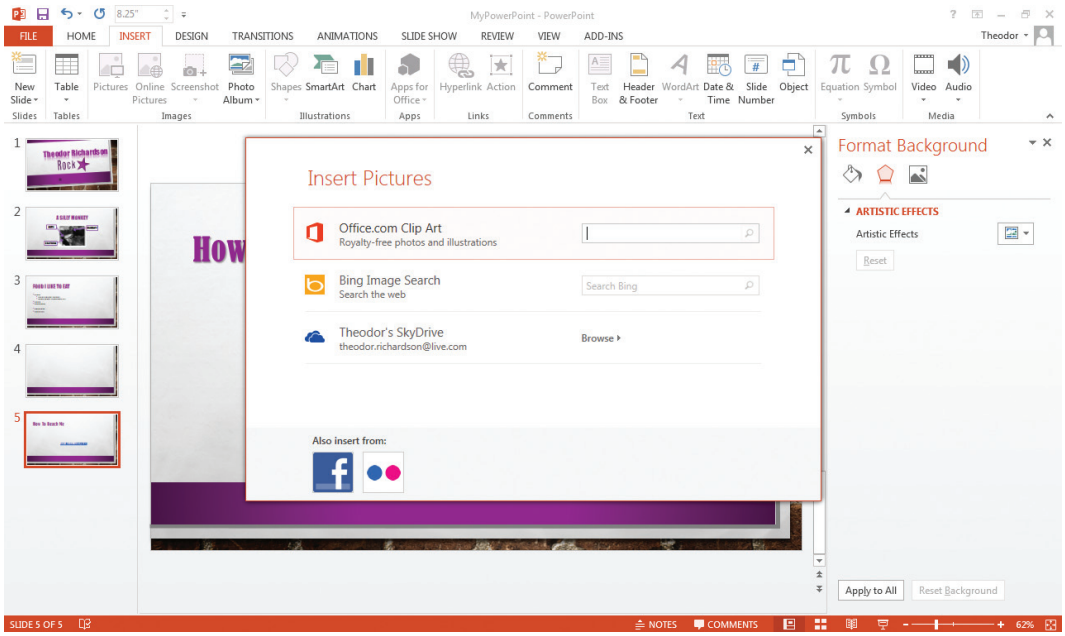


FIGURE 10.36
Online picture selection in PowerPoint 2013

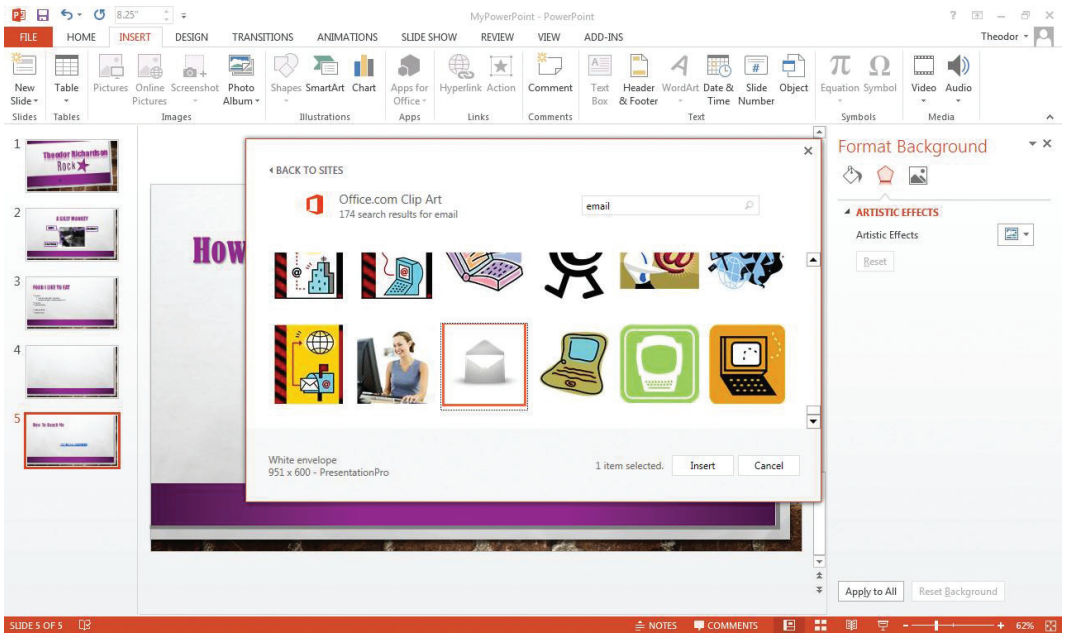
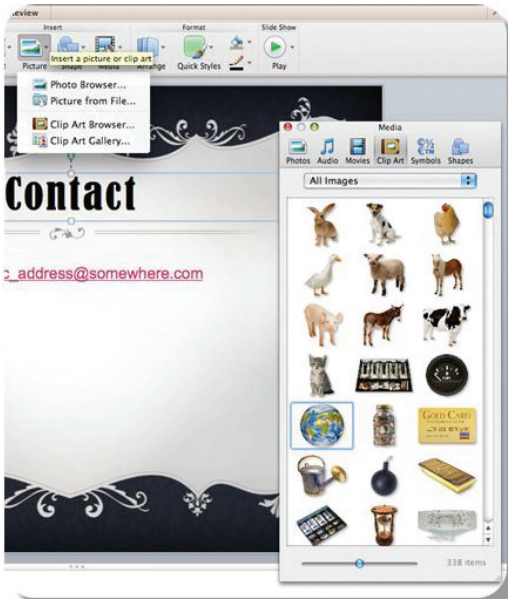


FIGURE 10.37
Office.com Clip Art search results in PowerPoint 2013

10.3.6.2 *Clip Art in Office 2011*

PowerPoint 2011 has two options for directly inserting clip art into your presentation. The first is called the Clip Art Browser (which is shown in Figure 10.38); you can access this by clicking on the *Picture* icon on the *Home* ribbon to open the menu where you can select *Clip Art Browser*. This will open a panel of locally stored and indexed clip art images. If you want to place one of these images in the slide, just click on the image and drag it to the slide. You will see a small green plus sign on the image when you are over an area where it can be placed.



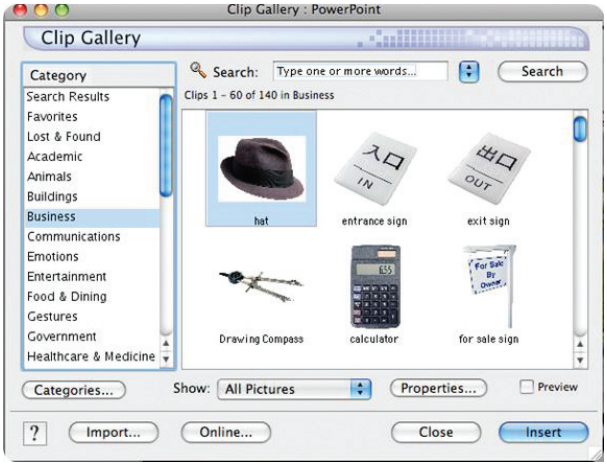
➤ **FIGURE 10.38**
Clip Art Browser in PowerPoint 2011

The second option is to select *Clip Art* Gallery, which is also found on the menu under *Picture* in the *Home* ribbon. This option will launch a standalone application called Microsoft Clip Gallery, shown in Figure 10.39. Here you can search for a specific item you want or select categories. You can also configure your clip art categories, image classifications, and image tags and add new media to your collection using the *Import* button. To add one of the clip art items to your slide, select the graphic you want and click the *Insert* button.

10.3.6.3

Getting Clip Art from Office.com

Whether you are using PowerPoint or alternative software, you can download clips from Office.com (*www.office.com*) to add to your presentation or document. Simply go to the Office.com site and select the *Images* tab. You will then be able to select a category and perform a search on existing clip art within the Office.com repository. If you do not find what you want in that category,



▲ **FIGURE 10.39**
Microsoft Clip Art Gallery

you can use the navigation pane on the left side to change the category or find results from all categories. If you visit the site using Microsoft Internet Explorer, the ActiveX® tools allow you to copy the image directly from the site to your system clipboard, as shown in Figure 10.40. You can then simply use the Paste function (or *Ctrl+P*) to paste the item into your slides.

If you visit Office.com with an Internet browser other than Internet Explorer, you can still use the clip art that is offered, but you have to download it to a local folder on your machine to make use of it. You do this by clicking on the clip art graphic you want and selecting *Download*. You can add this image into your clip art repository by importing it into your media manager for Office 2011 or using the *Insert* ribbon and choosing *Pictures* to browse to its location on your machine for PowerPoint 2013.

Handling Clip Art

10.3.6.4

Once you have inserted the clip art image you want into your slide, you can manipulate it just like any other image,

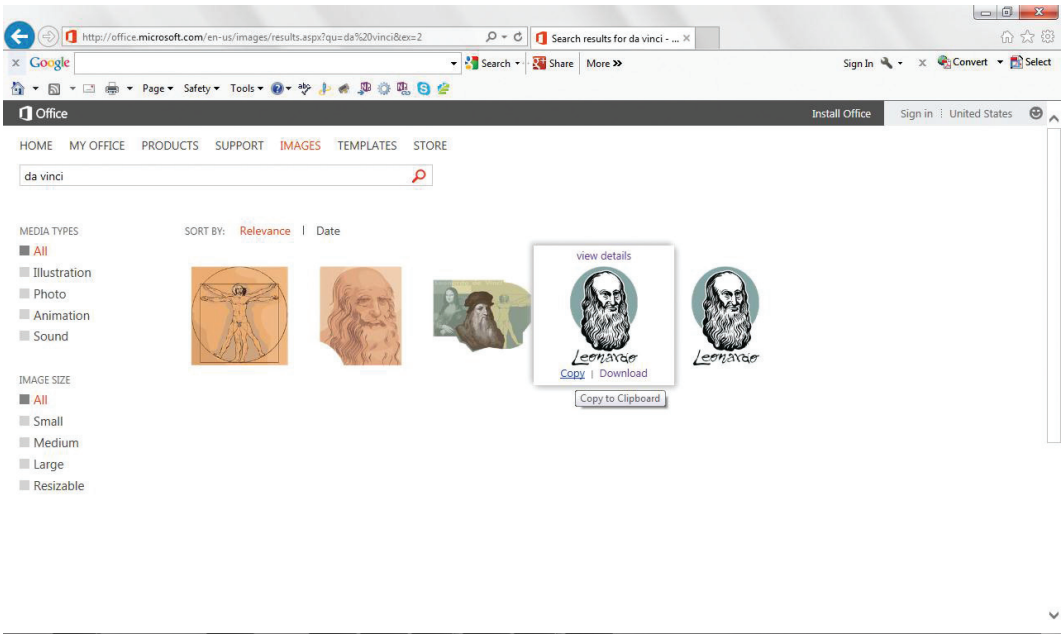


FIGURE 10.40 Clip Art options from Office.com using Internet Explorer

including recoloring it, adding shadows and effects, or reorienting it to suit your needs. You can open the *Rotate* (or *Rotate and Flip*) menu item in the *Arrange* icon menu to select common adjustments like *Flip Horizontal*.

You should take note that visual elements added to your page will make it more visually interesting, but they will distract the viewer from the text itself. The eye will focus on the location with the most visual information, which will typically be the image; this means your audience will see a picture before they see the text that goes with it. Too much of a good thing can turn bad when it comes to clip art. Limit your slides to a single clip art image unless you have a specific point that you are making with the visual component.

Now it is time to make the same enhancements to the contact page. Select a clip art graphic that signifies an email. This is typically an envelope, sometimes with an @ symbol on top of it. You can use the keyword "email" to find clip art appropriate for your page. Select an image you like that fits with the style of your presentation, and add this to the slide with the email contact address. Resize it to appear beneath your email address as shown in Figure 10.42.

You will probably find that there is not enough space at the bottom of your slide for both of these elements. You can move your email address up without changing its alignment or you can use the alignment tools again to reset the alignment you want. Align your clip art image to the center of your slide.

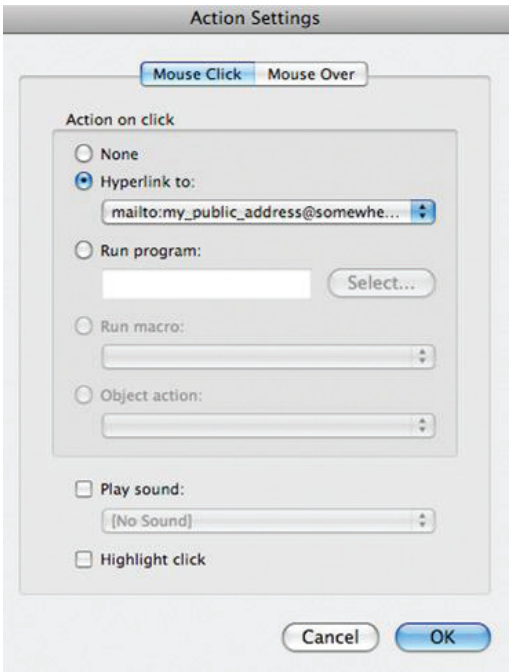
Now you are going to add an action to the clip art so that clicking on the envelope opens an email client with the address you have listed as the recipient. This is essentially the same behavior as the hyperlink itself, but it allows the image to act as a button. Adding an action to an object in your

Adding an action will automatically add a ScreenTip containing the address to which it is connected.

presentation allows you to do all sorts of advanced things on your PowerPoint slides.

In PowerPoint 2013, you can find the *Action* icon on the *Insert* ribbon. In PowerPoint 2011, *Action Settings* is part of the right-click menu; it can also be found as an icon on the *Slide Show* ribbon. It is not the best tool to use if you are giving a linear presentation to an audience, but if you are sharing the presentation on a computer, this allows you to link up different slides and presentations and lets you run programs from within PowerPoint.

For now, you are going to select the *Hyperlink to:* radio button and choose *URL*. This will prompt you for an address that you want to activate with the action. If you are using an email address, add *mailto:* before your address in the text box. This alerts PowerPoint that it needs to launch the mail client on the system showing the presentation and create an email to the address that follows "mailto:" as the intended recipient. You can see an example of these action settings in Figure 10.41.



➤ **FIGURE 10.41**
Example Action Settings dialog box

You can edit this action at any time by selecting the image and using the *Action* (or *Action Settings*) icon that you used to start the process. Just like the hyperlink you added earlier, the action will not occur in *Normal* view. It will only work in the *Slide Show* view, which is shown in Figure 10.42. Actions are primarily used to open Web pages, move to other slides, or open documents or programs from within PowerPoint. This latter action is one of the reasons you should be sure you know the source before opening a PowerPoint file someone else has made.

Activity 10.4— Using Clip Art

Save a copy of your example presentation for the chapter project as Activity10_4 *in the* Activities *folder you created. You are going to add and format a clip art graphic for the slide containing the foods you like to eat. Select one of the terms and perform a search for clip art that represents this food. Be sure to note the categories and options you needed to use in order to find suitable results. Once the image is added to your slide, practice using the formatting tools to alter the color and image effects applied to the clip art image. Be sure to save your work.*

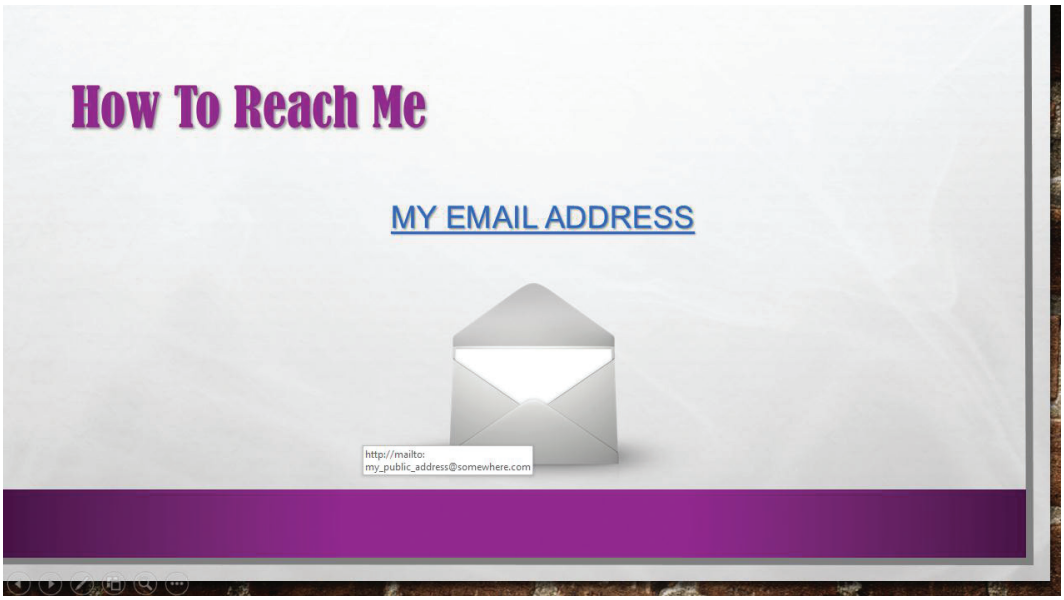


FIGURE 10.42
Contact slide with action enabled clip art

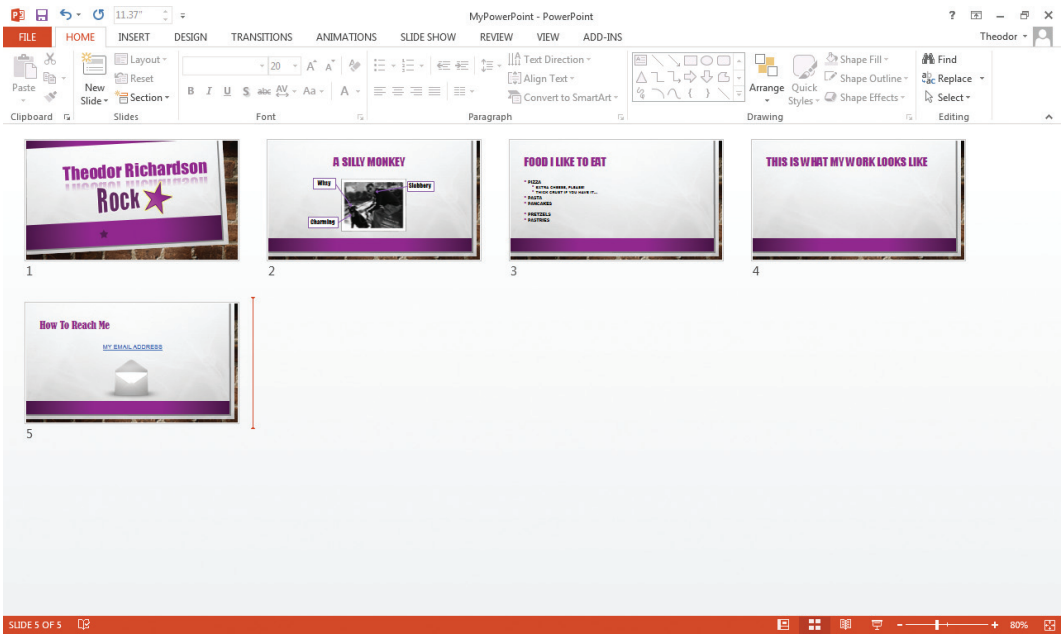


FIGURE 10.43
Slide Sorter view

10.3.7 Sorting Slides

As a final slide for your presentation on yourself, you are going to show everyone what it looks like when you are hard at work. Insert a new slide after the contact slide. You will want your contact information to be at the very end, so you will have to reorganize your slides to move the new slide you just created to position it before the contact slide. You can do this in one of two ways:

- Click on the *Slide Sorter View* icon at the bottom of the interface. Once this view is open, all of your slides will display on a grid as shown in Figure 10.43. You can simply click and hold

your mouse on the last slide and drag it to where you want it to appear (in this case, immediately before the contact slide). Click on the *Normal View* icon in the same location to get back to your slide design in Normal view. You can also double-click on a slide in the Slide Sorter view to open the Normal view on that particular slide.

- You can also reorder slides in the *Slides/Outline* pane on the left of the interface. To do this, just click and hold the slide you want to move and drag it to the position you want it to occupy.

10.3.8 Inserting Screenshots

Once you have your newest slide in the proper place, click in the title placeholder and type *This Is What My Work Looks Like* and format the text appropriately to match the rest of your slides. You may need to widen the placeholder to keep all of this text on a single line. Remember to align the placeholder to the center of the slide if you change its width so it is not off-center from the rest of your slide titles. Aligning the text box is separate from aligning the text. You are going to show everyone what your computer looks like when you are hard at work. Make sure you have a program open that you use frequently.

Now click the placeholder in the lower part of the slide. If you are using PowerPoint 2013, you can just go to the *Insert* ribbon and select *Screenshot* from the *Images* panel. This is an easy way to capture what is happening in a live application on your machine. The menu that appears will show each open application (other than PowerPoint) and allow you to insert an image capture of that program into your slide. You can also select the *Screen Clipping* option from this menu and select an area of the screen you want to copy into an image. This is an incredibly useful tool for describing and displaying applications or showing an example Website in a presentation without having to leave PowerPoint.

If you are using PowerPoint 2011, this option is not available to you, but you can create a screen capture by holding down *Shift+Command+3*. This will place an image of your current computer screen on your computer desktop. You will hear a camera clicking sound if you do this correctly. You can now insert this image into your presentation just as you would any other image stored on your computer. Holding down *Shift+Command+4* lets you select an area of the screen to capture using the mouse. If you hold down the *Control* key along with either sequence (such as *Control+Shift+Command+3*), you will copy the image to your system clipboard so you can paste it directly into your slides.

You can generally save a screenshot on a Windows machine using keyboard shortcuts. This is typically done by pressing the *Print Screen* button, typically abbreviated *Prt Scn* or *Prt Sc*. This procedure will vary from computer to computer based on the keyboard layout, so you may have to look up how to do this on your individual machine if you do not have a single button for this. This procedure will copy your current desktop image to the clipboard of the system as a graphic.

Once the screenshot is inserted, you can work with it just like any other image you have included in your slides. You can

Whenever you are using a screen capture tool, make sure you are not exposing private or confidential information from you or your organization. It is your responsibility to make sure whatever is included in that screenshot, regardless of its size or readability, is allowed to be used and shared publicly.

add effects to it or crop it to suit your needs. Just remember that it is likely that the content of the inserted image will be difficult for an audience to read, so once again you should be sure that the point you are trying to make is apparent and that you are not giving your audience an eye exam by forcing them to read text that is too small to see. An example of the completed slide can be seen in Figure 10.44.

10.3.9 Transitions

To complete your masterpiece, you should add transitions to your slides. By default, the slides will just change without any transition animation whatsoever. This may be suitable for a business presentation, but you may find instances in which you want a little style in your slide transitions. PowerPoint does not lack for transition options, which range from simple wipe effects to full-fledged animations of your slide being dissolved into a honeycomb and reassembled as the next slide. When adding transitions, make sure the animation does not overshadow the purpose of your presentation. Your audience did not come to see the animations you have constructed for your slide transitions.

With that said, you can use this presentation to experiment with elaborate transitions. You will find them all on the *Transitions* ribbon, shown in Figure 10.45. The *Transition to This Slide* panel has a selection of animations from which you can choose. The *Effect*

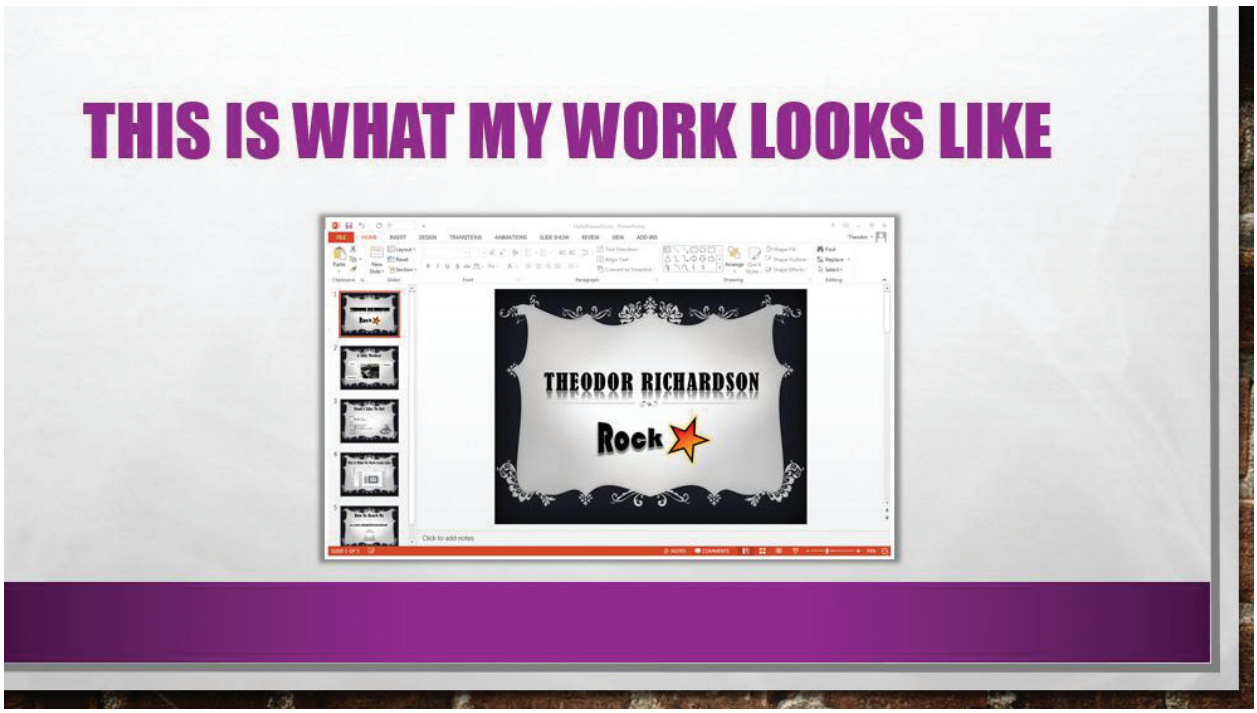
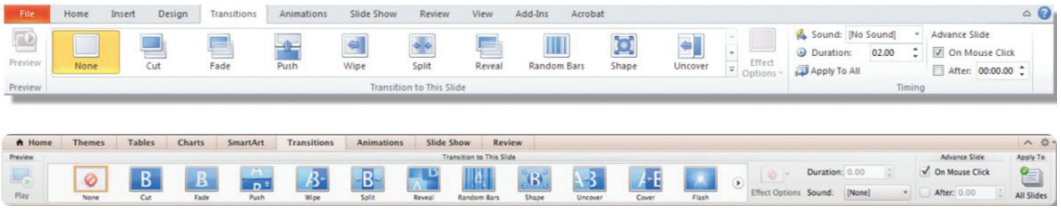


FIGURE 10.44 Completed example with inserted screenshot



➤ **FIGURE 10.45**
Transitions ribbon in PowerPoint 2013 and PowerPoint 2011

Options icon will change depending on the transition that you select. For the introduction slide, something simple like a fade should be used. Click the *Apply to All* (or *Apply to All Slides* in PowerPoint 2011) icon on the *Transition* ribbon to apply the effect you have configured to every one of your slides. Once you have selected a transition for a slide, you will notice that a small icon appears next to your slide in the *Slides/Outline* pane on the left side of the interface. Click this icon to preview the attached animation.

The Duration setting determines how long the transition takes. If you are using your slide show as a visual supplement for a live presentation, you probably want short transitions, if you want any at all. You can also add sound to your transition by selecting one of the preset sound effects from the *Sound* menu. Sound that is used to excess is very annoying to an audience, and it can be very distracting if you have it playing over narration.

In this case, though, give yourself some applause on your introduction slide. You've earned it! To do this, select the drop-down list next to the word *Sound* and select *Applause*. Press *F5* to play your slide show in *Slide Show* view. Take a bow because you have just completed your first media rich PowerPoint presentation!

CHAPTER SUMMARY

This chapter provided an introduction to presentation software. As the world of business becomes more technology-based, the ability to use presentation software proficiently will become more of a necessity to communicate ideas clearly and effectively. It is therefore essential that you understand how to construct a presentation document to share your ideas and contributions. This chapter gave you an overview of the fundamental tools you need to build exciting and engaging presentations, but these are just the beginning when it comes to making your presentations work. The next chapter focuses on how to create and present your presentation effectively. You will get an idea of how to format your presentation to suit your purpose and audience, as well as gain an understanding of the most efficient and effective ways to showcase your ideas.

CHAPTER KNOWLEDGE CHECK

1 What is the purpose for using the PowerPoint application?

- ◯ **A.** Create a visual supplement
- ◯ **B.** Create a multimedia presentation
- ◯ **C.** Create short video clips
- ◯ **D.** Both A and B

2 The *View* ribbon is where you customize the user interface for PowerPoint and format your slides.

- ◯ **A.** True
- ◯ **B.** False

3 If you want to change the bullet styles for your slide or even change them to numbers, you would select the _____ panel on the *Home* ribbon.

- ◯ **A.** Ribbon
- ◯ **B.** Insert
- ◯ **C.** Review
- ◯ **D.** Paragraph

4 The _____ resets your slides to the full size of the screen and hides the design interface of the software. You can move forward in your slides by clicking the mouse, pressing the spacebar, or using the right arrow key.

- ◯ **A.** Slide Show view
- ◯ **B.** Panel view
- ◯ **C.** Normal view
- ◯ **D.** None of the above

5 The *Print Screen* button on a PC, typically abbreviated *Prt Scn* or *Prt Scr*, can be used to copy your current desktop image to the clipboard of the system as a graphic.

- ◯ **A.** True
- ◯ **B.** False

6 Selecting the _____ in PowerPoint 2011 launches a visual display of the layers in your slide, which you can click and drag to reorder.

- ◯ **A.** Review ribbon
- ◯ **B.** Layer icon
- ◯ **C.** Animations ribbon
- ◯ **D.** Reorder Objects menu item

7 Clip art can be retrieved and inserted into a presentation document using _____.

- ◯ **A.** PowerPoint 2013
- ◯ **B.** PowerPoint 2011
- ◯ **C.** Office.com
- ◯ **D.** All of the above
- ◯ **E.** None of the above
- ◯ **F.** Both A and B

8 The native format for a PowerPoint presentation is:

- ◯ **A.** ODF presentation (.odp)
- ◯ **B.** PowerPoint Presentation (.pptx)
- ◯ **C.** OST presentation (.ost)
- ◯ **D.** Both A and C

9 You can add a link to an email address or URL manually by selecting the _____.

- ◯ **A.** Format icon
- ◯ **B.** Hyperlink icon
- ◯ **C.** Color icon
- ◯ **D.** None of the above

10 The keyboard shortcut on a Windows PC that copies an object on the screen is _____, and _____ can be used to paste the copied object.

- ◯ **A.** *Ctrl-C, Ctrl-V*
- ◯ **B.** *Ctrl-V, Ctrl-X*
- ◯ **C.** *Ctrl-X, Ctrl-C*
- ◯ **D.** Both A and B

CHAPTER REVIEW QUESTIONS

1 What are placeholders in Microsoft PowerPoint? How are they helpful for adding content to a slide?

2 Why would it be helpful to visualize layers on a slide? Give examples to explain your answer.

3 How could PowerPoint be used as a study tool?

4 What is the role of text in a presentation document? Why should it be limited in volume in a presentation?

5 At this point in the text, what are the various considerations you should make when developing a presentation document? How are these considerations different than the ones you would make with a word processing document?

6 Choose one of the text or shape effect choices and explore its options. How could this be used to add emphasis to an element of your presentation?

7 Explain the role of themes in PowerPoint. Why are these useful and what options are available for customizing them for your own use?

8 Identify at least three different professions that would use PowerPoint frequently to enhance their effectiveness. How do these professions differ and what do they have in common?

9 Explore the Crop to Shape option for editing images. How is this feature applied and when would this be applicable to a presentation?

10 Based on a review of PowerPoint presentations you have seen or ones you can find online, identify how much media on a slide is too much. Give examples to explain your answer. Is this consistent or does it depend upon the subject and the type of presentation?

PRACTICE EXERCISES

1 Begin by thinking about a hobby you enjoy where construction of some sort is involved. Using the Web, find additional research supporting facts about your hobby and then prepare a 10-slide presentation describing the steps you would take to build or assemble some aspect concerning your hobby. For example, you might like building model cars or assembling gift baskets. If you are not able to think of a personal hobby, then use the Web to develop step-by-step instructions on building or installing an object of your choice.

2 Using the Web, research a current legal issue affecting your community. For example, you might research a new law that is difficult to understand. Use your research to develop a 10-slide presentation to clarify what the law means. Make sure you add transitions, images, and hyperlinks to the presentation.

3 Using the presentation software of your choice, develop an outline that explains the steps used to cite sources in either the writing style of your choice or one used at your educational institution. Examples of these styles include APA and MLA format.

4 Develop a presentation that incorporates transitions and photographs to create a digital photo album. The focus of this exercise is to use the formatting ribbons and menus to edit, crop, and format photographs of your choice. Develop a minimum of five slides for this presentation.

5 Using the template options available in PowerPoint, create a calendar. Add clip art and text to the dates of importance. How easy is this to read? How easy would it be for an audience to read? When would this type of template be useful?

CHALLENGE EXERCISES

1 Search the Internet for examples of PowerPoint presentations. Write a 500-word report on what made the presentations effective and the needed areas of improvement. You might want to include a description of the elements within the presentation that worked well and elements that could be added to enhance the presentation. Be sure to discuss how each element functions and is inserted into a slide. Then develop a presentation that demonstrates your working knowledge of the elements you discussed in your report.

2 Use the word list below to identify the following definitions in letters *a* through *j*:
Alignment, Color Saturation, Cropping, Aspect Ratio, Color Tone, Brightness, Sharpen and Soften, Presentation Software, Contrast, Slide

- ◯ **A.** The longer dimension of an object divided by the shorter dimension.
- ◯ **B.** Allows the user to create visual aids, handouts, and graphics.
- ◯ **C.** The unit of the presentation.
- ◯ **D.** A setting that varies how clear the differentiation is between neighboring pixels of the image.
- ◯ **E.** The relative placement of an object with respect to the overall environment.
- ◯ **F.** How light or dark the color is.
- ◯ **G.** The threshold for the color level that registers as black.
- ◯ **H.** A measure of the spectrum of colors between pure white and pure black.
- ◯ **I.** The act of cutting off outer portions of an image or object.
- ◯ **J.** How pure the color is.

3 Create a presentation using every available slide layout. Compare the layout options and, for each layout, identify an ideal situation in which they would convey information in the best way. Use the presentation to construct these examples (the data included can be fictitious as long as the layout and form are correct).

4 Create a presentation and apply a theme. Modify the theme's colors and font selection. Now change the background option for the theme. What are the limitations on the degree of control you have over the look of the slides once a theme is applied? Does this still allow for enough customization? Give examples to support your answer.

5 Create a presentation and add 5 slides that all include the same image. Use the image formatting tools and make a different change to each slide's copy of the image. Briefly explain the application of each tool you selected. How can these effects be used to enhance the presentation of an image in a presentation? What tools did you not select for this activity?

CHAPTER 11

Creating Effective Presentations

IN THIS CHAPTER

Now that you have some familiarity with the tools available in presentation software, this chapter focuses on teaching you to use those tools effectively to create a meaningful presentation that can truly make a lasting impression on your audience. You will design, format, and share an example presentation to demonstrate these best practices. Once you complete the chapter, you will be able to:

- Format the Slide Master for your presentation to assign a theme, color scheme, and font set
- Outline an effective presentation using the Notes section of your presentation
- Structure your slides in a logical and complete manner to support the topic on which you are presenting
- Present or share your completed presentation document

11.1 WRITING YOUR VALUE PROPOSITION

Almost every presentation document in existence is a form of sales pitch. Whether it is a research presentation, a marketing proposal, or a presentation about yourself like the one you constructed in the previous chapter, there is some fundamental point that you are trying to convey and you want your audience to agree with what you are saying or at least understand your perspective. The key to constructing a successful presentation is to remember your value proposition or value statement.

Your value proposition is what you have to offer to whoever is viewing your slides or listening to your presentation. This should guide what you include in every slide you create. In fact, you can even state your value proposition in the first slide after the title slide for everyone to see. It should be concise and clear (two sentences at most) so you can easily evaluate each subsequent slide for relevance to that overall message. The difference between an effective presentation and an ineffective presentation is typically determined by the clarity of the message and the quality of the visual display.

A **VALUE PROPOSITION** *is a concise statement (most commonly associated with business) of the benefits offered by the product or idea under discussion.*

11.2 ESTABLISHING A VISUAL STYLE

Part of making your presentation effective is presenting a clear visual style to which the audience can quickly become accustomed; this will allow the audience to recognize the style as you proceed and focus on the content instead of the background. This means choosing an effective style and adhering to that style throughout the presentation. Changing color schemes and backgrounds is distracting; it draws attention to the change instead of what you are trying to highlight. This chapter will guide you through the creation of an effective presentation, no matter what your underlying purpose is. One way to keep your presentation consistent is to use the Slide Master to format your presentation.

Any changes made to the Slide Master will affect all of the slides in the presentation. Using the Slide Master to define your theme, fonts, and colors will give your presentation consistency throughout and will allow you to focus your time and attention on presenting the information rather than on formatting it.

A **SLIDE MASTER** *is a template for all slides within a presentation document. Changes made to a Slide Master will affect all of the slides in the presentation built from that master. Any slide constructed from a Slide Master is considered a child slide to the Slide Master.*

Once you become more familiar with PowerPoint, you may want to stop using the Slide Master and change the theme, font, and color scheme directly in the presentation. Even if you end up using it only occasionally, an understanding of the techniques for working with the Slide Master is useful in constructing an effective presentation.

11.2.1 Modifying the Slide Master

The great thing about using the Slide Master is that it allows you to set up your initial presentation style once and forget about it. All of the other slides that you create within your presentation will be copies of the Slide Master. Create a new presentation in PowerPoint and save it as *MySalesPitch.pptx*. To access the Slide Master in PowerPoint 2013, go to the *View* ribbon and click on *Slide Master* under the *Master Views* panel. In PowerPoint 2011, select the *View* menu and choose *Master*; then choose *Slide Master* on the menu that appears.

This opens a new context-sensitive *Slide Master* ribbon, shown in Figure 11.1. The design pane will show a parent slide for all of the different layout options you can choose. Changing the Slide Master will change all of the layout slide masters, which are the children you see in the *Slides/Outline* pane (one for each layout available). Changing any of the layout slide masters changes each individual slide in your presentation with that particular layout.

You will see several placeholder text boxes along the bottom of your Slide Master that typically do not appear in a new slide. These include predefined places to add the date, footer text, and the slide number. Note that in PowerPoint 2013, when the *Slide Master* ribbon is open, the *Design* ribbon disappears; this is because most of the design options that you can apply on a slide-by-slide basis from the *Design* ribbon can be selected and applied on the *Slide Master* ribbon. In PowerPoint 2011, these options are all available on the *Themes* ribbon, which will remain visible whether or not the Slide Master is open.

Activity 11.1—Master Slide Layouts

Create a new presentation and save it as Activity11_1 *in the* Activities *folder. With the Slide Master View active, you may notice that you have options for inserting either a new Layout or a new Slide Master. Use each command and compare the resulting insertion into the presentation. When would you use a new Slide Master? When would you use a new Layout? Research this further using the Web if you are not sure. Save your work.*

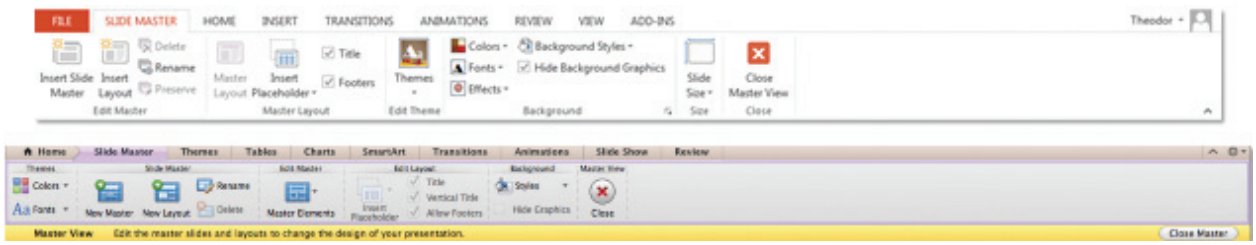


FIGURE 11.1 Slide Master ribbon

11.2.2 Planning Your Design

Start your presentation with your overall idea and value proposition in mind. The visual style you present in your document will have a big impact on the perception of your idea. You should choose a visual style that supports the message you are delivering and is appropriate for the audience to whom you are presenting. For example, a casual, flashy style with a lot of superfluous animation is not suited to a research presentation because it will give your audience the impression that your graphics are more important than what you have to say. Conversely, a presentation designed for children needs to contain a lot of bright colors or they will quickly become bored and lose interest in what you have to say.

The example project in this chapter is a professional sales pitch. For this type of presentation, you should have a basic idea that you want to convey, which should be supported by all of the slides you add. In this example, the message is simple: "Hot dogs should be the next gourmet food fad." Once you have established the overall message for the presentation, you need to establish the audience for the presentation.

The visual design of a presentation has a large impact on the perceived credibility of the content of the design. In a study about Websites conducted at Stanford University to determine the factors that affect consumer trust, visual appeal was the most often cited reason for whether a site was considered reputable and trusted. The visual clarity of your slides and the visual appeal of the information you present will impact whether your audience trusts what you have to say.

You should take your audience into consideration when planning both your design style and your overall purpose. Putting your ideas in a context that is suited to your audience will help them understand the message you are trying to convey. The background, culture, and experience of your audience will affect their perception of your presentation. Identifying as much information about your audience as possible is critical to successfully delivering your intended message.

The setting in which the audience will experience the presentation will also impact their receptiveness to it. If the occasion is formal, you do not want to select a theme that is juvenile. If it is a casual setting, you do not want your theme to be too rigid and formal. Consider who will be viewing your slides, as well as the message you want to convey. As an example of this, Figure 11.2 shows two versions of the same slide; these have the same content but different styles attached to them. The first would be suited to a more formal occasion but the second would not.

11.2.3 Assigning a Theme

The first step of formatting your master slide is selecting a theme. In PowerPoint, the Theme setting determines the default Font, Color, and Effects settings. In PowerPoint 2013, you select an appropriate theme by clicking the *Themes* icon in the *Edit Theme* panel of the *Slide Master* ribbon and then clicking on one of the preview icons that is displayed. In PowerPoint 2011, these settings are all on the *Themes* ribbon, where

◀ **FIGURE 11.2** Alternate designs for the same content

you can define the Colors and Fonts settings; there is no equivalent Effects setting.

SELECTING THE RIGHT THEME FOR THE VENUE

When you are choosing a color scheme for your presentation, you need to consider how the presentation will be viewed. If you are showing it on a large screen to an audience, you should consider a color scheme that puts light-colored text over a darker background. A bright background with dark text works well in print, but it can be too harsh to view in a dim room. Similarly, if your presentation is going to be viewed on an individual computer monitor, you should choose a theme that is more akin to text publications. This will also affect your font choices and color scheme, but in PowerPoint these are derived initially from the theme.

For the example presentation, you want a style that is going to fit the topic appropriately, so it needs to be something modern that will fit with the business element you are trying to convince to invest in your proposal; it should also not be too formal or it will detract from the spirit of the idea. When you click on a theme, you will see each of the slide templates in the *Slides/Outline* pane reset to the theme you have chosen, as shown in Figure 11.3. If you do not like the result, you can simply choose another theme.

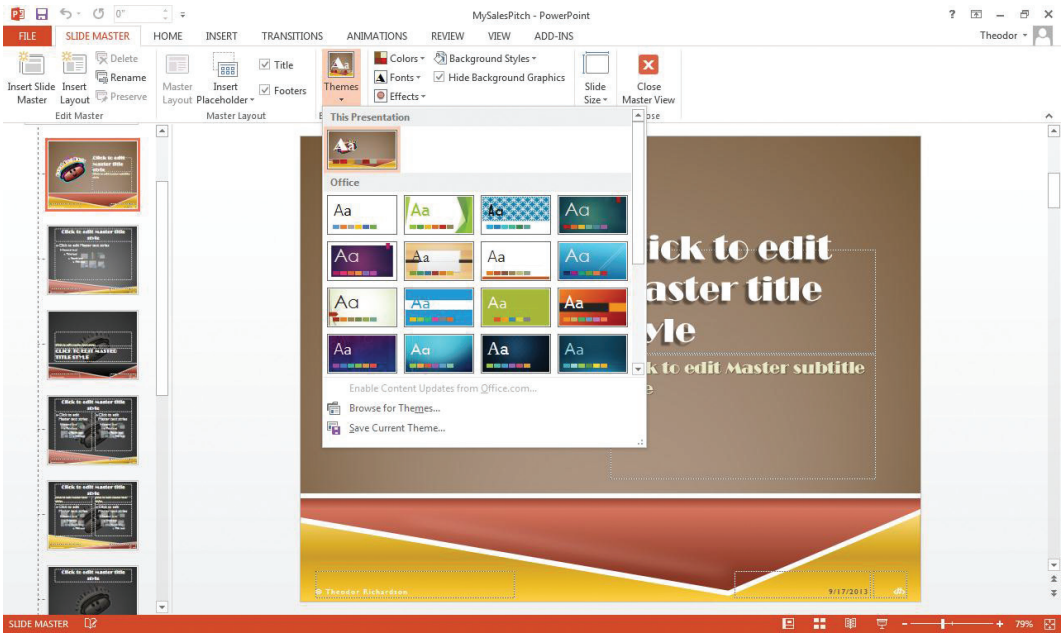
Activity 11.2— Theme Choices

Create a new presentation and save it as Activity11_2 *in the* Activities *folder. Apply a new theme for your presentation where your business is designer cupcakes rather than the gourmet hot dogs used for the example in this chapter. How does the choice of theme change in this case? How does the color palette change? Is your target audience different in this case? Save your work.*

11.2.4

Colors, Fonts, and Effects

The next step after choosing a theme is to pick your color scheme. PowerPoint has a significant number of preset color schemes from which you can choose; once you choose a theme, this setting will default to the color scheme that matches that theme. In PowerPoint 2013, you can select any of the preset options from the *Colors* icon (to the right of the *Themes* icon) in the *Background* panel of the *Slide Master* ribbon. The *Colors*



➤ FIGURE 11.3
Theme selection in PowerPoint 2013

menu for PowerPoint 2011 is located in the *Themes* ribbon on the *Theme Options* panel.

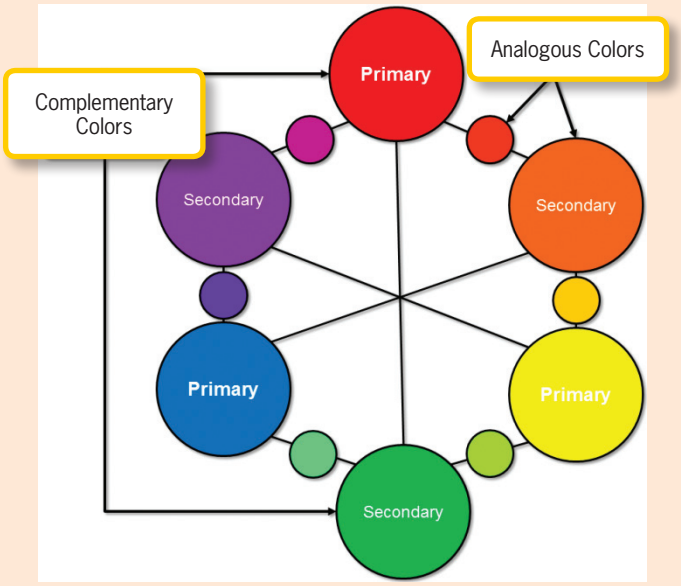
You can set the Theme, Color, Font, and Effects settings on the *Design* ribbon if you are not using the Slide Master to format your presentation.

You can also define a custom color scheme by selecting *Customize Colors…* in PowerPoint 2013 or *Create New Theme Colors* in PowerPoint 2011 at the bottom of the list. This process will start with the colors that you have already chosen and allow you to modify them individually; you should be familiar with this menu if you changed the hyperlink color in your presentation in the previous chapter. You can give your new color scheme a name if you want to use it later or save it with the default name (which begins with *Custom 1*). Any custom color schemes you define will appear at the top of the list in the drop-down *Color* menu. You can edit or delete them by right-clicking on the name of the custom color scheme.

You should also choose a font set that is suitable for your presentation; you select a font by clicking on the *Font* icon and selecting one of the options presented. As a general rule, you should never use more than two fonts on a presentation: one for the title to grab attention and one for the rest of the text in the body of your slides. The two fonts should complement each other well, meaning they should not visually clash in style. Readability should be the highest

Not everyone has the talent to be a professional graphic designer, but there are a few steps you can take to make sure your color scheme works for a presentation. A general guideline is to have two main colors and an accent color. You can use different shades of the main colors, and the two main colors should blend well together. The accent color should be used sparingly and should provide enough contrast to be readable over both of the main colors. You can see a map of complementary and analogous colors on the color wheel in Figure 11.4.

There are an almost endless number of usable color combinations, but using two analogous colors and a complementary (or split complementary) color is usually a safe way to construct your palette. Make sure that any text you include is readable above all else and that the tension between the colors does not draw attention away from the content; you can lighten or darken any of the colors to increase or decrease the contrast presented. Remember, the more contrast you have between your text and the background, the clearer your text will be. One color you should avoid is pure red; it is incredibly difficult for a person to look at pure red on a computer or projector screen for any sustained period of time.



▲ **FIGURE 11.4**
The color wheel with complementary and analogous colors

consideration when you are choosing which fonts to use, followed by aesthetic coherence with the overall presentation. Just like with the themes and colors, there are a variety of predefined sets of fonts from which to choose. You can also define your own font set and save it for later use, just as you can with the color scheme.

The fonts in your slides have to be comfortable for people at the back of a room to read if you are going to do a live presentation. A live presentation also means you should stay away from serif fonts. The extra text decorations make it more difficult to read what is on the screen. However, if your presentation is destined for sharing on an individual computer screen, a serif font will work just fine. You can present more stylized text in a presentation for an individual computer screen, but you should never sacrifice clarity and readability.

When you select one of the background styles from the menu on the *Background* panel of the *Slide Master* ribbon while you have the default Slide Master (Slide 1) selected, the background choice will be applied to each of the layout slide masters that are linked to it. Most of the layouts will have different elements in the slide than the default blank layout, so it is typically better to select the setting for the background styles in each of the different layout slide masters if you wish to make changes to the default. Each theme will have its own background styles menu choices available. If there is a slide layout for which you do not want the background effects to appear, simply check the box next to *Hide Background Graphics* (or *Hide Graphics* in PowerPoint 2011).

In PowerPoint 2013, you can set the default style for any graphics added to your presentation using the *Effects* icon on the *Theme* panel as well.

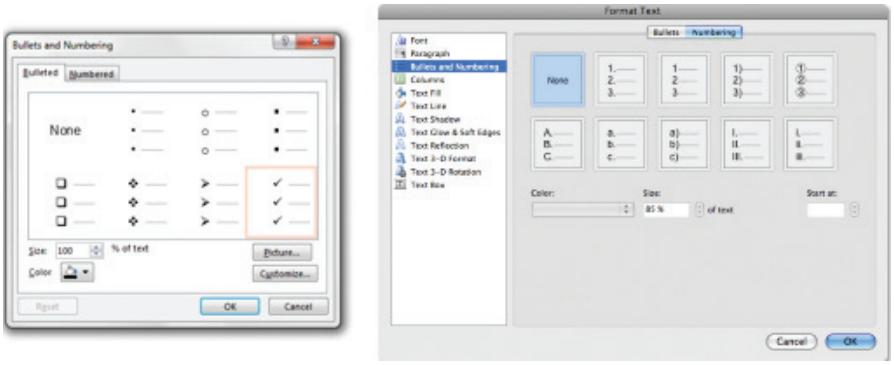
11.2.5 Bullets and Numbering in the Slide Master

Despite the ease of use for bulleted lists in presentation software, bullet points must be used with care. According to Richard Mayer, a leading researcher in educational psychology, the improper use of bullet points can actually cause learning to cease; bullet points can overload the cognitive systems of the brain that normally allow a person to perceive the information with which they are being presented. Because bullet points have no inherent order by definition, the human brain can get lost in them and stop mapping the information. There is no definitive answer on the maximum number of bullet points that should be used in a slide, but the consensus of the research is that three bullet points on a slide does not inhibit understanding if they present clear information.

If you are going to use bulleted or numbered lists in any of your slides, you should set the styles for those in the Slide Master and use them throughout your presentation. Click on the placeholder text box on the Slide Master containing the sample outline text. The styles for the various outline levels will be preset from the theme you selected. You can select whether they should be ordered (using numbers or letters) or unordered (using bullet points) for each level of organization by clicking either the *Numbering* or *Bullets* icon, respectively. You can choose the style for each layer by highlighting the text at the level you want to change and selecting the style for that level.

To open the *Bullets and Numbering dialog box* (shown in Figure 11.5) to make more specific changes, select *Bullets and Numbering* on the right-click menu or select the customization option from the drop-down menu of either the *Bullets* icon or the *Numbering* icon. Here you can change the size relative to the text, the color of the bullets, and the style of the bullets under the *Bulleted* (or *Bullets*) tab. You can also add a picture of your choosing from a file (or from the built-in set of images) as your bullet point by selecting the *Picture* button or you can use one of the special character symbols by clicking the *Customize* button; these options are both under the *Custom bullet* drop-down menu in PowerPoint 2011. On the *Numbered* (or *Numbering*) tab, you can select the outline style you want for the text level and set the starting number or letter by selecting it from the *Starts at* box.

When you are defining the style of your outline for your presentation, you should always keep it as simple and clear



▼ **FIGURE 11.5**
Bullets and Numbering dialog boxes

as possible. For an unordered list, the text indents should be enough to distinguish the different levels, so you should never need more than one type of bullet. In fact, if you have more than two levels in an unordered list on your slide, the text will become difficult to read. Selecting an image as your bullet point may be novel, but you should only do so if it is not too distracting and it fits with the color scheme and style of the overall presentation. Keep your bullets or numbers the same color within each slide and throughout the entire presentation; changing styles or colors in the same slide just leads to confusion.

11.2.6 Adding and Formatting Slide Footers

Unlike word processing documents, presentations do not contain true headers. The visual impact needs to start at the upper-left corner of the slide. This is where the eye begins viewing the image, so you cannot waste that prime visual space with slide numbers and copyright information. In fact, the only safe place to add this type of information to a slide without causing it to distract the viewer is at the very bottom. The footer is the only area of the slide for which you do not have to worry as much about readability. This is mostly information for the presenter and for later distribution. In fact, any text that is not assisting the presenter (by displaying the slide number, for instance) or needed for copyright information or references should be omitted.

If no information is added to the footer placeholders, they will appear as placeholder text boxes in the regular slide design view for your presentation. You can edit the footer information on each slide by clicking on the text just like any other text box.

To make sure no one takes your presentation and uses it as their own, you can add a small copyright notice to your footer. To do this, just type *(c)* into the box; notice that it automatically converts to the copyright symbol (©). Follow this with your name and format the text however you would like it to appear. Remember that this is part of the footer, so it should be small but clear. A font size of 10 to 12 pt is sufficient for the footer but would be otherwise unreadable on a slide; your audience probably will not be able to discern this text.

Add the slide number to the placeholder on the righthand side of the slide for your reference while you are presenting. You may already have a text box with the # symbol; this is the allocated space for the slide number. In PowerPoint 2013, you can insert the slide number manually if it is not already present by placing the cursor in a text box and clicking on the *Insert* ribbon; you will find the *Slide Number* icon on the *Text* panel. You can now format the slide number text to appear the same as the rest of your footer text. The actual number in this placeholder will not be visible until you are in Normal view for your presentation; on the Slide Master, it will appear as <#>.

In PowerPoint 2011, you can add any of the footer elements that you may have removed by selecting the *Insert* menu, clicking on *Master Placeholders*, and choosing the item you want to add. Only the items

that are not already included will be available to select. Changing these text boxes does not set the footer on the slides to be visible in your presentation. You can manage the header and footer elements included by selecting the *Header & Footer* icon in the *Insert* ribbon, as shown in Figure 11.6.

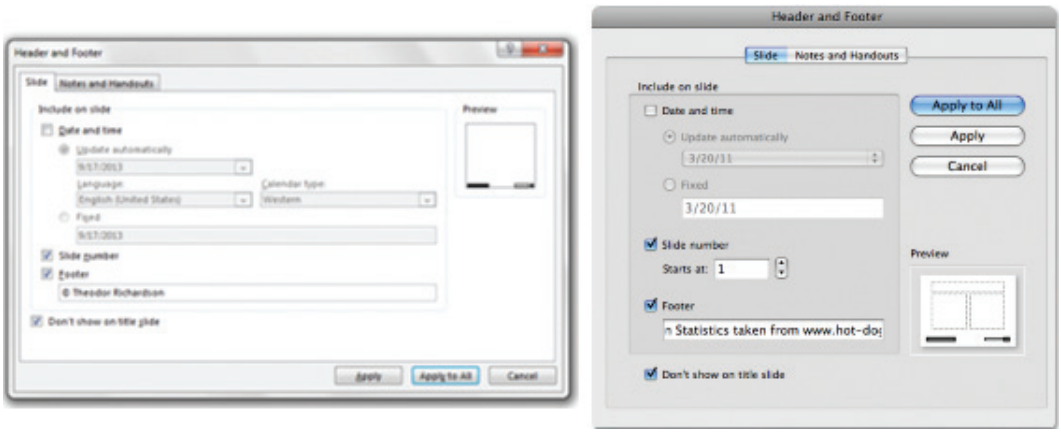
To make the footer visible in PowerPoint 2013, you must select the *Header & Footer* icon on the *Text* panel of the *Insert* ribbon. Select the checkboxes that you wish to enable in the *Header and Footer dialog box* that appears, as shown in Figure 11.6. If you want to hide the footer on the title slide of your presentation, check the box next to *Don't show on title slide*. You can reach the Header and Footer dialog box in PowerPoint 2011 by selecting the *View* menu and clicking on *Header and Footer*.

11.2.7 Formatting Text on the Slide Master

Any text formatting done to the Master Slide placeholder text boxes will be carried over to the rest of your presentation. Formatting text now in the Master Slide will save you the effort of repeatedly formatting the same elements later when you are writing your presentation content. This not only saves you effort, it also allows you to focus on the content of each slide rather than on formatting.

Center your title and add a shadow to it on the main Slide Master. You should see your changes propagate all the way through the rest of the layout slide masters. To configure the text shadow, select *Shadow Options* from the menu beneath the preset options. This allows you to set how dramatic the shadow effect is. The *Distance* element sets how far away the shadow is from the text, which determines the perceived height of the text over the background.

PowerPoint offers a few text options that are similar to what is available in Word but with a different layout; you can view these in Figure 11.7. One of these options is the *Change Case* icon; this allows you to capitalize the first letter of each word (which is very useful for a title), toggle the case of each letter, or convert all of the letters to either upper- or lower-case. Another tool available here is the *Text Shadow* icon, which lets you add a shadow from the *Font* panel of the *Home* ribbon instead of using



➤ **FIGURE 11.6**
Header and Footer dialog boxes

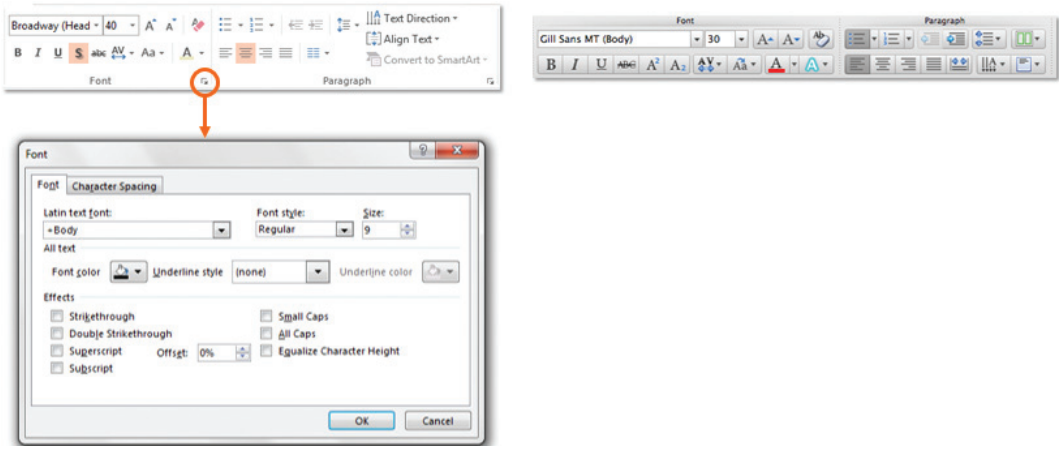


FIGURE 11.7
Font options in PowerPoint

the *Text Effects* icon in the *Format* ribbon. There is no icon for superscript or subscript in PowerPoint 2013 as there is in Word. For these effects, you must open the Font dialog box by clicking the expansion icon in the lower-right corner of the Font panel.

PowerPoint 2011 gives you a larger selection of options in the *Font* panel of the *Home* ribbon. These include all of the options available in PowerPoint 2013, along with a few additions. You can add or edit all of the available text effects from the *Home* ribbon, including superscript, subscript, and strikethrough text.

Once you have made the changes to the Slide Master, you should go through each of the layout slides that you are going to use and make any formatting modifications to those that are specific to the layout you need. Unlike the Slide Master parent, anything that you change in a layout slide master will change only the slides built from that layout. This means that changing the format of text in a layout slide master will not make the change in the other layout slide masters. For this reason, it is best to keep any significant text and font style changes to the main Slide Master from which the layout slide masters are created.

Branding Your Slides

11.2.8

If you have a logo for your company or organization, you may want to add it to your slides. You do not want to have to do this for every slide you create, however, and it is best if, once placed, the logo does not change location from slide to slide. Consistency is important to a good presentation, so you should minimize the amount of visual change and misalignment from slide to slide. Slide transitions may mask these changes, but that is not an effective solution to the problem.

You may already have a logo in mind for your presentation, but for the sake of becoming more proficient with the presentation software, you will create one for this project. While the process of creating a logo usually involves hiring an outside expert or going to your organization's graphic designer, here you will use clip art and text boxes to create a sample logo. For a review of how to insert clip art into your slides, refer to Section 10.3.6. Pick a graphic that you like and insert it into the Slide Master parent (Slide 1).

You can now format the graphic with whatever effects you like. Try adding an inner shadow so that the graphic appears to be cut out from the slide background itself. Add a new text box in PowerPoint 2013 by clicking on the *Text Box* icon on the *Text* panel of the *Insert* ribbon. In PowerPoint 2011, you add a text box by selecting the *Text* icon on the *Home* ribbon and choosing *Text Box*. You will need to click and drag your cursor to set the size of this or the active selection will default to the nearest placeholder text box or your newly inserted graphic.

Add whatever name you want for your proposed company. The example here uses "Good Dog Dogs." You can now apply text transformations to make your new company name look more stylized. Try wrapping it in a circle or arching it from one end to the other. Once you have the text looking the way you want, click and drag to select both the clip art image and the text and create a group of these two objects. A completed example is shown in Figure 11.8.

Unfortunately, you cannot just leave your logo sitting in the middle of the slide; it will attract too much of the audience's attention and detract from the content you are going to add. You need to fade it into the background so that it can still be seen but everything else on your slide gets more of the attention. Keep a copy of the full-color logo for your title slide; that is one location where it should be allowed to attract attention. If your logo is new, like the one you just created, this gives your presentation a new identity or branding. If your logo already exists in

FIGURE 11.8
Example logo

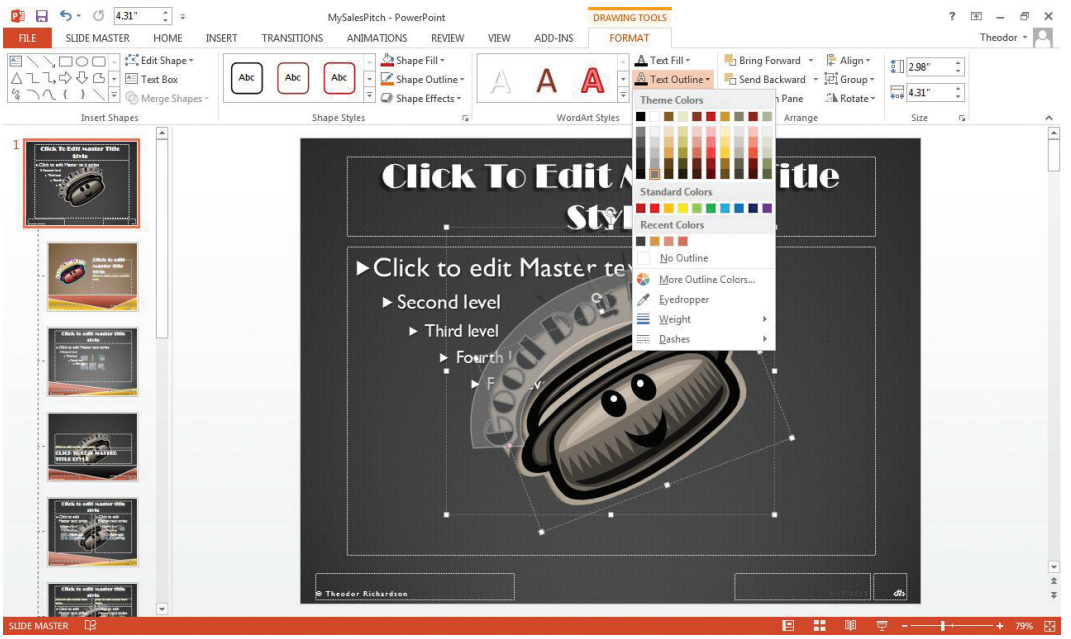
If you want a more advanced logo, you can add multiple layers to it using different pieces of clip art. You can even select certain pieces and use the picture formatting tools to remove the background of the image to make it align with the color of the background beneath it. You can also add drawing elements to your logo, such as the smiley face added to the logo in the example. Whenever you add drawing elements, you must set the color options manually; for instance, there is no single filter that you can apply for a grayscale version.

an organization, you are associating your presentation content with the culture of that organization.

Copy and paste your full-color logo to the Title Slide layout slide master. Once you have your color copy in place, go back to the Slide Master parent and click on the clip art graphic of your logo. Select the *Format* ribbon (or the *Format Picture* ribbon in PowerPoint 2011). Go to the *Color* (or *Recolor*) icon on the *Adjust* panel and select a color adjustment that sufficiently blends the image into your background. You can see an example of the completed blending in Figure 11.9. If you are using multiple background colors on the layouts for your presentation, you may wish to do this on each of the layout slide masters instead of the Slide Master parent. Just remember to keep the logo in the same location on each slide so it does not change locations as you click through your slides.

Now you need to alter the text of your logo to fade it into the background along with your graphic. You make these changes using either the *Font* panel of the *Home* ribbon or the options available from the *Format* ribbon. Change any part of your text that is too distracting from the background color to something more appropriate. Anything that creates too much contrast with the background will draw too much attention. You can use the defined colors for your color scheme to help fade the text more effectively. You can generally use the same offset color that you used for the graphic to fade your text. The color names are located along the top row in the Theme Colors area on the drop-down menu of either the *Font Color* icon or the *Text Fill* icon; you can select the

▼ **FIGURE 11.9**
Blended logo



➤ **FIGURE 11.10**
Using theme colors to blend text

fade intensity from the column beneath the color name, as shown in Figure 11.10.

Resize your logo to a reasonable size and adjust the font size of the text to maintain the look that you established when you initially created the logo. One possible location for your logo is at the upper-left corner of the slide; this is where it will receive the most attention, but it also means you will be distracting your audience from the content that is on the slide. Having a sufficiently faded logo in the center of the slide is another possibility, but you have to make sure it does not take away the attention that

If your logo contains too much contrast to filter out using a fade effect, you can add a drawing object rectangle to the slide and set its color and transparency to match the slide background and place it on a layer above the logo but behind the slide content. This will lower the contrast produced by the logo without disrupting the look of the slide. You can see the effect of this in Figure 11.11, which shows the logo with and without the rectangle in place.

➤ **FIGURE 11.11**
Effects of a transparent rectangle (shown in the right image) on reducing contrast

belongs on the content of the individual slide.

Now select the entirety of your logo (the group you made), line it up where you want it on the slide, and send it to the back layer of the slide (*Send to Back*) using the *Arrange* icon. You can also do this using the right-click menu. You should see the placeholder text in front of your faded logo if you have done this correctly, as shown in Figure 11.12. Readers' eyes are naturally drawn to the area of highest contrast in an image, so make sure the text in your text boxes is formatted so it stands out over the logo.

Next you will need to go through each layout of your presentation and choose where the logo belongs and where it does not; this is a yes or no decision because your only option in each of these slides is to select or deselect the *Hide Background Graphics* checkbox (this is found under the *Background* menu in the *Themes* ribbon for PowerPoint 2011). The first stop is the Title Slide layout slide master. Because you should now have both a full-color logo and a faded logo on this slide, you will want to remove the faded copy. To do this, just check the box next to *Hide Background Graphics* (or *Hide Graphics*) on the *Slide Master* ribbon; your faded logo should disappear.

▼ FIGURE 11.12
Completed slide branding

You can remove background graphics in the regular design view for your presentation as well, so you will always have the opportunity to remove your logo from the background if it is too distracting; this option is found in the *Design* ribbon for PowerPoint 2013 when you are not viewing the Slide Master. Choose *Format Background* and then check the box to hide the background graphics in the pane that appears. Note that this will also remove the added slide decorations that are added by default to the theme. In PowerPoint 2011, this option is found on the *Themes* ribbon under the *Background* icon.

Click the *Save* icon to save your work if you have not already done so. Then click the *Close Master View* icon to get back to the regular design view. Now you are ready to start creating your presentation!

Activity 11.3—Creating Templates

If you have put sufficient effort into the formatting of your Slide Master and you wish to use your design later, you can save your presentation as a template file. To do so, click on the File *menu just as if you were*

saving the presentation normally. Use the example presentation for this chapter to create a template. Save your file Activity11_3 *and choose* PowerPoint Template *as the document type. Whenever you open a template file such as this one, a new presentation will open based on this style. Give it a try to test the results.*

11.3 CONSTRUCTING AN EFFECTIVE PRESENTATION

Remember the value proposition you constructed earlier in the chapter? Now it is time to put it into action! You will create your title slide now and then build your presentation from there.

If you have been following along with the example, your title slide should now contain your new logo. Notice that you cannot edit it from here; it is fixed in place from the Slide Master so you have to change it there if you need to alter its placement. Add a suitable title to your presentation; note that this is not your value statement. The title slide should be a quick placeholder to display as a short introduction to what you have to say, with your name or your organization name as a possible subtitle. The title of your presentation should draw interest as the audience gathers if you are using this for a live presentation; it should give some idea about the topic of the presentation, but it should do so succinctly. Whether or not you have a subtitle is up to you.

Outlining 11.3.1

You should always create an outline for your presentation before you start adding your content. PowerPoint is flexible enough to allow you to move slides and add slides as needed, but you need to make sure your message is delivered successfully throughout your presentation. Your goal in any presentation should be cognitive guidance rather than just information presentation. Without this higher level of information presentation, your audience is unlikely to retain for very long anything that you have shown them.

Create a rough draft of your outline on paper. You should focus more on the main topics that you want to present as opposed to the specific slides that you are going to include. You may have only a short time to present, so make sure you list out the main topics you absolutely must cover first. These topics should all contribute to the overall purpose of the presentation or they should be removed.

Repeat this process with secondary topics and so forth until you have all of the material listed that you are going to cover. Each time you add a new topic, you should evaluate the relevance to your overall

COGNITIVE GUIDANCE *is the presentation of information in a manner that does not overburden the cognitive load (or mental processing capacity) of the viewer or recipient while preserving the meaning of the information; this is a preferable way to share information, as it leads to increased retention and understanding.*

purpose and contribution. If it is not essential or meaningful to your presentation as a whole, it should be removed. You can now use this topic list to structure your presentation by constructing a meaningful map of these topics.

11.3.1.1 Adding Slide Notes

You can start to map your presentation from the rough outline that you have just constructed. Add a slide for each topic that you need to cover. You are not going to construct the actual slides at this point; you will save that for the second pass through your presentation. Instead, you are going to use the *Notes* pane that is visible across the bottom of the interface in *Normal* view to add an outline for what you want to cover in each slide. This is the one area where you can use as many bullet points as needed. You can use the tools available in the Font and Paragraph panels of the *Home* ribbon to format the text in this area, but you cannot add graphic elements like clip art. PowerPoint does not allow you to change the font color here or use text effects, either.

You should use the *Notes* pane for each slide and make an outline of what you want to present. You should not write out everything you are going to say word for word. These should be notes to guide you through your content instead of a set script to follow. If you notice your content for one slide getting too long, you should add a second slide for the topic and split the content between the two. Remember that while your notes will not be visible to the audience when you present, others will be able to view what you have written here when you share the presentation on your computer; keep that in mind when you outline your topics.

To help you outline and organize your presentation, PowerPoint 2013 allows you to add section names to your slides to organize them into logical groups. This allows you to make changes to a specific set of slides for one part of your presentation. Your audience cannot see these section names and they do not appear in your outline, so this tool is strictly for your convenience and organization. You can add a section by using the right-click menu or by selecting the *Section* icon on the *Home* ribbon. You can use either the right-click menu or the *Section* icon to change or remove these sections later. In PowerPoint 2011, use the right-click menu or select the *Insert* menu and then choose *Section*.

Best Practices for Outlining 11.3.1.2

There are a few guidelines you should always observe in constructing an outline or a map of your presentation. First, you should always get the attention of the audience with the first slide you present; this will be the second slide of your overall presentation. This slide is where the audience will determine how important your topic is to them and whether they will give you their full attention.

Your first slide should capture the attention of the audience and interest them in what you have to say. It should be relevant to your presentation, but it should not give away everything you have to say. Give your audience a quick preview of what you

Your title slide should just be a placeholder before you begin; you can think of it as the curtain that rises before a theater performance. The second slide in your presentation is actually the first slide that you should showcase.

are going to show them with your presentation, but do not give them a step-by-step breakdown; you want to emphasize the end goal with this slide. You need to present your main point to the audience three times; this repetition will increase the probability of cognitive recognition in the audience, which will insert the idea into memory. The first occurrence should be at the beginning of your presentation. The second should be as you walk the audience through the problem or opportunity on which your contribution is built. The last iteration of the main idea should be as a summary statement at the end of your presentation.

You need to guide your audience to an understanding of your perspective and show them the value of your main contribution. What you have to say is already important to you, but you need to frame it in such a way that the audience feels it is important to them as well. For example, in a research presentation, you should provide the background on the research problem for which you are presenting a solution; this will allow the audience to see the significance of the research that you have done.

Once you have given the audience your perspective, you should spend the majority of your time presenting what you have to offer. This should be done in a clear manner that the audience can follow from one step or slide to the next. Remember that they are building a cognitive map of this information as you present it, so jumping unexpectedly from a particular topic to something that is unrelated or inconsistent will disrupt that mapping process. Consider the level of prior understanding of your audience to help determine how much information you need to present to them to make it as coherent as possible.

When you have demonstrated the main contribution of your presentation, you should emphasize your main point. After all, this is what you came to say, so you need to make sure your audience realizes it. Once you have given your main contribution, you should add any action items that you want the audience to take with them. If they are responsible for some outcome from your presentation, you should deliver your charge to them at this point in your presentation.

Finally, you will add your summary and conclusion. Your summary should be brief and it should state your main contribution for the third time. A single slide should typically be sufficient for a summary; the audience has just experienced your entire presentation, so you should keep the summary short. If you have time for questions, you can add a slide to prompt the audience. A better practice, though, is to transition to a slide with your contact information or the contact information for your organization so people can follow up on their own and then simply ask if they have any questions.

THE 10-MINUTE MARK

Humans have a short attention span. Steve Jobs suggests that 10 minutes into your presentation, you need to do something different to focus attention back on yourself and what you have to say. You can provide handouts at this point, show a video, or otherwise get the audience to react to you and reengage.

11.3.2 Grabbing Attention in Your First Slide

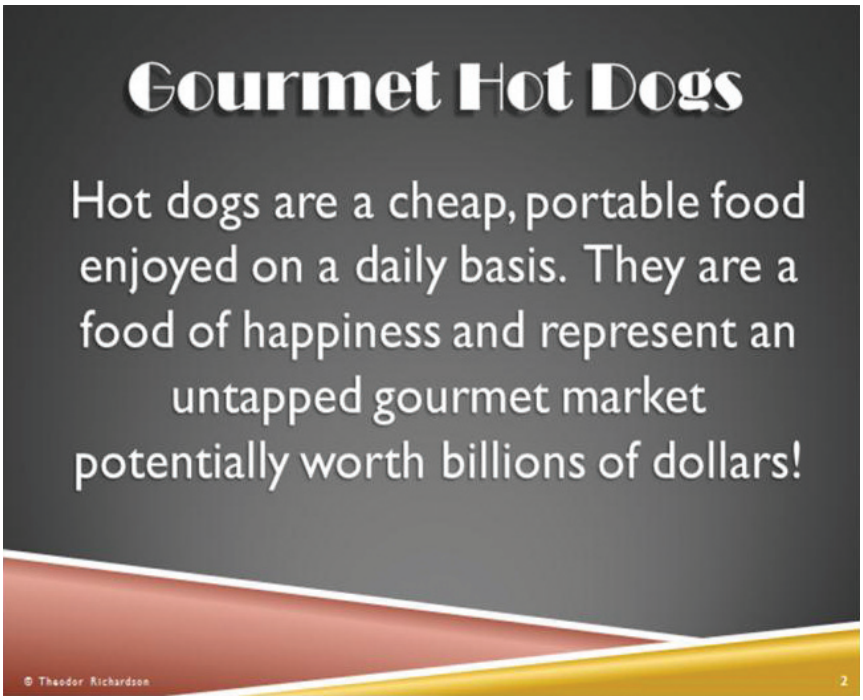
The first slide of your actual presentation is where you need to grab the audience's attention. If this is a sales pitch and you fail to capture them at the beginning, the likelihood that they will tune in later is slim. There are a lot of different ways to accomplish this. If this is a research presentation, you can build a mystery with an image or a result that the audience wants to see unfolded. With a sales pitch like the one in this chapter, a clear value statement is one way to begin effectively. You should refrain from adding fancy graphics to a text statement here because you do not want to give the impression that you are trying to distract the audience from your main idea.

Video can be a great tool to assist a presentation, but it needs to be short and relevant. If you are nervous presenting in front of a crowd, you can include a short video in your first slide to allow you time to calm yourself before you have to start presenting in earnest. You can insert a video in PowerPoint from a file or from a Website. To add a video in PowerPoint 2013, click the *Video* icon in the *Insert* ribbon and select the option you want; in PowerPoint 2011, select the *Media* icon on the *Home* ribbon. The next chapter will give you more specific guidance on including videos in your presentation and formatting and editing them appropriately. If you are constructing a sales pitch, a short video of interviews showing the market need or demonstrating your product is a great way to grab attention at the outset of your presentation.

On the design side, you should evaluate whether your statement stands out well enough with the color scheme you have chosen. If the contrast is not sufficient to showcase your text, you can change the background style to correct the issue. On any slide in Normal view, you can select the *Format Background* icon on the *Customize* panel of the *Design* ribbon to change your options based on the theme you have selected; this is found under the *Background* icon in the *Themes* ribbon in PowerPoint 2011. Unlike a change in the layout slide masters, a change here will change all of the background styles for the entire presentation. If you need to make this adjustment, you may want to open your Slide Master view and make the design change there instead. Make sure your footer appears correctly on this slide as well. You can see an example of an opening slide in Figure 11.13.

11.3.3 Build the Need for Your Presentation

No matter what type of presentation you are developing, the next step is to give the audience the background of why they should care about the problem or opportunity you are attempting to solve or exploit with your presentation. This is true of research presentations, marketing presentations, and simple information presentations. You cannot fully deliver the value of what you are offering if your audience does not share a similar perspective on the situation to which your solution or contribution operates. You have to build the problem statement for them in language they understand so they will at least have enough



▲ **FIGURE 11.13** Example opening slide

buy-in to listen to your proposed solution or product.

Always remember who your audience is. Do not waste their time or yours telling them what they already know. Similarly, do not give them a reading assignment with all of the text on your slides, especially if you are presenting in person. The problem formulation should be succinct but clear. The level of detail you add should be determined by the expected audience.

For the example presentation here, it is necessary to build the case for the existence of a market for a new product. Some quick research using the Internet will assist with this, though as always you must evaluate the legitimacy and credibility of any source on the Web. For this example, the Website of the National Hot Dog & Sausage Council (*www.hot-dog.org*) provides statistics regarding the average annual consumption of hot dogs and the locations where they are most consumed to support the establishment of a market for the product being offered. To turn this into a meaningful part of the presentation, you need to pull some impressive data from this and engage the audience with some fun facts. The text of your slides should be easy to read and interesting for your audience, even if they do not have the slightest interest in hot dogs!

Your text size should never fall below 24 pt font for anything your audience is expected to read. When you have a few key facts to present but they all have a significant amount of text, you can choose a two-column layout to keep the font size high and keep the text on one slide, as shown in Figure 11.14. You can change the layout of the slide by clicking on the *Layout* icon on the *Slides* panel of the *Home* ribbon. In general, you should not use more than two columns for any presentation because it becomes too difficult for the audience to read when there is too much visual information to absorb at once.

Never forget to cite the source of your facts in your presentation. One way to do this is by using the footer; always be sure to give proper credit for any text or facts that are not your own. At the very least, you should have the full citation of the source in the Notes section of the slide on which you use that information.

◀ FIGURE 11.14
Example of two-column slide layout

Guidelines vary, but the general consensus seems to be a target of three and a limit of five facts or bullet points per slide for a live presentation. Some professional designers, such as Trine Falbe, even argue that each slide should have its own point and more slides are better than cluttered slides; she argues against the use of any bullet points at all. More than numerical restrictions, the clarity and readability of the slide are the most essential qualities. Keep it clear and keep it concise. Your audience needs to be able to digest any text that you have on your slide while listening to what you have to say.

You can be more liberal with the amount of text you include in a standalone presentation, but you must remember that slides are not pages of text. Focus on how to effectively frame the problem that you want to solve or the opportunity you want to exploit. In the example, you want to show that there is a substantial market for your product. You should try to quickly build suspense with the audience so they are interested in the solution and your contribution. Too much background will overshadow what you have to offer and will usually cause the audience to disengage from what you are presenting.

Present Your Main Contribution

11.3.4

The bulk of your presentation should focus on what you have to offer. It should again be clear and concise. It should showcase how you plan to solve the problem at hand or capitalize on the opportunity you just presented. Your audience can usually tell when you are stretching content or wasting time, just as you can tell when someone else is doing it to you, which means you need to keep them engaged while you present what you have to offer.

Keep your slides visually interesting by switching between the different layout options periodically without overwhelming your audience with the change. You can change the layout of the current slide by clicking the *Layout* icon on the *Home* ribbon and selecting one of the options. If you have constructed your Slide Master well at the beginning, you should only need to make minimal changes to the existing layout slides, which will go a long way toward providing consistency and identity to your presentation.

In this example, additional slides have been added to showcase the planned idea and business model. This type of content should be the bulk of your presentation and should be clear to the audience. Experiment with the different layouts to find what works best for your business case.

11.3.4.1 *Effective Visualization*

Research has shown that the most effective way for people to retain an idea is for them to experience it visually while it is explained to them. This process is termed *dual-channels*. A person has two separate concurrent brain processes that take in information during a presentation: one is the verbal component and the other is the visual component. This same research has concluded that the visual component is superior (termed the *picture superiority effect*), but the best retention comes from the visual component supporting the verbal component. What this means for your presentation is that you need to make sure your visuals supplement what you are saying instead of substituting for it. In essence, your words will be attached to the image you present in the mind of your viewer. Bullet points and lengthy text do not form a concise image in the mind, meaning this retention will not occur if you oversaturate your slides.

The Notes section can contain as much text as you like, but each slide should present only what is absolutely essential. If you can present the same idea with an image or graph, it is better to do so. You should not use the text on your slides as a crutch for your presentation; you should rehearse your presentation well enough that you recognize the points you have to make based on the visual information of the slide. Find the layout that supports the information you are presenting and tie all of the information on the slide together into a single message as much as possible. If you cannot pull all of the information in your slide into a single coherent thought, you need to split the information into multiple slides.

11.3.4.2 *Modifying Layouts*

You can change the layout of your slide to any of the preset options by selecting the *Layout* icon on the *Home* ribbon and then selecting which option you want to use. How the information is presented is as important as what information is presented; you can see an example of this in Figure 11.15 where the same information is presented in two different ways. Chapter 12 contains more advanced analysis and instructions for including some additional visual elements in your presentation to make it more exciting and interesting.

FIGURE 11.15 The same content in two formats

11.3.4.3 *Tips for Success*

Keep the following tips for a successful presentation in mind:

- Make your font large enough to read. When in doubt, walk six feet away from your screen and try to read your slide.
- Use bold formatting or an increase in word size to emphasize words and terms in your presentation, but use these sparingly. Italics typically make the text harder to read from a distance, so it should be avoided.
- Never change the font color for emphasis. Too many colors distract the audience and keep the eye from focusing on any one area, making it difficult for the viewer to read the text cohesively.
- If you have different colors of text (such as a hyperlink), keep them within the color scheme chosen for the overall theme.
- Keep your content brief and to the point. You are creating your presentation to engage the audience.
- Create a presentation you would want to see. If it looks bad to you, it will probably look bad to your audience!

Summarize and Conclude 11.3.5

Your summary and conclusion should reemphasize your value statement and your contribution without repeating it word for word. It should be the final bit of information that you leave with your audience for them to consider. One or two slides should be the maximum for your summary and conclusion; you should not be introducing new information here and you do not want to repeat the entire presentation since the audience has just experienced it. The main purpose of the summary and conclusion section is to provide a third repetition of the main point you want to convey.

Your final slide should contain your contact information for anyone who wishes to follow up with you. If you are part of a team, you should include the contact information for all the team members and the areas for which each person is responsible. Make sure your contact information is displayed long enough for anyone in the audience to copy it down if they wish to follow up on your presentation.

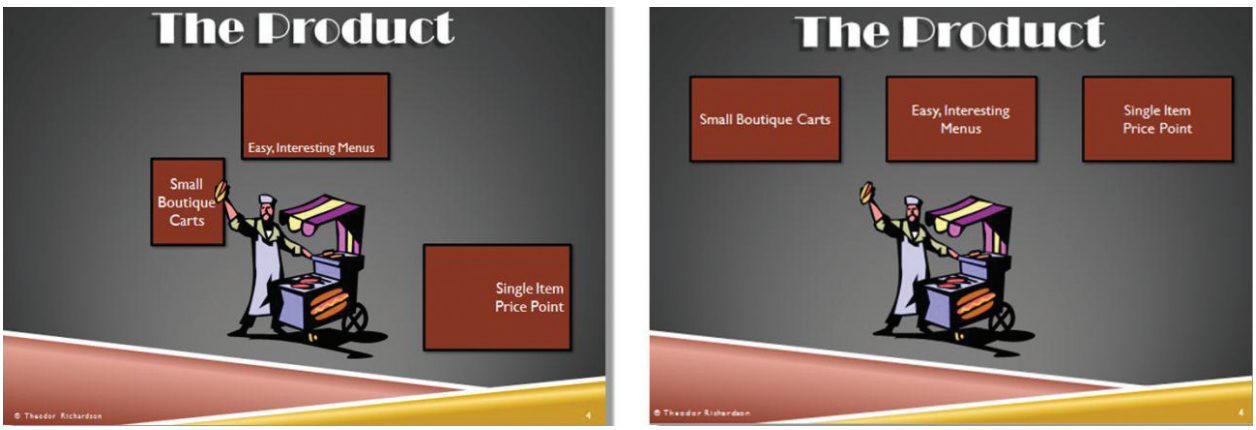
There are some great SmartArt graphics that allow you to format contact information for multiple contacts clearly and effectively. The topic of inserting and formatting SmartArt is covered in Chapter 12.

If you are sharing a presentation document as a supplement after you have presented it, you should adjust the slide for questions to direct the viewer to the person who can answer them. For instance, you would want to change the text "Questions?" to something like "If you have questions, you can contact…" This small change will increase the professionalism of the result.

It is common to include a slide seeking questions from the audience. Your venue should dictate whether this is allowed or feasible. If you decide to include such a slide, you may want it as a precursor to your contact information or concurrently with your contact information. The slide containing your contact information is the one that should linger on the screen for a live presentation while you field questions because it will allow audience members to copy down your information if they do not wish to ask questions in public or if there is not enough time to get to them.

Now that you have completed your presentation, you should view it to make sure it is coherent and presents the message you want with the clarity it needs. You also need to check the alignment of your images and drawings to make sure they are correct. Misalignment can be distracting to your audience and can ruin the impact your graphic would have otherwise had; an example of the effect alignment has on a graphic is shown in Figure 11.16. Your design work may be complete, but there are several things you still need to do before your new masterpiece is ready for public consumption. If you are giving a live presentation, you will need to prepare your timings and rehearse. If you are sharing your presentation via the Web or another mechanism to present on an individual computer, you can either record your narration or set up your presentation so it plays automatically with the timings that you have defined.

▼ FIGURE 11.16
The effect of alignment on a graphic



11.4 PRESENTING YOUR MASTERPIECE

Your presentation is a performance piece. Like any theater performance, you need to make sure you rehearse what you have to say so you can present it coherently and with authority. This applies whether you are in front of a live audience or recording your narration. You should never find yourself in a situation where you are reading the slide contents to the audience; doing so will cause them to disengage from what you have to say and will give you the appearance of being unprepared. Whether or not you like being in front of an audience, you should just be yourself. You do not need to pretend to be more serious than you are.

You, not the slides you are presenting, will engage the audience. You should not be afraid to make them smile and you do not have to be perfect; in fact, the audience will accept you better if you come to them prepared but present as yourself. Most presentation software gives you a variety of options for practicing your slide timing, and PowerPoint gives you the option of directly recording narration for your slides. You can also broadcast your presentation live and even save it as a video to share if you are using PowerPoint.

11.4.1 Live Presentations

You should go through your notes enough times to be familiar with the content you are presenting. This is true whether you have created the presentation or you are just presenting it on someone else's behalf. Your audience will disengage if you start reading the slides to them, so you should have an idea of what you are saying without using the written text on the slide as a script. You should know your presentation well enough that you recognize the topics you need to cover on a particular slide based on the slide graphics alone.

You can practice your slide timing using the *Rehearse Timings* icon on the *Slide Show* ribbon. This will start your presentation in Slide Show view with a clock and a small interface for moving your slide show forward or repeating the current slide, as shown in Figure 11.17. PowerPoint 2011 gives you a larger interface called Presenter view (also shown in Figure 11.17), where you can see your notes as well. This will tell you how long you are spending on each of your slides, which is helpful information if you need to present within a fixed time limit. When you are finished with your rehearsal, you will be prompted to save your slide timings. If you choose this option, your slide show will stay on each of the slides for the set amount of time that you took to cover the material and will switch to the next slide automatically when that amount of time has passed.

If you have multiple monitors attached to your computer, such as the regular display monitor and a digital projector, you can select *Use Presenter View* on the *Slide Show* ribbon when you wish to present. This option allows you to select which monitor will display the show in Slide Show view and which monitor will show the special Presenter view, which contains the slide show and your Notes section for the current slide. Using the

➤ **FIGURE 11.17**
Rehearse Timings interface

Presenter view can be helpful when you are making your presentation, especially if you encounter a particularly difficult topic and want to make sure you present the correct details. However, you should not rely on the Notes section of your presentation to speak to your audience. It is always better if you know your presentation well enough to talk to the audience without continually referring to your notes or your slides.

When you are in Slide Show view (or the local Reading view equivalent) in PowerPoint 2013, you can use your mouse as a laser pointer on the slide to highlight information. The default behavior of the mouse in this view is to advance the slide just like the spacebar or the right arrow key; however, when you hold down the *Control* (*Ctrl*) key and left-click the mouse, the cursor will appear as a laser point on the screen for as long as you hold the left button down. You can record this mouse movement during the default recording process that is explained in the next section. The color of the laser pointer cursor can be set in the dialog box that appears when you click the *Set Up Slide Show* icon in the *Slide Show* ribbon. Figure 11.18 shows the dialog box and the pointer in action.

If you need to mark up your slides to highlight information, both PowerPoint 2013 and PowerPoint 2011 give you the option to change your mouse cursor to a pen. To access this, simply right-click on

➤ **FIGURE 11.18**
Using the mouse as a laser pointer

your slides in Slide Show view and select the *Pen* option. This will change your mouse to a pen for the current slide. You will have to advance the slide using the spacebar or arrow key, but the default mouse behavior will be restored on the next slide.

11.4.2 Recording Narration

If you are sharing your presentation on an individual computer screen, you may find it beneficial to record narration instead of just sharing the slides themselves. In fact, if you have constructed the slides successfully, you will need narration to support them. In PowerPoint, you can easily record narration using the *Record Slide Show* icon. This will prompt you for preferences and allow you to select whether you want to record your narration from the beginning of the presentation or from the current slide. After you have set your options, you will be presented with an interface that looks just like the rehearsal interface except it includes an icon to pause and resume the recording.

When you have completed your recording, you can review the narration by selecting the Slide Show view (you can do this quickly by pressing *F5*). The narration will play just like the animation and transitions in the preview mode. The individual narrations will appear as a small audio icon in the lower-right corner of the slide and they will play by default when the slide is reached in Slide Show view. If you do not want to keep a particular narration in PowerPoint 2013, select *Clear* from the drop-down options under the *Record Slide Show* icon. In PowerPoint 2011, you can record the presentation again to save over the previous narration.

In order to record sound on your machine, you must have a sound card and a microphone connected to the audio input line of your computer. Most computers have a default internal microphone that you can use automatically, but not all of them do!

11.4.3 Sharing Your Presentation

You can share your presentation document just like any other file. It can be emailed or placed on transferrable media to share. Be aware, however, that you must include any linked media along with the native presentation document or the media will not be transferred.

In PowerPoint, you have the option to save your presentation document as a PowerPoint Show. To do this, use the *Save As* function and select the document type *PowerPoint Show* (*.ppsx*). If you save your document in this manner, it will open in Slide Show view whenever a user clicks on its icon. The presentation cannot be modified in this format, but the viewer does not have to have PowerPoint installed to view the show; the presentation uses the Microsoft PowerPoint Viewer software instead. This document type is a good choice if you do not want anyone to see the notes you have attached and you want the viewer

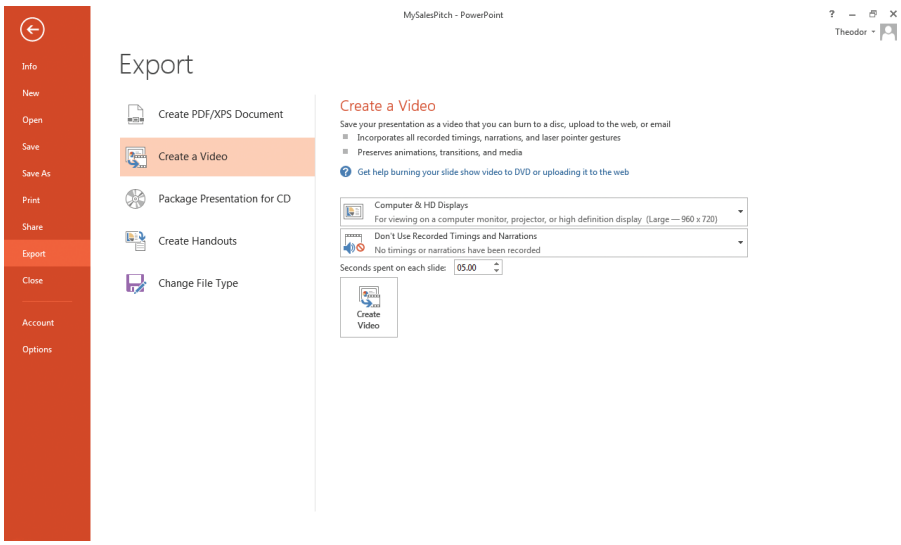
LINKED MEDIA *is any file that has been added to the presentation by reference that is not embedded into the presentation document itself. An example of this is a file that opens as a result of an action being activated.*

to experience the presentation as you have scripted it. The drawback of this format is that included elements like video are dependent on the properties of the host machine the viewer is using and may not work as you intended.

The latest versions of PowerPoint have overcome this limitation by providing the ability to save your presentation as a video. In PowerPoint 2013, you can save your presentation as a video by clicking on the *File* menu and selecting *Export* and then *Create a Video*. This will open a new menu of options where you can select the video resolution you want, whether you want to use recorded narration and timings, and if you want to spend only a set amount of time on each slide. Once you have selected your options, click the *Create Video* icon beneath the settings, as shown in Figure 11.19. This will open the Save As dialog box where you can save the presentation as a *Windows Media Video* (*.wmv*). This format will include all of your content in the video except Apple QuickTime movies and elements that require third-party software to display. You must also update linked media from any Office 2007 (or prior) content that is still included in the presentation for it to be included in the video.

PowerPoint 2011 offers you the ability to save your presentation as a *Movie* (*.mov*) through the regular Save As function. You can adjust the settings for your movie by clicking the *Options* icon on the Save As dialog box with *Movie* selected in the *Format* box.

PowerPoint also offers you the option of broadcasting your presentation in a live synchronous environment. This service is available for all PowerPoint 2013 and PowerPoint 2011 users, but it does require you to have a Windows ID. Clicking the *Present Online* icon in PowerPoint 2013 or the *Broadcast Slide Show* icon in PowerPoint 2011 on the *Slide Show* ribbon will prompt you to log in using your Windows ID and password (if you are not already connected to your account in PowerPoint 2013). The software will then generate a public link you can



➤ FIGURE 11.19
Create a Video option in PowerPoint 2013

share that can be used by up to 50 viewers to access your presentation live over the Internet whether or not they have PowerPoint installed. This will play your presentation in a special Broadcast view, which allows you to control your presentation as you would in a live setting. Once you have finished your presentation, click *End Broadcast*; this will terminate any viewer connections to your presentation and the link will no longer be valid. You should note that the only audio that will be shared in this format is what is recorded within the presentation.

Activity 11.4—Exporting Your Presentation

Using the presentation you constructed in this chapter, you will export it as a video. Follow the instructions given for your version of PowerPoint and note the options that are available for the video settings. Save your video as Activity11_4 *in the* Activities *folder you created. Play back your video to see the end result.*

CHAPTER SUMMARY

This chapter focused on the effective use of presentation software to impact your audience and assist you in presenting what you have to say in the best possible manner. Using a Slide Master and predefined formatting options, you can quickly create the design of your presentation to allow you to focus on the content, which is by far the most important aspect of any presentation. You should also now have an understanding of how to share and present your new slide show. You can see the completed slides for the chapter example in Figure 11.20. This should give you a comparison for the structure and presentation of your own work. The next chapter will focus on additional graphic enhancements and media you can add to enliven your presentation even more.

FIGURE 11.20 Completed chapter example slides

CHAPTER KNOWLEDGE CHECK

1 A _____ is what you have to offer to whoever is viewing your slides or listening to your presentation.

- ◯ **A.** Value proposition
- ◯ **B.** Brief summary
- ◯ **C.** Value add
- ◯ **D.** Proposal

2 The _____ is the option that allows you to set up your initial presentation style.

- ◯ **A.** Slide list
- ◯ **B.** Content
- ◯ **C.** Slide Master
- ◯ **D.** Theme menu

3 Readability should be the highest consideration when you are choosing which fonts to use in your presentation, followed by aesthetic coherence with the overall presentation.

- ◯ **A.** True
- ◯ **B.** False

4 PowerPoint has a number of preset color schemes from which you can choose; once you choose a theme, this setting will default to the color scheme that matches that theme.

- ◯ **A.** True
- ◯ **B.** False

5 You should start your presentation with your overall _____ and your _____ proposition in mind.

- ◯ **A.** Idea, value
- ◯ **B.** Value, business intelligence
- ◯ **C.** Idea, proposal
- ◯ **D.** Idea, simple

6 To configure a text shadow, select _____ from the menu beneath the preset options.

- ◯ **A.** Design
- ◯ **B.** Transitions
- ◯ **C.** Shadow Options
- ◯ **D.** Slide Orientation

7 Three points to keep in mind toward the development of a successful presentation are the following:

- ◯ **A.** Idea, value proposition, consistency
- ◯ **B.** Proposal value, idea, consideration
- ◯ **C.** Idea, value, reliability
- ◯ **D.** None of the above

8 Creating too much contrast with the background will draw too much visual attention.

- ◯ **A.** True
- ◯ **B.** False

9 On the Master Slide view, you can select the *Background Styles* icon on the Background panel of the *Design* ribbon to change your options based on the theme you have selected.

- ◯ **A.** True
- ◯ **B.** False

10 You can practice your slide timing using the _____ icon on the *Slide Show* ribbon.

- ◯ **A.** Rehearse Timings
- ◯ **B.** Animation Timing
- ◯ **C.** Duration
- ◯ **D.** Advanced Slide Timing

CHAPTER REVIEW QUESTIONS

1 Why might this chapter suggest that advanced users should manually stylize slides rather than using the slide master? How would this be beneficial?

2 What is the importance of the value proposition? How does it serve to guide the rest of the presentation?

3 When including a PowerPoint as a part of an overall marketing campaign, what factors should be considered to promote clarity, consistency, and cohesion?

4 How do you make audiences believe in what you are presenting to them? What are some strategies you can use to create a need for your presentation?

5 Is there an advantage to sharing your presentation in person versus sharing your presentation through various media technologies such as the Web?

6 Describe the benefits of using the practice mode to time your slides before presenting. How else can you prepare for a live presentation of your PowerPoint slides?

7 When would it be beneficial to construct a PowerPoint to be turned into a video? How could this be applied for sharing information? When would this be useful considering there is dedicated video editing software available?

8 Compare two different venues that would have different requirements for a presentation. Describe the venues and the effect it would have on the choices of font and color in a PowerPoint presentation.

9 Explain why it would be better to adjust the font, bullets and numbering, and color of text in a slide master instead of in the presentation itself. Give an example of when you would want to change this in an individual slide instead of a slide master.

10 Explore the slide master to determine whether you can apply formatting and effects to placeholders for media other than text (such as charts or images). State what changes can be made for these elements, if any. What would be the benefit of being able to adjust these properties in the slide master?

PRACTICE EXERCISES

1 Using the skills learned in this chapter, develop a 10-slide presentation on a topic of your choice using all three of the important considerations provided: the idea, value proposition, and consistency. Use the Slide Master to develop a consistent presentation by using a built-in theme and choosing formatting and colors that provide aesthetic coherence.

2 Develop a 10-slide presentation that explains a fictional business plan for an idea that you have for a new venture. Imagine that you are presenting to a group of potential investors who may finance your business idea. The investors have contacted you and advised that they are unable to visit you onsite and have requested that you share the presentation with them using narration. Integrate voice narration and timing into your presentation and prepare the file for sharing as explained in this chapter.

3 Using a fictional business, create a value proposition for a product you are launching. This should be a statement of no more than two sentences that outlines the benefits offered by your business' product or service. Create three alternate slides to present this information. Which of these is most effective? Why is this the case?

4 Use a value proposition to help you create a PowerPoint presentation for your grand opening. Design a presentation that will let the attendees know about your new business and what it offers that your competitors do not offer. Make sure to establish the presentation's visual style using a slide master. Write a summary of your theme choices. Make sure to include the elements that will affect where

and how you will be presenting your PowerPoint presentation. For instance, you might want to discuss your chosen venue's lighting and acoustic setup which will inevitably determine any constraints.

5 To ensure that you maintain your audience's focus, develop your 10-minute plan. If your presentation you created for your business is shorter than ten minutes, use the midway mark. Devise a plan to regain or refocus your audience's attention during your presentation. Describe your plan and develop any additional materials needed.

CHALLENGE EXERCISES

1 You will want to create a recognizable logo for your business. Using the tools available to you design a personalized company logo that you will place on each slide of your presentation. Include it in an appropriate place on your slides, and make sure to use a fade effect to make it more subtle. Then explain all of the visual elements you used to formulate your logo in a word document. Additionally, use the Word templates available to create a business card with that same logo.

2 Use the slide master to edit the properties for a blank presentation. Include either a logo or an image in the background and add a new layout type to the available slides. Save your work as a template and then create a new presentation based on the template. How do design changes in the new presentation affect the choices made in the template? What aspects of a template can be overruled without using the slide master?

3 Create a 5 slide presentation and prepare narration for each slide. Create a recording of your presentation and save it as a PowerPoint show. When would this type of media presentation be useful? How would you distribute a media presentation like this?

4 Select a layout in Slide Master View for a presentation that includes a specialized placeholder for either an image or a table. Format this placeholder using the various tools and then switch back to the normal view and create a slide using the layout you altered. What formatting elements are retained when you populate the placeholder with content?

5 Create a new presentation and determine whether it is possible to apply themes, color changes, and formatting only to select slides in a presentation. What changes in a presentation are global? What changes to a slide are local to that slide only?

CHAPTER 12

Advanced Features of Presentation Software

IN THIS CHAPTER

Now that you are familiar with the concepts of creating presentation documents, you can improve the impact you have on your audience with the use of advanced media. This chapter covers how to add more complex media elements into your slides and where and how to use them effectively. You will also learn how to create handouts to support your presentation and configure more advanced elements of your presentation content. When you have completed the chapter, you will be able to:

- Format and create handout pages to accompany your presentation
- Add advanced media to your presentation, including sound, video, tables, charts, and graphs
- Create animation within your slides and change the timing and start conditions for your animation effects
- Configure slide properties and define custom sizes and layouts
- Export your slides as image files

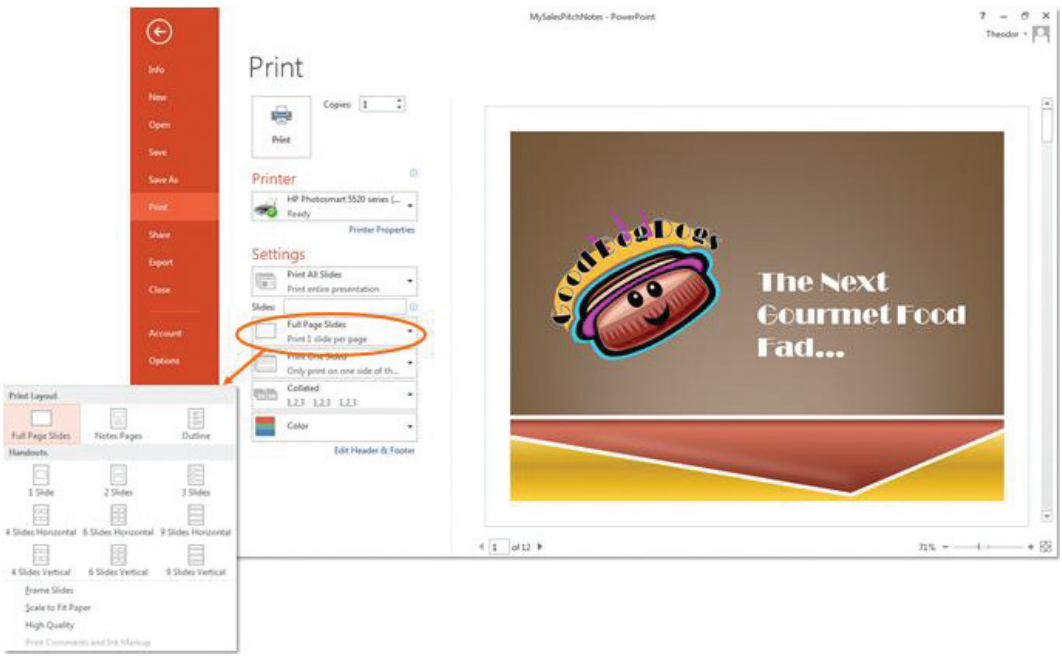
12.1 CREATING HANDOUTS

When you create a presentation, particularly one that is being presented live, you may want to also create handouts that you can distribute to your audience. You should make sure that any handouts you provide continue the narrative of the presentation in a way that enhances the audience's understanding. You should also be careful not to give out your handouts too soon, especially not before you present or as you begin your presentation. Your audience is always going to be more apt to pay attention to what is in their hands than what they are being shown or told.

There are two main types of handouts commonly distributed with a presentation; these are either miniature versions of the slides themselves as handout pages or a combination of the slide and the accompanying notes in notes pages. You can also print the slides themselves at one slide per page or print just an outline of your presentation, which contains only the text elements of your slides without the theme and background design or formatting and effects. You can preview this outline at any time by selecting the *Outline* tab in the *Slides/Outline* pane. The options for printing any of the handout types are available from the *Print* icon under the *File* menu in PowerPoint 2013, as shown in Figure 12.1. In PowerPoint 2011, you select the type of handout you want to print in the *Print What* entry of the standard Print dialog box (accessed by selecting *Print* from the *File* menu).

12.1.1 Modifying the Handout Master

The Handout Master will be used as a template automatically in PowerPoint whenever you are printing multiple slides per page. In PowerPoint 2013, you can



➤ **FIGURE 12.1**
Print options for PowerPoint 2013

customize the Handout Master by selecting the *View* ribbon and selecting *Handout Master*. This will open a context-sensitive *Handout Master* ribbon, shown in Figure 12.2. The *Design* ribbon will once again disappear until you close the Handout Master by clicking the *Close Master View* icon. To access the Handout Master in PowerPoint 2011, select the *Themes* ribbon, choose *Edit Master*, and then select *Handout Master*.

The options in the *Handout Master* ribbon allow you to make any of the four text boxes in the header and footer of the document visible or invisible. You can edit the contents of these text boxes in the preview document where you ordinarily see the slide you are creating. The default number of slides per page can be set in this ribbon, but you can alter that setting when you print the document. You will not see a preview of your slides on this page, and you cannot edit the slide contents while the Handout Master is open.

The text boxes in this master can accept text effects just like text boxes in any other slide. This means you can change the font, add effects, and change the font color and size. It is usually a good idea to at least change the font to match the rest of the presentation. When you are creating handouts, you are changing your presentation from a primarily visual medium to a printed one, so you need to keep the consistency of the entire package in mind. The font and color selections for the Handout Master affect this page only (and the printed pages that are based on it) and will not alter the design of the slides themselves.

Modifying the Notes Master

12.1.2

If you followed along with the example project in Chapter 11, you should have substantial outline notes in your sales pitch presentation. If that is the case, you can simply open your *MySalesPitch* file and work from

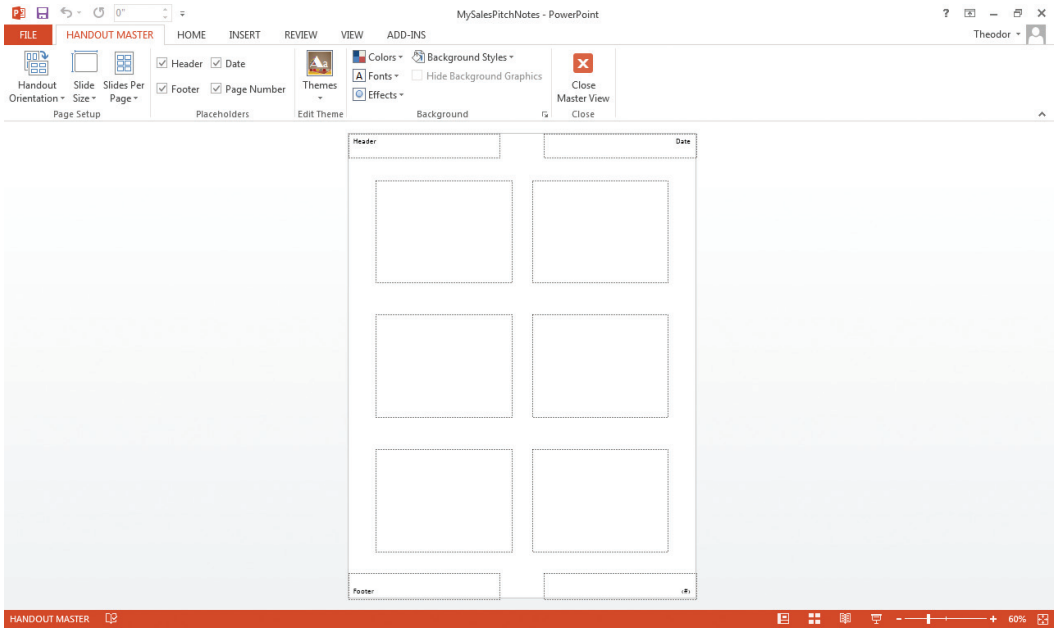


FIGURE 12.2 Handout Master interface in PowerPoint 2013

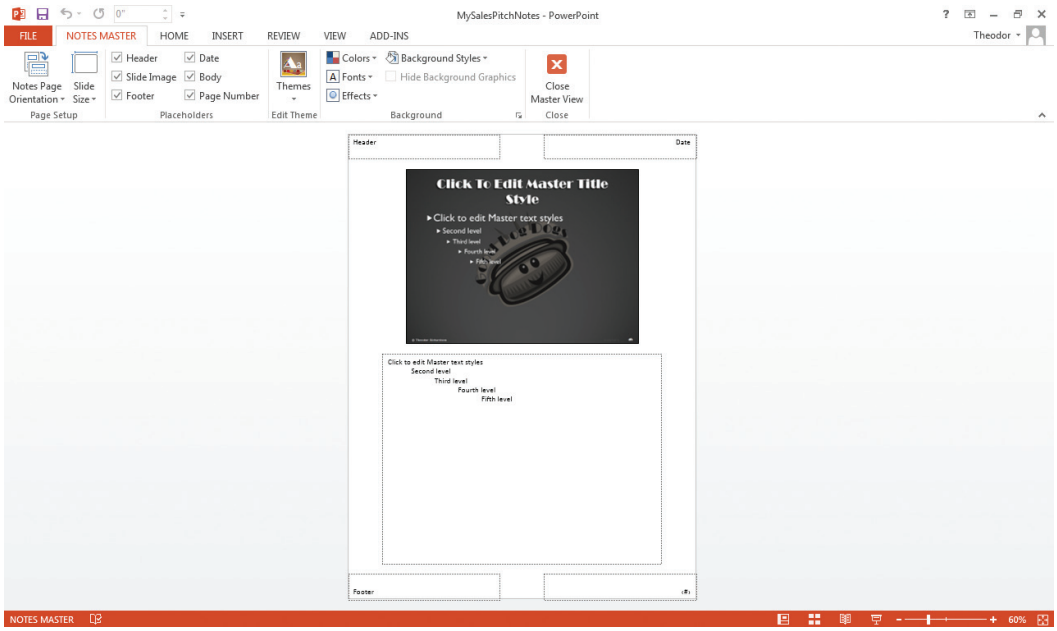
it. If you want to use an existing example to see how the Notes function works, you can open the *MySalesPitchNotes* presentation from the companion resources.

With your presentation open in PowerPoint 2013, click on the *View* ribbon and select *Notes Master*. This will open the Notes Master view, which has its own context-sensitive *Notes Master* ribbon, as shown in Figure 12.3. To access the Notes Master in PowerPoint 2011, select the *Themes* ribbon, choose *Edit Master*, and then select *Notes Master*.

You can format any of the header and footer placeholders in this view using text effects and the font and paragraph settings. You also have the option of setting a background style for the pages, but remember that the text elements need to be legible in print and any background you add will increase ink consumption. Be sure to also consider the quality of the handouts you will be printing when choosing to alter the color scheme of the text; if you are printing in grayscale, using a lot of color in the text boxes or for the background is not a good idea.

> While background options are not included in the main ribbon interface, you can format the background in PowerPoint 2011 by using the right-click menu. Just right-click inside of the page and select *Format Background*; this will allow you to alter the background as you would any other object.

The notes that have been written in the slides themselves will be formatted using the options you set in the placeholder text box for the notes in this view; this is where you can add effects such as shadows and reflections to your notes. However, you should make sure the effects fit with the theme of the presentation and the notes are readable in print format. You do not have the restrictions of screen projection to consider with the notes formatting, but the notes should



➤ FIGURE 12.3
Notes Master interface in PowerPoint 2013

be treated the same as any printed document. The outline levels in the notes text box of the Notes Master view can be formatted the same way as the outline levels of the Slide Master in the Slide Master view. You can alter the position of any of the text boxes on this screen as well, but the default layout is optimal for printing. Double-clicking the preview of the slide will open the Slide Master view and allow you to edit the Slide Master.

Activity 12.1—The Notes Master

Using the presentation for this chapter, modify the Notes Master to change the display of the slides in this view. Do these changes carry over to the normal view of the slides? When would you want to make changes to the slide display in this view instead of the Normal View? What options are available for formatting the text within the slide compared to the text of the notes themselves? Explore these options and save your presentation as Activity12_1 *in the* Activities *folder.*

12.2 ADDING ADVANCED MEDIA

A plethora of media options can be embedded into presentation software beyond the images and clip art that have been discussed so far. The key to using media effectively in your presentations is to make sure you are using it with the purpose and audience in mind. It is easy to overdo the amount of media in presentations, so you should restrict the media elements on each slide. For instance, if you add a video to your slide, the video should stand alone. If you have a table, it will be difficult enough for your audience to read, so you can add slight graphic enhancements to emphasize your point, but you should stay away from clip art on the same slide. Keep visibility and focus in mind for your audience.

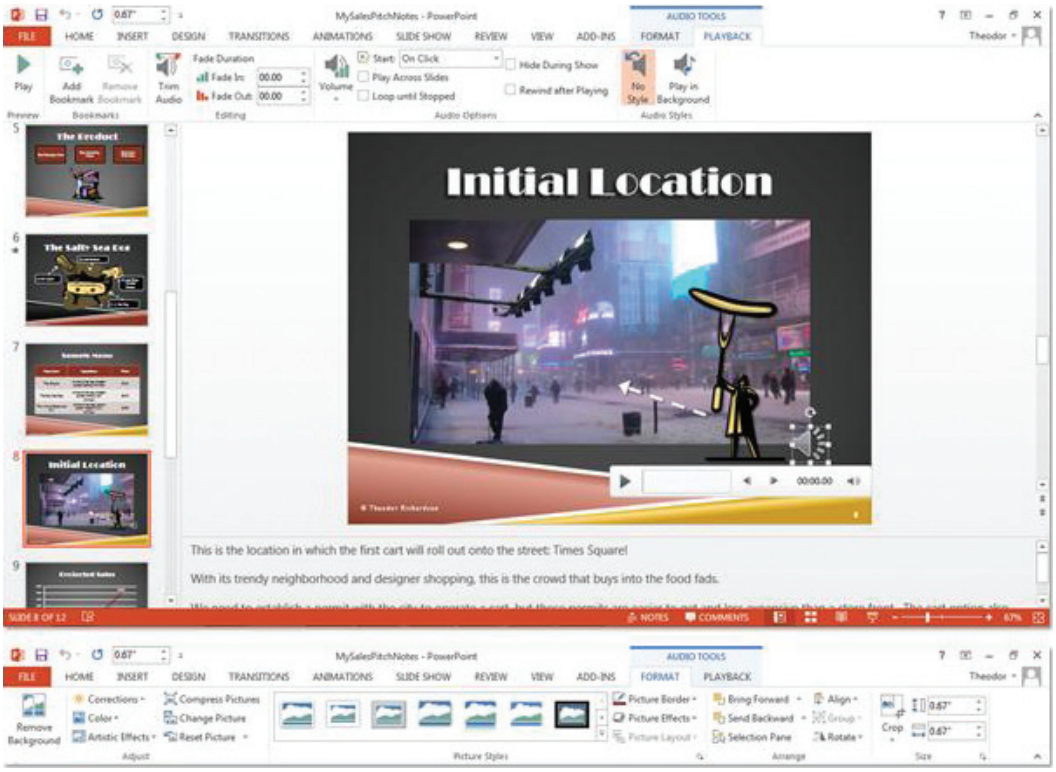
If you are distributing your presentation on the Web or presenting it on a machine that is not your own, you want to keep the file size of the presentation document in mind as well. Large files will not download as quickly and cannot be as easily shared; your audience may not have the patience to download a large file from a Website if they are only casually interested in a subject, which means they will not even give your presentation a chance if it is too big. By default, video and sound take up more file space than images and static text. Text and drawing objects do not require a lot of memory to store. Make sure the media you add is necessary or serves a purpose; otherwise, it should be removed. There is no absolute maximum size, but you should take care not to go too far over 2 MB for a casual presentation shared on the Internet. Most Internet connections can handle that amount of information in a short enough time that the user will not become frustrated while the presentation downloads.

Sound and Video 12.2.1

PowerPoint offers a lot of options for inserting sound and video into your presentation. Any sound that you add should be minimal, however. Harsh sound is disrupting to a viewer, especially when fade-in

effects are not used. Other than narrating the slides in a saved presentation, you should use sound only when it makes a strong point that a visual element cannot make. To add audio to your presentation in PowerPoint 2013, click the *Insert* ribbon and then the *Audio* icon; from here you can select Online Audio to access the Office.com library. To add audio in PowerPoint 2011, click the *Media* icon on the *Home* ribbon and select *Audio from File*. You can choose an audio file either from a file on your local machine or from the clip art collection.

A *fanfare* is a single-use audio file for a slide with a big reveal, such as the venue for your first business location. You should only use it once to get the attention of your audience and it should be short. This only works in a more casual setting; you should not use an audio interruption in a formal setting. You can find a suitable audio clip using the Office.com Clip Art window in PowerPoint 2013 and entering the keyword *fanfare* in the *Search for* box. Once you have selected your sound (you can preview sounds by holding your mouse cursor over each sound icon), you will see an icon that looks like a speaker appear in your slide. This is the action icon for the sound. When you select the action icon for an audio file in PowerPoint 2013, two context-sensitive *Audio Tools* ribbons appear, as shown in Figure 12.4. The two ribbons are the *Format* ribbon (which contains the familiar formatting tools you have seen used for images) and the *Playback* ribbon. PowerPoint 2011 has only the *Audio Format* ribbon, which combines the formatting options with a small number of



➤ **FIGURE 12.4**
Audio icon and Audio Tools ribbons in PowerPoint 2013

additional features from the equivalent *Playback* ribbon in PowerPoint 2013; the audio editing options in PowerPoint 2013 are not available in PowerPoint 2011. When you select the action icon for the audio file in your slide, a pop-up interface appears that lets you preview the file using the play button and set the volume.

The *Playback* ribbon (which is only available in PowerPoint 2013) has a number of useful features. The Set Bookmark feature lets you set where you want to start the audio clip or where you want to stop it if it should play from the beginning. You can then use the *Trim Audio* icon to access the *Trim Audio* dialog box, shown in Figure 12.5, in which you can cut off excess parts of the sound file that you do not want to play.

You can click and drag the green start slider and the red end slider to whatever section of the audio you want to keep. Having the bookmark in place will simply let you slide directly to that mark. You can also preview the audio in the *Trim Audio* dialog box, so it is possible to complete the same task without using bookmarks as you gain more experience. Click *OK* when you are finished to apply the trim. This process does not remove the trimmed ends from the file, so you can go back into the *Trim Audio* dialog box to make changes later.

> You can alter the volume setting for the clip, but be aware that this will be a relative value to the overall volume setting of the machine on which the slide show is being presented.

You use the *Playback* ribbon in PowerPoint 2013 to set the start trigger, or what causes the audio to begin; this can be when the slide appears or it can be triggered manually. Setting the Start option to *Play Across Slides* means the audio will continue even after the slide on which it was started is changed in Slide Show view. You can also set a duration for the Fade In and Fade Out options, which determines how long it takes the sound to start playing from zero volume to its set level or from its set level to zero volume, respectively. PowerPoint 2011 allows you to set the start trigger in the *Audio Format* ribbon by setting a value in the *Start* field.

Now it is time to add a video to the presentation. The video is going to be on the

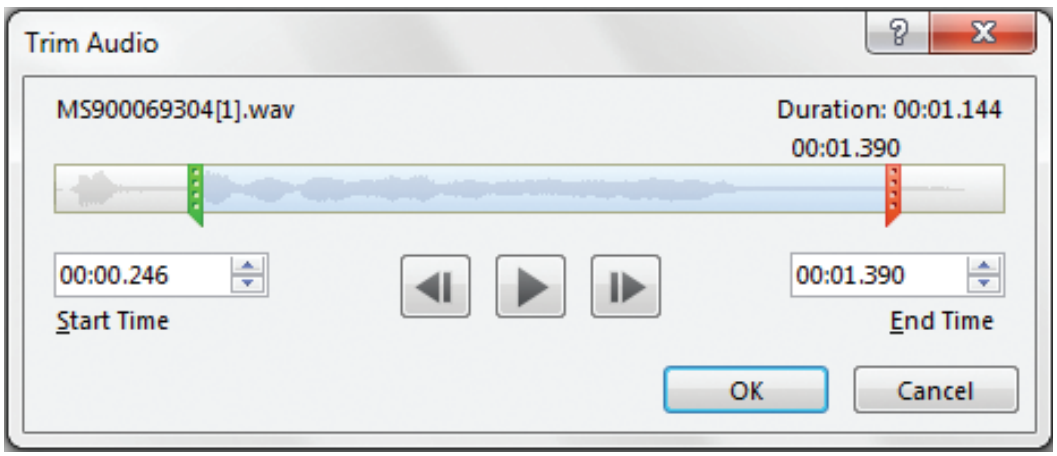
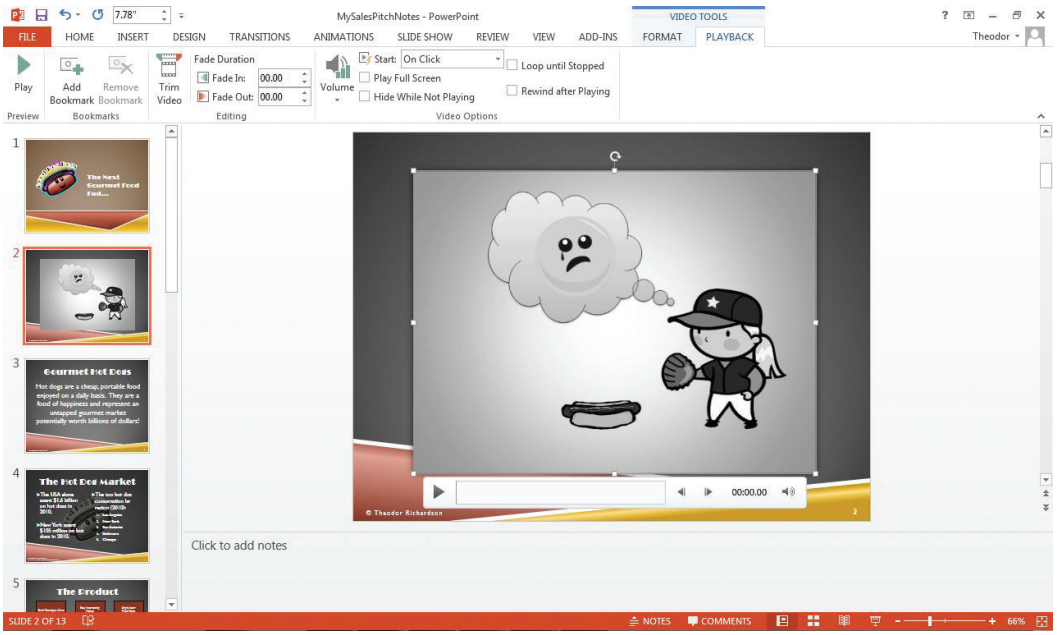


FIGURE 12.5
Trim Audio dialog box in PowerPoint 2013

PowerPoint offers the ability to insert a movie from the embed code of a Website in HTML format. Doing so does not give you the full options for video editing and will instead import the player that is used on the Website to display the content. It is usually a better choice to use a downloaded video in PowerPoint because you have more control over how it looks and how it plays. There are also a lot of copyright issues you need to consider with the use of any media file taken from the Web.

attention-grabbing first slide even before the value statement that you constructed. As this presentation is your first introduction to the audience, it should be something that gets their attention and introduces the subject of the presentation. Insert a new slide after the title slide with the default layout; this is where you will insert your video.

To insert a video in PowerPoint 2013, select the *Insert* ribbon and then choose the *Video* icon. You can also insert a video from a file using the *Insert Media Clip* quick link in a placeholder text box for content. The Clip Art library has some options available, but they probably are not worth using in the first 30 seconds of your presentation. You should ideally have a specific video in mind for this first slide. For this example, use the file *MySalesPitchVideo*. Once you have chosen your file, you will see the two context-sensitive *Video Tools* ribbons shown in Figure 12.6. The two ribbons include a *Format* ribbon, which is the same for audio and images, and a *Playback* ribbon that is almost identical to the audio equivalent. PowerPoint 2011 allows you to add a video from the *Media* menu in the *Home* ribbon; this provides you with the context-sensitive *Format Movie* ribbon, which has all of the formatting commands and a subset of the *Playback* ribbon options in PowerPoint 2013. When you select a video image in PowerPoint, you will see a small pop-up menu that allows you to play the file, adjust the audio, and move among any chapters that exist in the file.



➤ FIGURE 12.6
Video Tools Playback ribbon and pop-up Video menu in PowerPoint 2013

FIGURE 12.7 Formatted example of a video within a slide

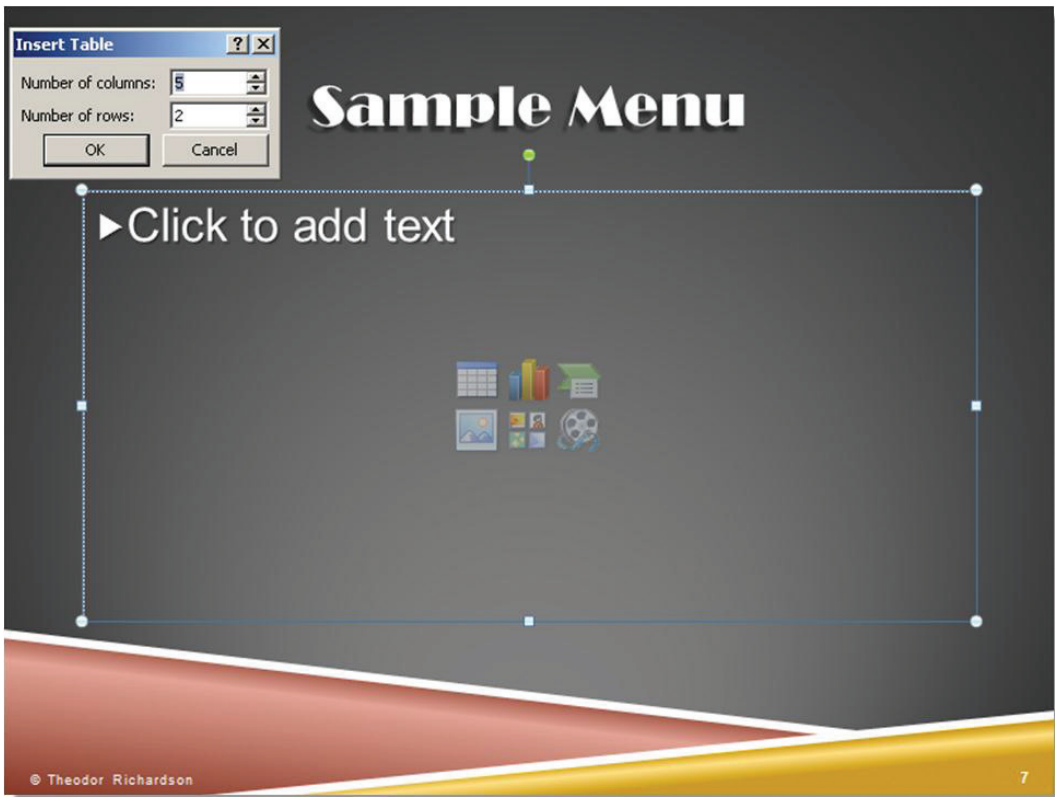
Most of the configuration options for video are the same as they are for audio. PowerPoint 2013 allows you to configure Fade In and Fade Out effects. Whenever you use a Fade In effect, though, the video screen will fade from solid black and zero volume; similarly, a Fade Out effect will fade to a solid black screen and zero volume. The Trim Video interface (again available only in PowerPoint 2013) has the same functionality as the Trim Audio interface, but it includes a preview of the video as well as the sound.

Whenever you are showing a video, it should take up as much of the screen as it reasonably can within your theming. You can remove the placeholder text box for a title to increase the screen size of the video and make the slide more visually interesting by selecting a unique look for the player. An example of this is shown in Figure 12.7.

Tables

12.2.2

Just as in word processing software, tables are a great way to provide visual organization for information. The difference between the use of tables in word processing documents and in presentations is the readability of the information in a table. In a written document, it is easy for the viewer to absorb the information and identify the relevant elements. This is not the case with a presentation. Anytime you use a table, you should either limit the text so the audience can read the entire table quickly or highlight a certain element of the table with additional visual notation so the audience knows where to look. Adding too many rows and



➤ **FIGURE 12.8**
Insert Table dialog box from quick links in PowerPoint 2013

columns turns the table into an eye chart for the audience at the back of the room. Remember that when an audience is reading, they are not listening to the speaker.

The next element to add to the sales pitch presentation is a short version of the menu. Add a new slide to your presentation after the slide that shows a graphic of a sample product. There are several ways to insert tables into a slide. The first is to use the quick links from one of the content placeholder text boxes. When you click the table icon, a small Insert Table dialog box appears, as shown in Figure 12.8, in which you can select the number of rows and columns you want for your table. When you have set these values, click *OK*.

Another alternative in PowerPoint 2013 is to use the *Insert* ribbon and click the *Table* icon. This opens a pop-up menu that allows you to highlight the number of rows and columns you want your table to have, as shown in Figure 12.9. You can access the same Insert Table dialog box from this menu that you could from the quick links on the placeholder text box. In PowerPoint 2011, you can add a table from the quick links or by selecting the *Table* ribbon and choosing the *New* icon; this will open the same pop-up menu where you can choose the number of rows and columns for your table.

The table in this example has four rows and three columns. Once you have selected the number of rows and columns for the table, you can start to format the table itself. Clicking and dragging any of the corner grab points or the midpoint grab points resizes the entire table. Clicking and dragging any

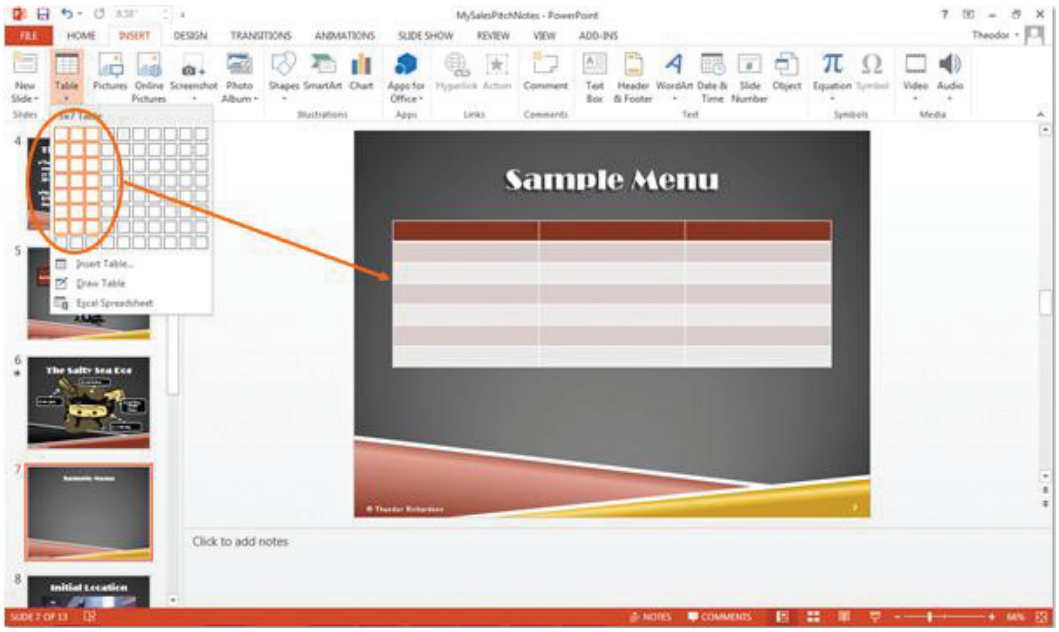


FIGURE 12.9
Table menu from the Insert ribbon in PowerPoint 2013

of the vertical or horizontal lines within the table resizes the table cells. When you select a table in PowerPoint 2013, two context-sensitive *Table Tools* ribbons appear, as shown in Figure 12.10. The *Tables* ribbon is always present in PowerPoint 2011, but when you select a table, the *Table Layout* ribbon appears.

The *Design* ribbon for the Table Tools in PowerPoint 2013 allows you to set up how your overall table will look; these options are found on the standard *Tables* ribbon in PowerPoint 2011. Checkboxes let you specify whether you want particular rows highlighted in a different color than the rest. The example uses the *Header Row* and *Banded Rows* options to increase the distinction between the elements of the table. You can select any of the predefined styles from the *Table Styles* panel, and you can also set the *Shading* color, *Borders*, and *Effects* options for the cell you currently have selected. The *Draw Borders* panel lets you define the

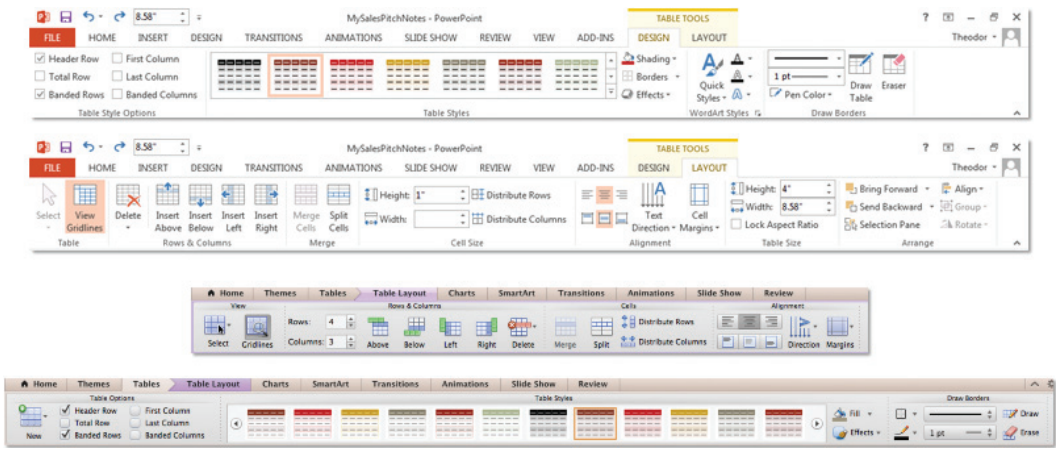
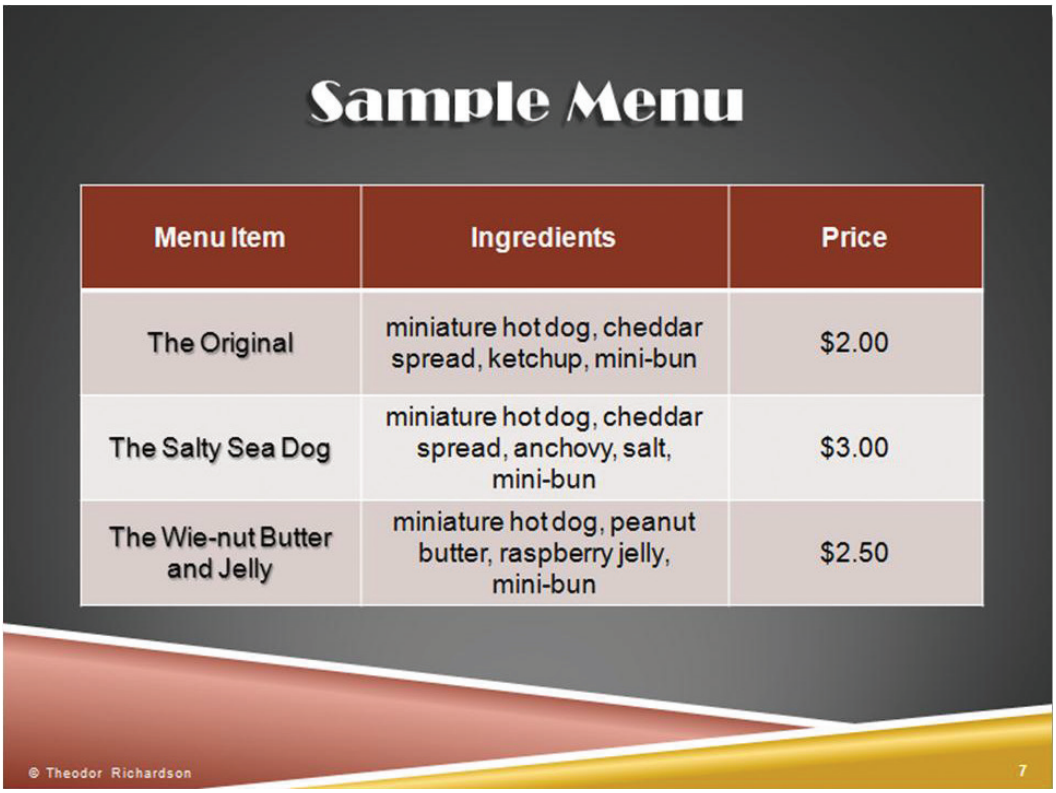


FIGURE 12.10
Table Tools ribbons in PowerPoint

➤ **FIGURE 12.11**
Completed table example



thickness and color of the borders for the currently selected cell (or cells).

The *Layout* ribbon for the Table Tools (or the *Table Layout* ribbon in PowerPoint 2011) allows you to modify the size of the selected cells, the size of the overall table, and the placement of text within the cells, as well as add or remove rows and columns. You can also use Merge Cells to merge multiple neighboring cells into a single cell of the table or Split Cells to split a single cell into multiple cells. The *Distribute Rows* and *Distribute Columns* icons will attempt to give each of the cells in your table an equal division of the height or width of the table, respectively. A completed example for the menu table is shown in Figure 12.11.

Remember that your table needs to be readable above all else, so if there is a particular cell or result you want to highlight, you can modify the look of that cell so it draws more attention. You can also add a drawing object like a circle to emphasize to your audience that they should pay attention to that particular element of the table. Long tables can interrupt the flow of a presentation just like a long list of bullet points, so make sure you use tables sparingly.

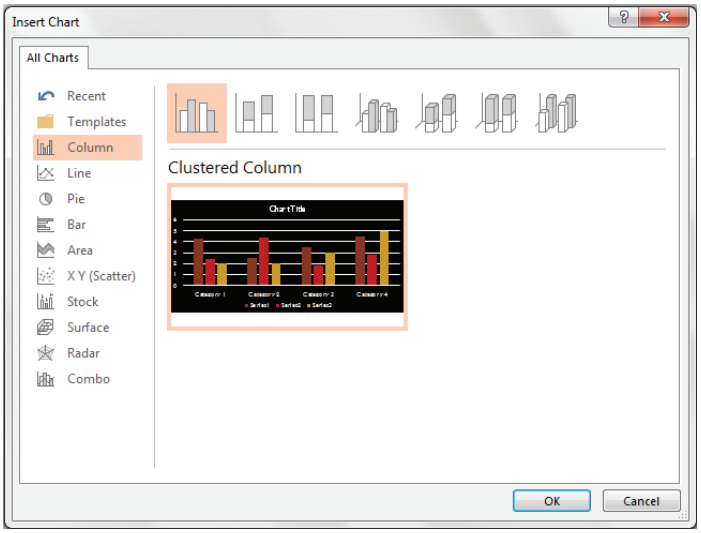
Charts

12.2.3

Charts are another great way to present data quickly. A chart can display a lot of complex data in a single visualization that may take a significant amount of text to explain. In PowerPoint, charts are built from Excel spreadsheet documents. Do not be intimidated if you have never used Excel before, as the example here just uses

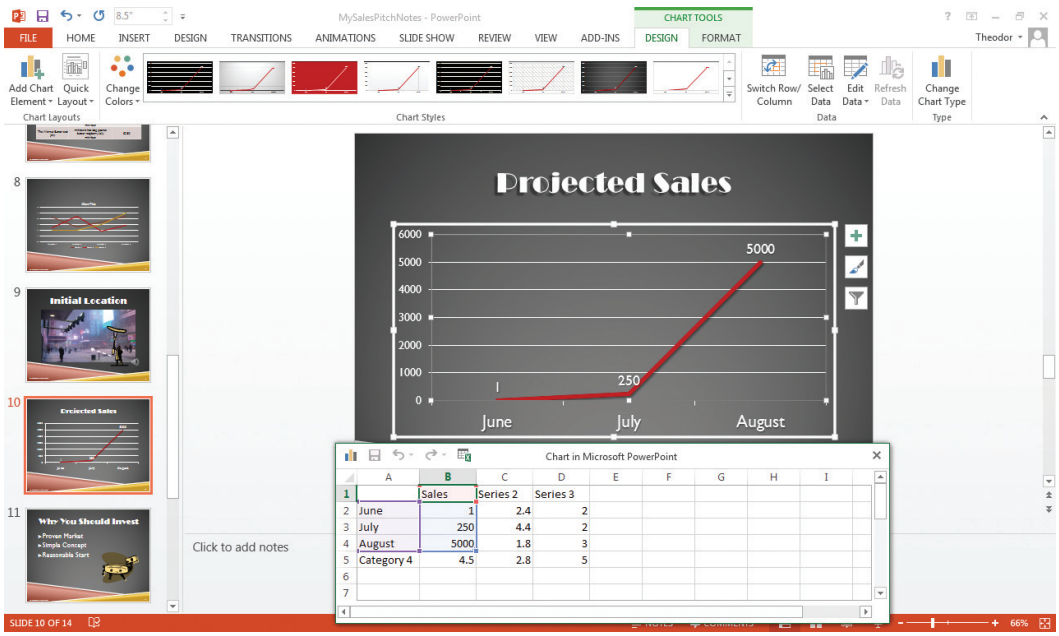
basic information. (You will learn about Excel in Section IV, "Spreadsheet Software and Microsoft Excel"). To insert a chart in PowerPoint 2013, use the *Insert* ribbon and select *Chart*. In PowerPoint 2011, select the *Charts* ribbon and choose the type of chart you want to insert. You can also add a chart from the quick links *Insert Chart* icon from any content placeholder text box. This opens the *Insert Chart* dialog box for PowerPoint 2013, shown in Figure 12.12; in PowerPoint 2011, this just activates the *Charts* ribbon. (You will learn more about creating charts in Chapters 13–15).

For now, select a simple *Line Chart* from the list and click *OK*. This will open a small Excel window within PowerPoint, as shown in Figure 12.13. The data that will be used to construct your line graph is displayed in the spreadsheet in Excel. This example will show a simple line indicating projected sales for the first three months of operation. You can resize the data used in the chart by dragging the blue indicator in Excel that encloses the data used by the chart.

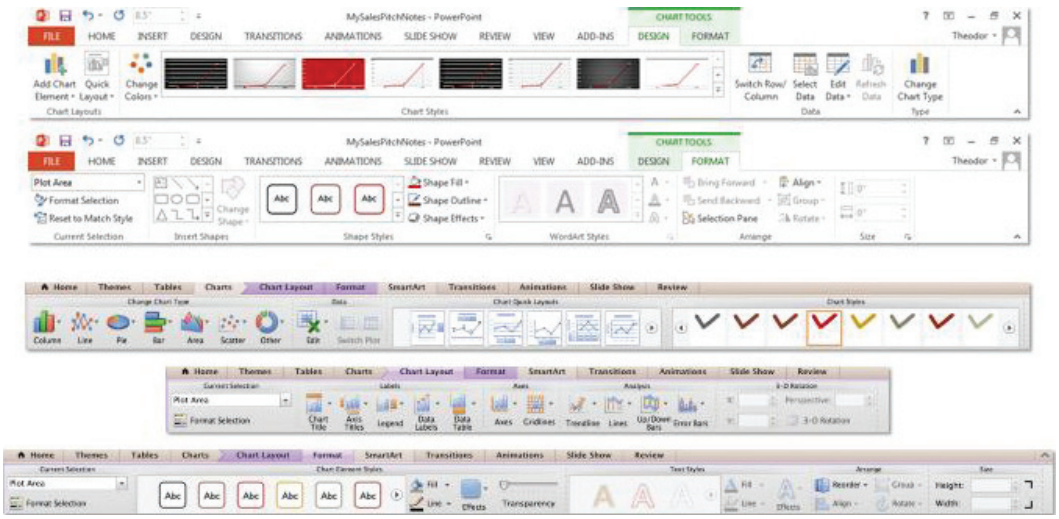


▲ FIGURE 12.12
Insert Chart dialog box in PowerPoint 2013

Since the summer months see the largest sales for hot dogs, the business will launch in June. Therefore, enter *June*, *July*, and *August* for the Category names in Column A of the spreadsheet. Then add the word *Sales* in place of "Series 1." For the data values, June will have 1 sale (cell B:2), July will have 250 (cell B:3), and August



◀ FIGURE 12.13
Completed chart data entry



➤ **FIGURE 12.14**
Context-sensitive Chart Tools ribbons

will have 5000 (cell B:4). The completed data entry and the proper position for the blue indicator point are shown in Figure 12.13. Once you have completed the data entry, close Excel. You can reopen it from the *Design* ribbon for Chart Tools by selecting the *Edit Data* icon, which will allow you to either open the small window within PowerPoint or open Excel fully.

PowerPoint should now return to its former window size and you can see the three context-sensitive *Chart Tools* ribbons that appear as shown in Figure 12.14. The *Format* ribbon that appears here should be familiar to you by now; this allows you to set the text effects and shape effects of the different chart elements. For instance, you can add a shadow to the sales line you have created or add text effects to the chart information, but you should not sacrifice clarity and readability to add effects.

The *Design* ribbon for Chart Tools (the standard *Charts* ribbon in PowerPoint 2011) allows you to set the look and feel of the chart. There are a number of preset layouts and styles that you can select to display your data from the *Chart Layouts* panel and the *Chart Styles* panel. You can also use the *Edit Data* icon (*Edit* in PowerPoint 2011) on the *Data* panel to open the Excel spreadsheet to make any changes to the data on which the chart is based.

The *Layout* ribbon for Chart Tools (or the *Chart Layout* ribbon in PowerPoint 2011) allows you to change the display elements of the chart. You can primarily change how much visual information is displayed on the chart using this ribbon. The options on this ribbon differ for PowerPoint 2013 and PowerPoint 2011. Some of the functionality for the PowerPoint 2011 ribbon is part of the menus beside the chart in the slide itself in PowerPoint 2013.

For the example, select the *Data Labels* icon and choose *Above*; you can find this option in the *Design* ribbon for Chart Tools in PowerPoint 2013 under the *Add Chart Elements* icon. You should now see the projected sales figures for each data point of the chart corresponding to the months. Select

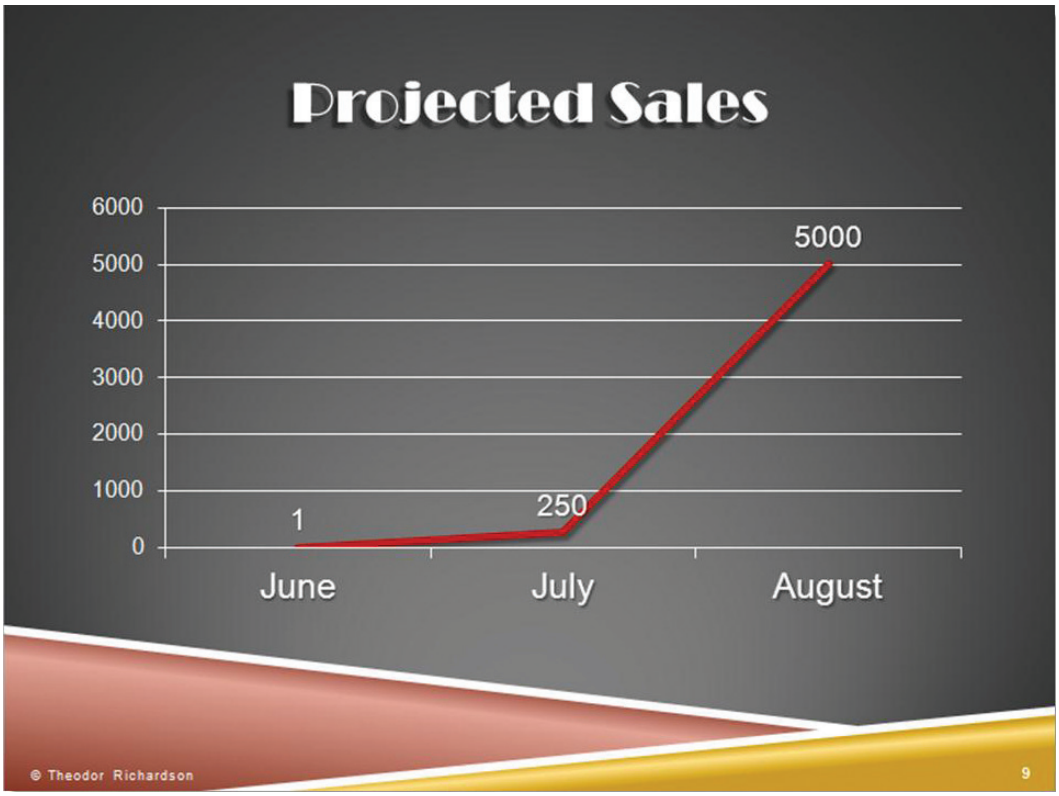


FIGURE 12.15
Completed chart example

the *Legend* icon and choose *None* to remove the series name from the chart; this is not necessary when you have only one variable that you are tracking as in this example. Since there is a slide title, you can also remove the chart title by selecting *Chart Title* and choosing *None*. The completed chart is shown in Figure 12.15.

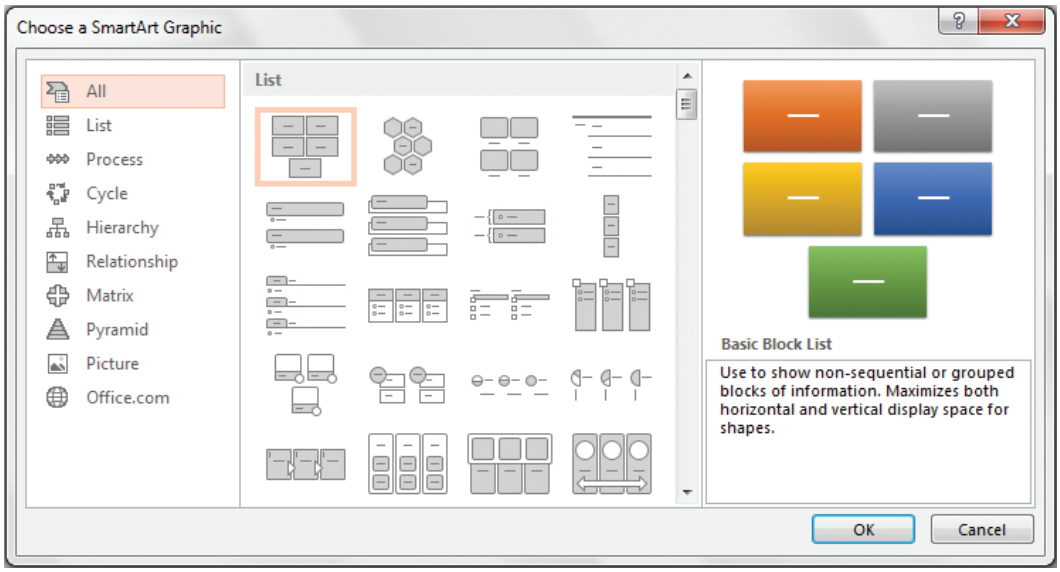
You can alter the font size for any of the text elements of the chart using the *Home* ribbon. You can also change the size of the chart manually by dragging the grip points on the corners and midpoints just as you can for any other object in PowerPoint. When you use a chart, it should take up the majority of the slide or it will likely not be readable to the audience. If you have specific points you want to make about the chart, you can add drawing objects to highlight particular data points rather than adding any text comments.

SmartArt

12.2.4

SmartArt is a tool that is available in most of the Office applications; it converts bulleted text (typically with two outline levels) into a professional-looking graphic image. The styles and format for SmartArt are all predefined, but you can alter the color scheme to match your presentation and change certain style attributes.

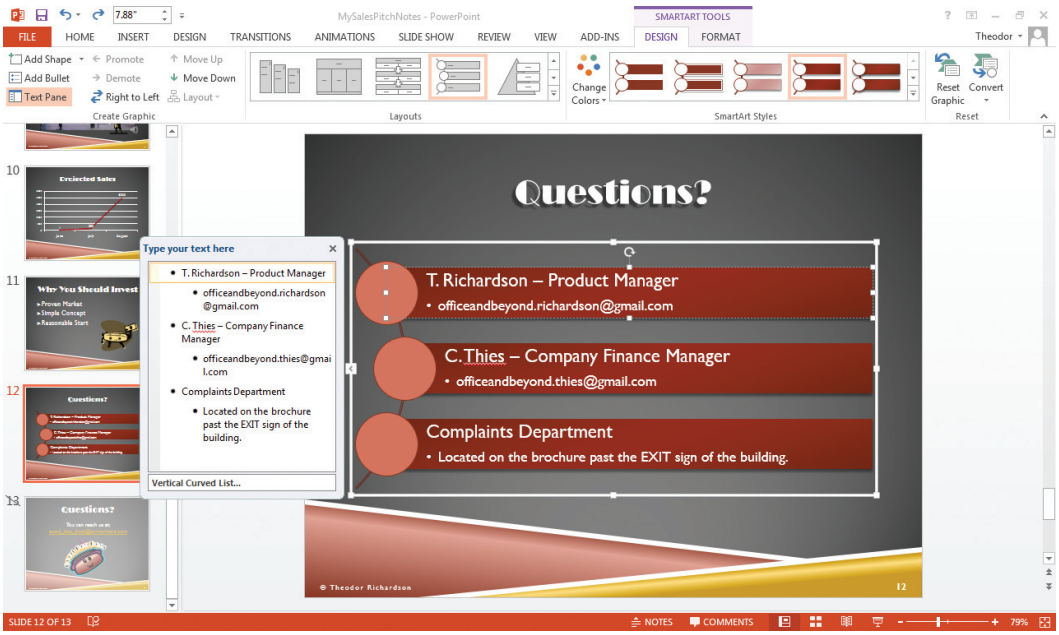
One possible use of SmartArt is to create a graphic for contact information that can include text and images for multiple people, such as if there is more than one author of the presentation or if multiple people or groups should be listed for possible follow-up after the presentation. For



➤ **FIGURE 12.16**
Choose a SmartArt Graphic dialog box in PowerPoint 2013

the sales pitch example, you are going to use SmartArt to replace the existing contact information slide (which was created in the example project in Chapter 11).

Create a new slide at the end of the presentation with the default layout and add a title (you can use *Questions?* just like you did on your previous contact page). To insert a SmartArt graphic in PowerPoint 2013, select the *Insert* ribbon and choose *SmartArt*; you can also use the SmartArt quick link within the content placeholder text box. This will open the *Choose a SmartArt Graphic* dialog box shown in Figure 12.16. From here, you



▲ **FIGURE 12.17**
Example SmartArt text entry box and SmartArt Tools Design ribbon in PowerPoint 2013

can select the type of graphic you want to create. In PowerPoint 2011, you can open the *SmartArt* ribbon and choose the graphic type you want to use. For the example, choose *Vertical Curved List* from the List category. When you insert and select a SmartArt graphic, a small window appears in which you type the text of your graphic in bulleted outline form. The outline level of the text determines where it is placed on the graphic.

When you select the SmartArt graphic, you will also see two context-sensitive *SmartArt* tools ribbons; these are the *Design* ribbon and the *Format* ribbon. The *Format* ribbon is similar to the other formatting ribbons you have already seen; you can change the style of the drawing object within the SmartArt graphic selected and you can change the text formatting for any selected text. An example of the active *Design* ribbon is shown in Figure 12.17 (along with the SmartArt text entry box for the example).

The *Design* ribbon in PowerPoint 2013 contains several tools specific to SmartArt. The *Create Graphic* panel provides you with tools to add to your graphic or rearrange elements. The *Add Shape* icon allows you to insert new graphic objects for your SmartArt and select their placement (relative to the currently active bullet point or object). You can also show or hide the *Text* pane using the *Text Pane* icon. The *Promote* and *Demote* icons allow you to change the outline level of the selected bulleted text, and Move Up and Move Down allow you to adjust the order of the objects (you can use these within the *Text* pane as well).

Some SmartArt graphics will have placeholder elements to add a picture. To add pictures, click the picture icon in the graphic or the picture icon next to the text in the *Text* pane. You can edit the image and its properties with the same *Picture Tools Format* ribbon that you use for any other image.

In the *Layouts* panel, you can change the SmartArt graphic within the same style as the current graphic; if you need to change the entire category, you must create a new SmartArt graphic.

The *Colors* icon lets you adjust the color scheme of the graphic, and the *SmartArt Styles* panel allows you to make changes to the look and feel of the entire graphic at once. Reset Graphic sets the style back to the default settings. Finally, the *Convert* icon allows you to change the SmartArt graphic into regular drawing objects and text. The new slide with the SmartArt graphic will be used as your new contact slide, but do not delete the old contact slide yet; you will use it in a later section of this chapter.

These functions are all available in PowerPoint 2011, but their locations are split between the *SmartArt* ribbon and the *Text* pane. The promotion, demotion, and ordering icons are on the *Text* pane, while the formatting and style options remain on the *SmartArt* ribbon, where you can change the layout of your graphic as well. The *Text* pane will appear as a small clickable icon beside the graphic when it is hidden so you can reactivate it from there.

Activity 12.2—SmartArt

Create a new presentation and save it as Activity12_2 *in the* Activities *folder.*

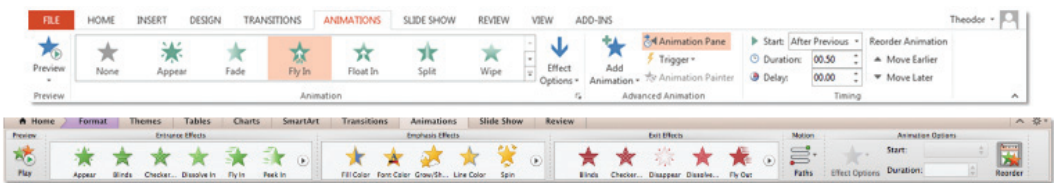
Add two slides to the presentation using the Default layout. For the first slide, choose the SmartArt *icon from within the content placeholder. Choose one of the graphics and add text to complete it. For the second slide, use the* Insert *menu to add SmartArt and choose a different type of graphic. Add text to complete this graphic. How did the process differ for the two examples of SmartArt that you added? How does the text map to the SmartArt elements in each example you chose? Be sure to save your work.*

12.2.5 Animations

Animations are one way to call attention to a particular object or group in PowerPoint. These can be triggered either by advancing the slide or through timing to play automatically. Animations can help you emphasize a point or call out a particular visual element, but they can also be easily overused. The animations that you add to your presentation should be short and relevant. All of the settings for animations are housed in the *Animations* ribbon, shown in Figure 12.18.

To illustrate the concepts and mechanics of animation, you will add animation to the product demonstration slide in the *MySalesPitchNotes* project. The general categories of animation effects are Entrance, Emphasis, Exit, and Motion. Entrance effects are used to start an object (or group) off of the visible slide and transition it into its placement location; the animation will end with the element in the location where it was initially placed before any animation effects. Emphasis animations start and end with the object in the same location in which it started; this is used to highlight an object for attention. Exit animations are used to remove objects from the slide; these will begin with the object in its original place and end with the object no longer visible on the slide. Motion effects move an object from one position to another; the path for this motion and the beginning and end points can be changed.

To emphasize the hot dog character in the example, apply an emphasis effect like *Teeter* to it. To fly in the second step of creating the product, set the text box to *Fly In*. The arrow should simply fade into existence once the text box is in place, so a Fade effect is appropriate. You can customize any effects using the *Effect Options* icon; this will change to give you the options available for the current animation you have applied. It is possible to apply multiple animation effects to a single object as long as they do not conflict in motion (so you can use an emphasis effect with an entrance effect but not an entrance effect with an exit effect). You can preview your animation sequence from the *Animations* ribbon by clicking the *Preview* icon in PowerPoint 2013 and the *Play* icon in PowerPoint 2011. A completed example



➤ **FIGURE 12.18**
Animations ribbons in PowerPoint

FIGURE 12.19
Complex animation sequence in Normal view in PowerPoint 2013

in *Normal* view is shown in Figure 12.19. This demonstrates the numbering shown for each sequence to let you know in which order the effects will play; numbers that are the same are part of the same sequence.

After you have added your animations, you can adjust their start condition, triggers, sequencing, and timing. If you added the animation effects in the order you want them to display, you do not need to rearrange them. However, if you want to change the order, open the *Animation* pane by clicking its icon from the *Animations* ribbon in PowerPoint 2013; to open the equivalent *Custom Animation* pane in PowerPoint 2011, click the *Reorder* icon in the *Animations* ribbon. With the *Animation* pane open, use the *Move Earlier* and *Move Later* icons on the *Animations* ribbon in PowerPoint 2013 (or the up and down arrows at the bottom of the *Animation* pane in either PowerPoint 2013 or PowerPoint 2011) to reorder your animation sequence. You can also click and drag an item within the *Animation* pane to change its position within the animation order.

The *Start* condition is the action that starts the animation sequence. By default, this is set to *On Click*, which is the same as a slide advance operationally. If you do not want to have to click for each animation to begin, you can change the trigger to *With Previous* or *After Previous*. Setting the animation to *With Previous* starts the selected animation as soon as the previous animation begins; setting the animation to *After Previous* will start the animation sequence after the previous animation sequence has

When you are sharing your presentation for viewing on a personal computer, you should avoid using the *On Click* start condition for animation. It is annoying to a viewer to have to repeatedly click just to get access to the information a slide has to offer. The *On Click* start condition may assist you in presenting, but you should change it to *After Previous* before you share your slides for individual use later.

completed. You can change this setting in the *Animations* ribbon or the *Animation* pane for the currently selected animation.

The *Timing* panel contains the duration and delay settings for each animation sequence. The *Timing* panel is part of the *Animations* ribbon in PowerPoint 2013 but is located on the *Custom Animation* pane in PowerPoint 2011. The duration is how long the animation sequence takes to complete; most animations should occur quickly so they do not waste any significant time in the presentation (the preset selections for timing have a minimum of 0.5 seconds and a maximum of 5 seconds). The delay is how long the sequence will pause before starting when the start condition is reached; you should use delays sparingly and only when necessary for presenting the content.

You can optionally add sounds to your animation sequences from the *Animation* pane (or *Custom Animation* pane) using the *Effect Options* selection. You can access *Effect Options* from the drop-down menu for the sequence entry in PowerPoint 2013; this is a foldout panel for the animation sequence in PowerPoint 2011. You can also set how you want your text animated, either by word or by letter, and the delay between text sequences in the animation. The text settings can be changed using *Effect Options* in PowerPoint 2013 and the separate foldout *Text Animations* panel in PowerPoint 2011.

If you do not want your animation to play as part of the normal slide progression in PowerPoint 2013, you can change the *Trigger* attribute. The trigger attribute is what causes the animation to start; by default it is set to take input from the presentation timing and standard presentation advances. However, you can change the trigger to a click of any object within the current slide; this will function like an action setting to start the animation sequence.

12.3 EDITING PRESENTATIONS

You may not always be working on a presentation document that you create yourself. You also may not be able to create the entire project at once, so it is important to be able to open and edit existing presentation documents. You can change most of the properties of a PowerPoint presentation while it is open, regardless of when it was created or by whom.

If you download a presentation or open it from an email message, PowerPoint will restrict the editing options of the document, allowing you to read it without running any additional scripts attached to the document (called macros) and without activating any of the ribbons to alter the content. Once you click the *Enable Editing* button on the warning that appears, you will be able to manipulate and edit the document as usual.

12.3.1 Opening and Editing Existing Presentations

You can open presentations from the *File* menu by selecting the *Open* option; use this to open the *MyBrokenRobot* file from the companion resources for this text. This file has only one slide with a robot whose arms have fallen off of its body. It is your task to reposition and reattach them. Notice that when

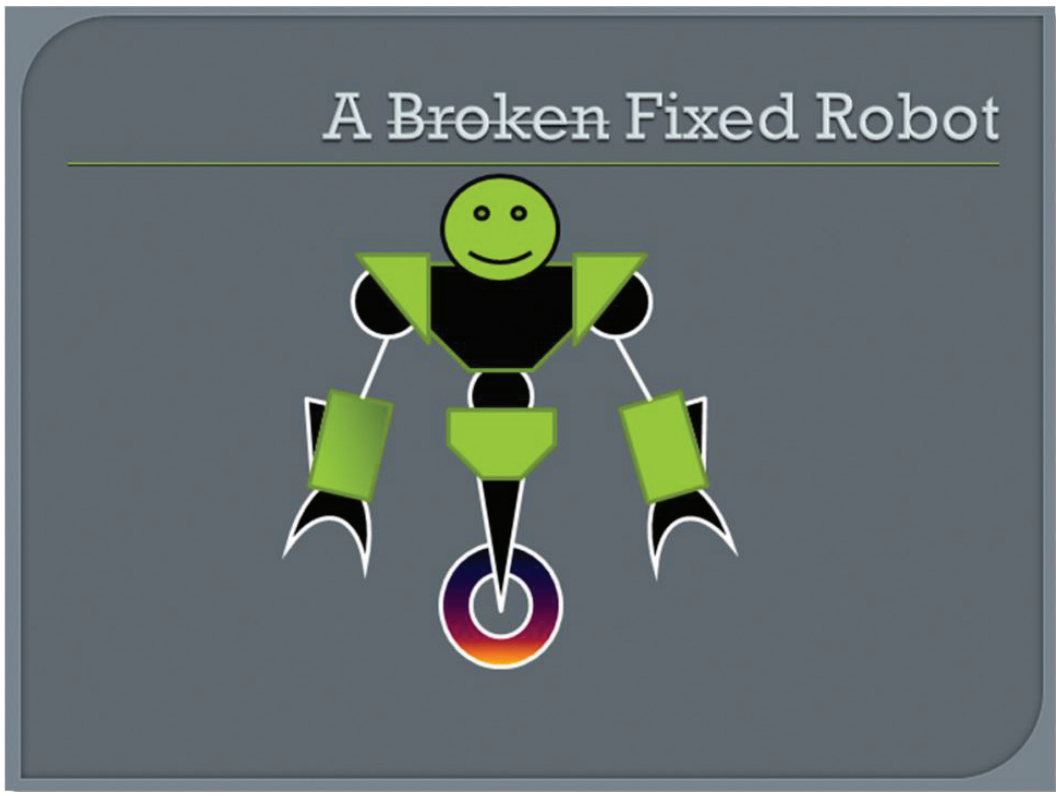
you open a presentation document, any presentation documents that are already open will remain open in separate windows.

Use your mouse cursor to select each arm and position it on the slide where it can reasonably connect to the shoulder socket of the robot; do not overlap the shapes because you are going to use connector lines to attach the arms. Now use the rotation option to rotate the arm back into position. Add a drawing object connector line from the arm to the shoulder socket.

Repeat the steps for the other arm. Change the robot's frown to a smile using the yellow diamond controller for the mouth setting. Finally, change the title of the presentation: Use the strikethrough formatting on the word "Broken" and add the word *Fixed* beside it. Remember to send the connector lines you added to the back of the slide layering so they do not appear above the animation of the robot. A completed example is shown in Figure 12.20.

> Any animation applied to objects that are connected by a connecting line will not animate the connecting line itself. Instead, the line will remain in the initial fixed position for both objects, ignoring any animation movements unless they are part of a group to which animation is applied. If both objects are not part of the same group, the connecting line will ignore the object that is not part of the group in terms of positioning and movement.

You can also change the theme and the colors of this presentation to better suit your preferences. The colors will automatically adapt when you change the theme in PowerPoint, but you can change your color



◀ FIGURE 12.20
Completed example

preference after selecting the theme. Save the completed project as *MyFixedRobot*.

Activity 12.3—Animation

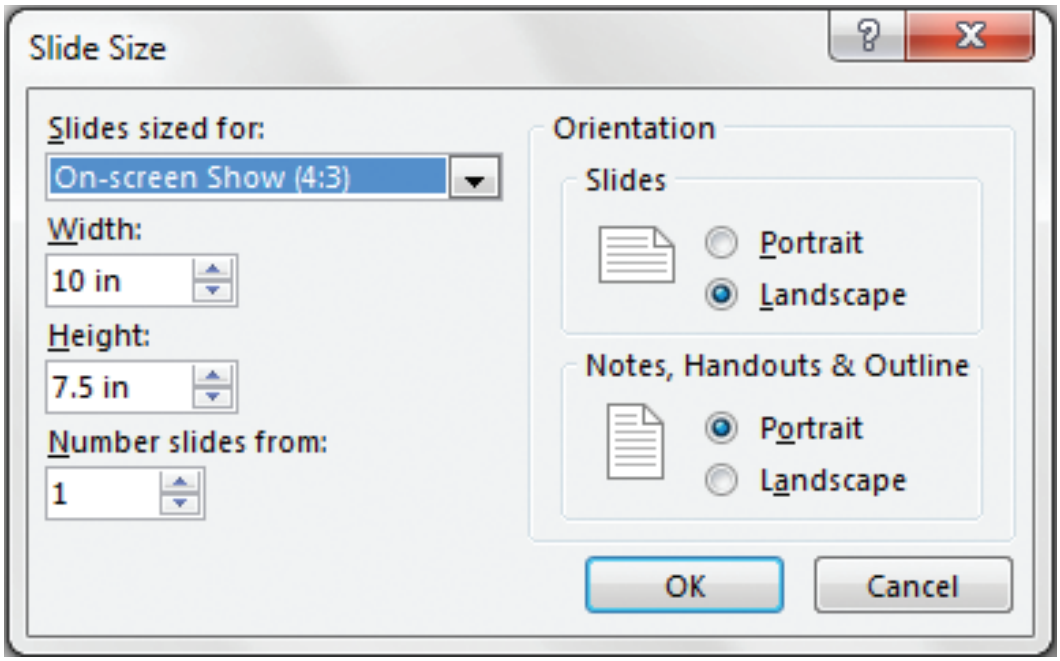
Using the MyBrokenRobot *presentation, use animation to repair the robot following the steps outlined in this section. Keep in mind the different actions that you can take with animation and the different changes and effects that can be applied. Play your animation to test the results, which should show the robot being repaired. How does the resulting slide appear in the normal view for designing your slides? Save your presentation as* Activity12_3 *in the* Activities *folder.*

12.3.2

Slide Setup and Slide Orientation

You can set the size of your slides and the slide orientation. If you are presenting your slides on a normal screen or standard projector, you do not need to change the slide size from the default. The default aspect ratio is the best option for standard use. (Although PowerPoint can be used to create brochures and other publications, this is not its primary use). For this example, select a slide size that is equivalent to standard paper printouts. To change the slide size, click the *Slide Size* icon on the *Design* ribbon in PowerPoint 2013. This will open the *Page Setup* dialog box shown in Figure 12.21. In PowerPoint 2011, you can change the slide size by selecting *Slide Size* from the *Themes* ribbon or by selecting the *File* menu and choosing *Page Setup*.

In this dialog box, you can set your slide size to any of the predefined standard sizes or a custom size. It is possible to use PowerPoint to create a poster image (such as those needed for professional research conference presentations), but the maximum size setting of a slide for either the height or the width is 56 inches. That means the largest poster you can create is 56" by 56".



➤ **FIGURE 12.21**
Slide Size dialog box in PowerPoint 2013

Changing the aspect ratio with content in your slide will change the aspect ratio of the content as well, which may distort images and drawing objects already in your presentation. Therefore, you should try to set the slide size before you start creating the content for your presentation.

If your planned project fits within that size limitation, your only concern is how to get it printed. Once you export your poster image from PowerPoint to a Portable Document Format (PDF) file, most professional print shops will accept that format.

The *Slide Size* dialog box also allows you to set your slide orientation; that is, whether you want it to display in landscape layout (the default where the width is greater than the height) or portrait layout (the standard layout for text documents and printing). You can change this setting for the slides and any printed handout separately. In PowerPoint 2013, you can set the starting number of the slides in this dialog box; it defaults to starting at one for the first slide of the presentation.

Creating a Custom Layout

12.3.3

If you find that you need slides with a particular arrangement of elements that is not provided in any of the default layouts, you can create a custom layout in PowerPoint. To do this, open the *Slide Master* view and find the *Insert Layout* icon (or *New Layout* icon in PowerPoint 2011) on the *Slide Master* ribbon. Clicking this icon creates a new child layout slide from the main Slide Master. This new slide will initially contain only a title and footer placeholders. You can add additional placeholders to the new layout slide by clicking the *Insert Placeholder* icon to open the menu that allows you to choose the content type for the placeholder. The default Content placeholder includes

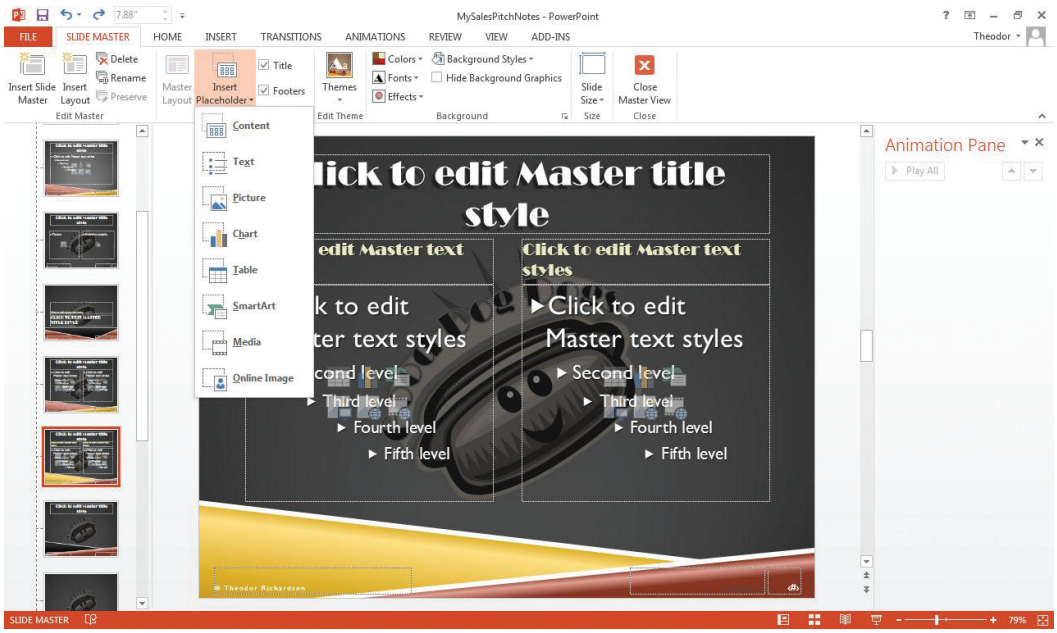


FIGURE 12.22 Custom layout creation and Insert Placeholder menu in PowerPoint 2013

quick links to all of the available media elements, while the other options allow specific media and text. The *Insert Placeholder* drop-down menu is shown in Figure 12.22.

When you have finished creating your new layout, click the *Rename* icon to name your new layout for use in the presentation. When you save the presentation and close the *Slide Master* view, the new layout you created will be available as a selection in the *Layout* icon menu of the *Home* ribbon. The name that displays for the layout will reflect what you renamed it; if you did not perform this step, the name will default to "Custom Layout." This custom layout will exist only in the presentation in which you created it; it will not be available for use in other presentation documents.

12.3.4 Hiding and Showing Slides

If you need to shorten your presentation to fit a specific time slot or you need to slightly tailor the same presentation for different audiences, you may have some slides that you do not need but that you do not want to delete. For instance, you may have a slide with background information that is not necessary for the general audience, but you may need it if someone asks a particular question. To keep a slide in your presentation without including it in the normal *Slide Show* view, you can utilize the option to hide the slide.

To hide a slide, select the slide you want hidden and open the *Slide Show* ribbon. Click the *Hide Slide* icon. This will gray out the slide in the *Slides/Outline* pane to indicate it is hidden. You can still continue to edit the slide, but it will not display during your presentation.

> The *Hide Slide* icon is a toggle. When it is highlighted, the slide is hidden. When you click the icon again, the slide will be visible in the presentation. A hidden slide retains its slide number, so if you have slide numbers visible, the presentation will skip the number of the hidden slide.

If you need to access a hidden slide during your presentation, select the slide manually by right-clicking within the presentation while *Slide Show* view is active, choosing *Go to Slide*, and then selecting the slide number and title you want to display. You can also create an action object to point directly to the hidden slide; if you need to view the slide during the presentation, click the action object and the slide will display.

To practice this, go to the *MySalesPitchNotes* project and hide the slide for questions that displayed only a single contact email address (this was replaced by a SmartArt version in Section 12.2.4).

Activity 12.4—Actions and Hidden Slides

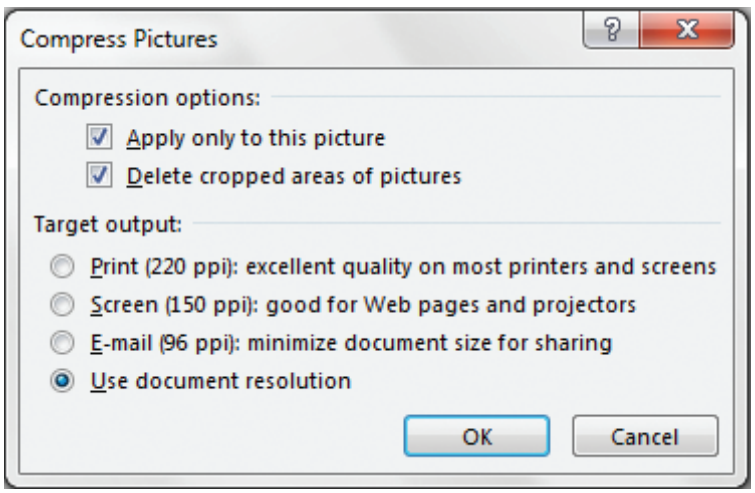
Using the active presentation for the project for this chapter, select one of the objects within the SmartArt graphic to link to the previous (and now hidden) contact slide. Add an action to the object, choose Slide *as the* Link to *value, and select the hidden slide. Save your presentation as* Activity 12_4 *and test your presentation to make sure it works.*

12.3.5 Optimizing and Exporting Images from Slides

Adding a large amount of media to your presentation may cause some issues with the file size of the document. If you are emailing the document or presenting it on another machine, you have to consider how easy it is to transfer it from one location to another. Depending on how you are using the document, you can perform some tasks to compress the file size of your presentation while retaining all of the media you have added. If the presentation document is just for use on a computer screen, compressing the images will reduce the file size without sacrificing the media quality. If you are printing your slides on a high-quality printer, compressing them may not be the best choice.

To compress your images, select an image in your presentation and open the *Format* ribbon for Picture Tools. Select the *Compress Pictures* icon (or *Compress* in PowerPoint 2011). This will open the *Compress Pictures* dialog box shown in Figure 12.23. From here, you can select the resolution you want for your image. You can also set whether you want the cropped areas of the image removed and whether you want to apply these settings to all of the images in the document or just the one you have selected (deselecting the *Apply only to this picture* checkbox in PowerPoint 2013 will apply the setting to all images in the presentation document).

Your presentation slides can be exported as images from PowerPoint. To do this, simply open the *File* menu and choose *Save As*. The common formats for images are GIF Graphics Interchange Format, JPEG File Interchange Format, TIFF Tag Image File Format, PNG Portable Network Graphics Format, and Device Independent Bitmap. Select the format in which you wish to save your slides; you will be asked whether you want to save the current slide only or every slide in the chosen format. With PowerPoint 2011, it is better to use the *Save as Pictures* command from the *File* menu; this allows you to open an *Options* dialog box in which you can specify more detailed image options for the format.



◀ FIGURE 12.23
Compress Pictures dialog box in PowerPoint 2013

CHAPTER SUMMARY

This chapter covered the more advanced media elements that you can include in your slide show presentations. You must always keep your audience and the method of delivery in mind when creating your slides so that they deliver the maximum impact to your audience instead of just providing information. Presentation software can also allow you to create customized images at different sizes, which is a useful feature if you need to create graphics quickly and do not have an advanced graphics editing program available. The next section of the text covers spreadsheet software, which is an excellent tool for managing large amounts of data and performing advanced calculations.

CHAPTER KNOWLEDGE CHECK

1 Once you have added animation effects to a slide, you cannot change the order in which they occur.

- ◯ **A.** True
- ◯ **B.** False

2 You cannot add multiple animations to the same group or object in a slide.

- ◯ **A.** True
- ◯ **B.** False

3 Hidden slides are not assigned a number in the slide show. When they are shown again, they change the numbering of the slides that follow them in the presentation.

- ◯ **A.** True
- ◯ **B.** False

4 The following type of media requires support from a spreadsheet to calculate the display:

- ◯ **A.** Table
- ◯ **B.** Chart
- ◯ **C.** Animation
- ◯ **D.** All of the above
- ◯ **E.** None of the above

5 The following type of animation begins with the object or group on the visible slide and ends with it removed from sight:

- ◯ **A.** Entrance effect
- ◯ **B.** Emphasis effect
- ◯ **C.** Exit effect
- ◯ **D.** Explosion effect

6 In general, audio and video increase the file size of a presentation more drastically than other media elements.

- ◯ **A.** True
- ◯ **B.** False

7 Using multiple forms of complex media in the same slide is a good way to present information clearly.

- ◯ **A.** True
- ◯ **B.** False

8 Tables are a good form of media to use when presenting a large volume of information (at least 10 rows by 6 columns) because they are clear to the audience at the back of the room.

- ◯ **A.** True
- ◯ **B.** False

9 SmartArt is a tool that allows for quick creation of professional-looking graphics, but SmartArt graphics can be adequately created using drawing objects and text boxes.

- ◯ **A.** True
- ◯ **B.** False

10 The following is an image format that is common for exporting presentation slides:

- ◯ **A.** GIF
- ◯ **B.** TIFF
- ◯ **C.** JPEG
- ◯ **D.** All of the above
- ◯ **E.** None of the above

CHAPTER REVIEW QUESTIONS

1. How can SmartArt be used to enhance a presentation? Give at least two uses of this that would be most beneficial.

2. Why would you want to hide a slide in a PowerPoint presentation? Give an example of when this would be beneficial.

3. What are some examples of objects that could benefit from animation in a PowerPoint presentation?

4. In your current or desired profession, what advanced functionality in PowerPoint would you use most often when developing presentations? Why?

5. How do handouts support PowerPoint presentations? Give two examples of when you might use handouts along with a presentation.

6. Give a brief description of when video would be appropriate for a presentation and what is added by including this type of media element. How does this differ from using sound?

7. Give a brief description of when audio would be appropriate for a presentation and what is added by including this type of media element. How does this differ from using video?

8. Compare two different types of charts that you could add to a presentation. Give an example of the type of information that would be presented best in each chart and why the other chart type you selected would not work as well for showing the data.

9. Give a brief description of when and why you would optimize your slides. Support your argument with specific examples.

10. Describe the process of creating and organizing a complex animation in PowerPoint in your own words. What considerations should you have for the type of movement and order of movement for different elements on the slide?

PRACTICE EXERCISES

1. Research a topic in computing and create a 10-slide presentation explaining the topic. Include at least three of the media types in your presentation to assist in your explanation. In a separate word processing document of at least 200 words, evaluate whether or not the media elements made it easier to describe a concept and why this was the case.

2 For this exercise you will use the PowerPoint presentation you developed in Chapter 11. You will open the presentation and begin editing it according to the following instructions: make your logo include at least two animations, add some type of background music to your presentation, include a graphic using SmartArt, and include an applicable video clip that you either found on the Internet or developed yourself.

3 In this exercise, you will choose a topic or feature from this chapter and present it using a PowerPoint slideshow. You may choose, for example, to explain custom layouts. Include examples from the Internet, your textbook, and other resources. Include a reference slide to properly cite all of your sources. You may choose to include a tutorial that you found on a Website or that you developed yourself.

4 Return back to the grand opening PowerPoint presentation you modified. You will now need to go back and develop an appropriate outline. Use this outline to create handouts and notes to have at the grand opening. This will give your audience something tangible to walk away with, helping you and your company to stay fresh in their mind.

5 Create a new PowerPoint presentation and add a title slide and two table slides to it. Add one table that is 3 rows and 3 columns. Add data to the table including a header row; this data can be fictional. Now in the second table slide, add a table that is 6 rows by 6 columns. Add data to this table as well. Compare the display of both of these tables in Slide Show View. Which of them is more legible to an audience? In your opinion based on these results, how many rows and columns should be allowed as a maximum limit for a PowerPoint presentation?

CHALLENGE EXERCISES

1 Using the *MyFixedRobot* project you created in this chapter, change the slide size to a poster size of 24" by 36" and add captions and a logo to the slide so it looks like an advertisement poster. Save your document as *HugeFixedRobot* and export it as an image file using both the GIF and JPEG formats. In a separate word processing document of at least 200 words, compare the two images that were produced in terms of image quality, text quality, color, and file size.

2 Create notes for each slide in the presentation which you have modified throughout this chapter. Be sure they are detailed and describe the contents of the slide and what you want to say about each slide. How can these be used to help you prepare to present your presentation live in front of an audience? When would these be suitable for handouts? Explore the formatting options for handouts and describe the strategy for complementing your presentation with the text you add in this format.

3 Create two different charts in a PowerPoint presentation. Be sure they contain different data and they are appropriate for the type of data being displayed. Compare the two charts to determine which one is easier to explain to an audience and what information each one conveys that the data itself would not readily show.

4 Create a presentation with six slides and practice adding content to each slide. Hide the even numbered slides and create an Action on each odd slide to show the hidden even slide immediately after it. Start the presentation from the beginning in Slide Show View. Run the show once without clicking any of the Action items you added. Next, run it again and click each action item as you encounter the slides. How does the presentation behave differently in each run (with and without using the Actions)? When would this be beneficial to apply in a presentation? Explain your answer with examples.

5 Create and save a new PowerPoint presentation. Using either your own video or Clip Art from Office.com, add and modify a video in a slide. Test the video within your presentation by viewing it in Slide Show View. Next, format the video with effects. View the presentation in Slide Show View and activate the video again. How does the display change when you apply the formatting? In what circumstance would you want the effects added to a video to enhance its presentation to the audience? Is there a risk of distracting the audience from the video content with this approach? Explain your answer with examples.

CHAPTER
13

Introduction to Excel and Spreadsheet Software

IN THIS CHAPTER

This chapter presents an introduction to spreadsheet software. Through the creation of a simple budget, features of the software package such as formatting and formulas will be explored. You will also learn to add charts to your document to visualize the information contained in the spreadsheet. Once you have completed the chapter, you will be able to:

- Navigate the spreadsheet software interface
- Add and format text and numerical data in a spreadsheet
- Use cell naming and cell formatting to organize information
- Add simple formulas to a worksheet
- Add charts to a worksheet

13.1 INTRODUCTION TO SPREADSHEET SOFTWARE

Spreadsheet software is used to manage and process large amounts of data. A spreadsheet is organized into a grid of rows (indicated by number) and columns (indicated by letter). The intersection of these rows and columns is called a *cell*; a cell is identified by letter and number, so A1 would be the first cell of the spreadsheet. A spreadsheet document is not delimited by printed pages or slides as you have previously seen in other software packages. Instead, it is organized as individual spreadsheets or worksheets (identified by the tabs at the bottom of the interface in the common spreadsheet applications); the entire file is called a *workbook*. A worksheet can contain many printed pages worth of material. In fact, a worksheet can contain thousands of rows or columns that would be infeasible to print; the maximum size of a worksheet in Excel contains rows up to row 1048576 and columns up to column XFD.

Cells are not intended for large amounts of text; you should ideally include one piece of data or information per cell. Spreadsheets are best for organizing data and calculating results. If you want the results to accompany text, you should produce your results in a spreadsheet and export the relevant data to a word processing document. There are an enormous number of applications for spreadsheets across disciplines such as accounting and mathematics. The coming chapters provide an introduction to spreadsheet software and its functionality, but the practical applications of this technology go far beyond the scope of this text. Some general uses that you may find for spreadsheet software are formatting information in large tables, creating charts to display a visualization of data, and performing complex mathematical calculations.

The spreadsheet software application in Microsoft Office is called Excel. The first task you will complete using the spreadsheet software program is the creation of a personal budget. First, open the software and use the *File* menu to save your new open document as *MyBudget* in the *Projects* folder you created. The native file type in Excel is *Excel Workbook* (*.xlsx*).

A **ROW** *in spreadsheet software is the horizontal grouping of data that is divided by columns; rows are signified by numbers.*

A **COLUMN** *in spreadsheet software is the vertical grouping of data that is divided by rows; columns are signified by letters.*

A **CELL** *in spreadsheet software is the intersection of a row and a column, containing a single piece of data, which can be text, a number, a formula, or an object; cells are signified by the letter of the column and the number of the row.*

A **FORMULA** *in spreadsheet software is a mathematical calculation that results in a data value; the value is displayed in the cell in which the formula is typed.*

13.2 ANATOMY OF EXCEL

Excel uses the ribbon interface with which you should now be familiar. Beneath the ribbon interface is the Formula Bar, which is used for naming cells and defining

calculations. The main pane of the document window looks very different from the applications you have seen so far; it displays the rows, columns, and cells of the document. The bottom of the interface contains tabs for you to select the worksheet that is active in the document pane. Depending on the version of Excel you are using, the ribbons and shortcuts available will be slightly different. You can jump to the section that is relevant to you.

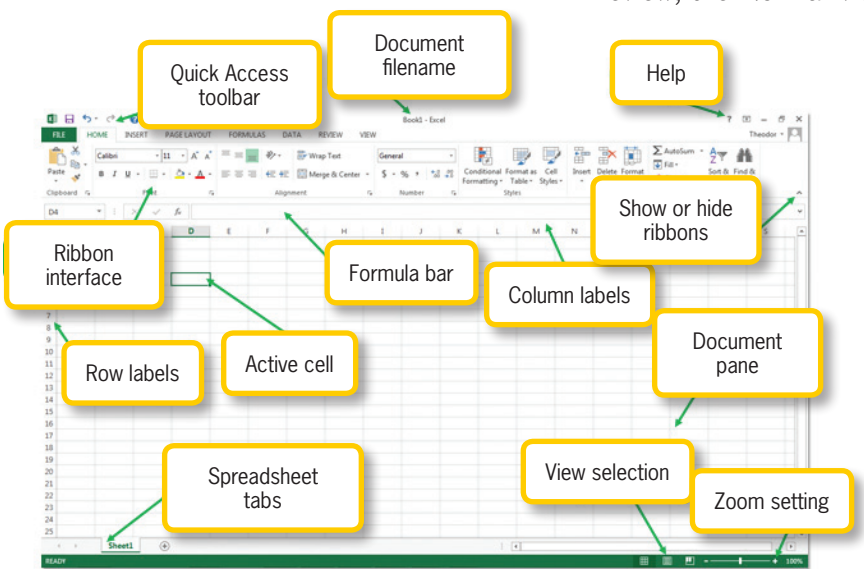
13.2.1

Microsoft Excel 2013

The interface for Excel 2013 has the same ribbon structure and general layout with which you should be familiar from the other Office applications. You can see an example of the interface for Excel 2013 in Figure 13.1. The Formula Bar, located beneath the ribbon interface, identifies the current cell that you have selected and displays the contents of the cell. When you begin using functions, the Formula Bar will become much more relevant. It allows you to perform a formula lookup and will help identify any possible errors in your formula construction.

You may notice that there is a significant departure in the construction and navigation of the document pane of the interface. The document is divided into cells. You can use the arrow keys to navigate from one cell to the next or you can click on a cell to activate it. The current cell is called the active cell and the row and column in which it resides will also be highlighted for you to identify them quickly. Hold the *Shift* key to select multiple cells. Each cell acts like a text box in which you can type information.

The bottom of the interface has a set of tabs, each of which identifies an individual spreadsheet within the overall workbook (the file itself). You can navigate to these spreadsheets by clicking on the tabs or by using the directional arrows to the right of the tabs. The bottom of the interface also contains the view options, which allow you to see the page breaks in your document in either a Page Layout view or a Page Break Preview; the Normal view tends to be the most helpful for document creation. When you have numeric values selected, the bottom of the interface will also display an automatic calculation of the average of the values, the



◀ FIGURE 13.1
Anatomy of Excel 2013

sum of the values, and the number of values you have selected (omitting white space). This is a nice feature for quickly assessing statistics on a list.

The available ribbons and functions are quite different from the interface for Word and PowerPoint. The *Home* ribbon contains the *Number* panel for formatting numeric values (either as direct text input or as the result of formula calculations), as well as commands for style formatting and for adding and deleting cells. Of particular note are the *Fill* icon, which is used to replicate values or predict entries in a series, and the *Sort & Filter* icon, which will be used for list management in Chapter 14, "Developing Worksheets and Graphic Representations." The *Insert* ribbon, shown in Figure 13.2, contains several entries of note, particularly the Chart creation functionality, single-cell charts called Sparklines, and the icon to create a PivotTable, which is one of the more advanced features of Excel.

The *Page Layout* ribbon, shown in Figure 13.3, is used to manage the spreadsheet into printable regions. You can add a background, insert manual page breaks, and set the printable region size for your spreadsheet. If printing is a concern, it may be helpful to preview the print regions to keep your document confined within the desired page delineations.

The *Formulas* ribbon contains categories of formulas from which you can select to insert into your document. This ribbon also contains the functionality to trace dependencies among cells in your spreadsheet and provides manual links to set calculation options for your spreadsheet; by default, all calculations are updated immediately when a value on which they depend is changed. The *Formulas* ribbon is shown in Figure 13.4.

The *Data* ribbon, shown in Figure 13.5, contains several useful commands, including the Remove Duplicates command to make sure no identical values are repeated in your list and the Text to Columns command to convert continuous text into multiple columns based on a delimiter character. This ribbon also contains commands to manage external sources, perform a What-If Analysis (for goal seeking), validate data, and perform advanced filtering for lists.

The *Review* ribbon gives you the ability to add comments to your spreadsheet. Unlike Word, Excel places comments in a triangle icon in the upper-right corner of the cell to which they are attached. The *Review* ribbon also gives you options for protecting

FIGURE 13.2
Insert ribbon in Excel 2013

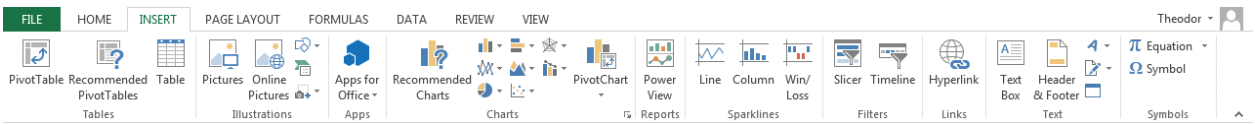
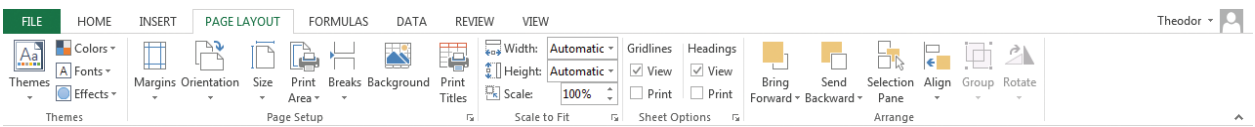


FIGURE 13.3
Page Layout ribbon in Excel 2013



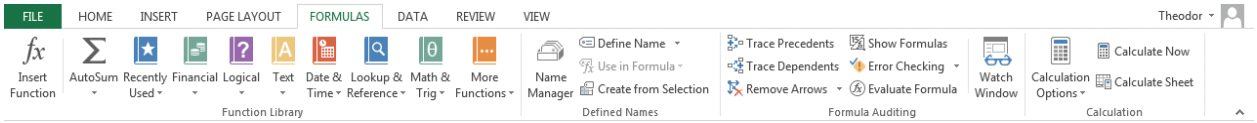


FIGURE 13.4
Formulas ribbon in Excel 2013

your document from changes or sharing your document on a network location for others to edit. You can also select the *Start Inking* icon to use your mouse as a pen to mark up your document. The *Review* ribbon is shown in Figure 13.6.

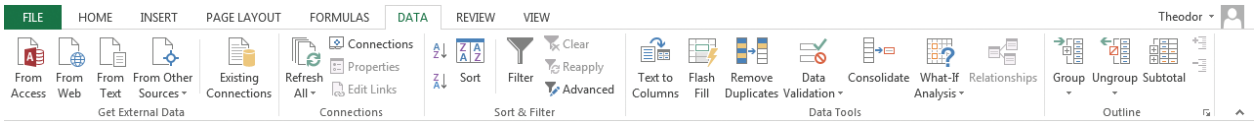


FIGURE 13.5
Data ribbon in Excel 2013

The *View* ribbon, shown in Figure 13.7, allows you to change the view of the document as usual, but it also allows you to manage your workspace. The views in Excel are primarily the *Normal* view and views to preview page layouts for printing, such as Page Break Preview. The *Page Layout* view is not recommended for constructing or working with your document. You can show or hide various document elements from this ribbon as well, such as the gridlines and the Formula Bar. The Freeze Panes functionality allows you to preserve your headings as you scroll through your document. The Split function lets you set up multiple viewing panes of your document so you can view disjoined elements side by side. You can also use the *Save Workspace* icon to store the configuration of multiple document windows. The *View Side by Side* icon allows you to look at two workbooks at the same time. You can set synchronous scrolling for these so they move in the same direction at the same time.

Microsoft Excel 2011

13.2.2

The interface for Excel 2011, shown in Figure 13.8, is very similar to what you have encountered with the other Office applications for Macintosh computers. The interface contains the standard menu and ribbons where most of your functionality is located. In addition, you have a Formula Bar that is used to construct calculations in the spreadsheet and edit information in the cells of the document. The main document

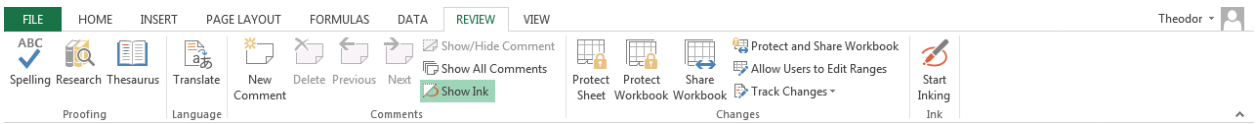


FIGURE 13.6
Review ribbon in Excel 2013

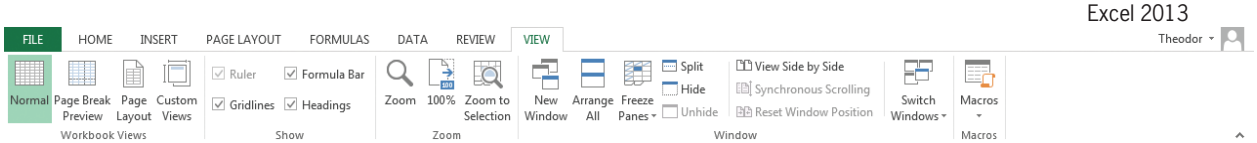
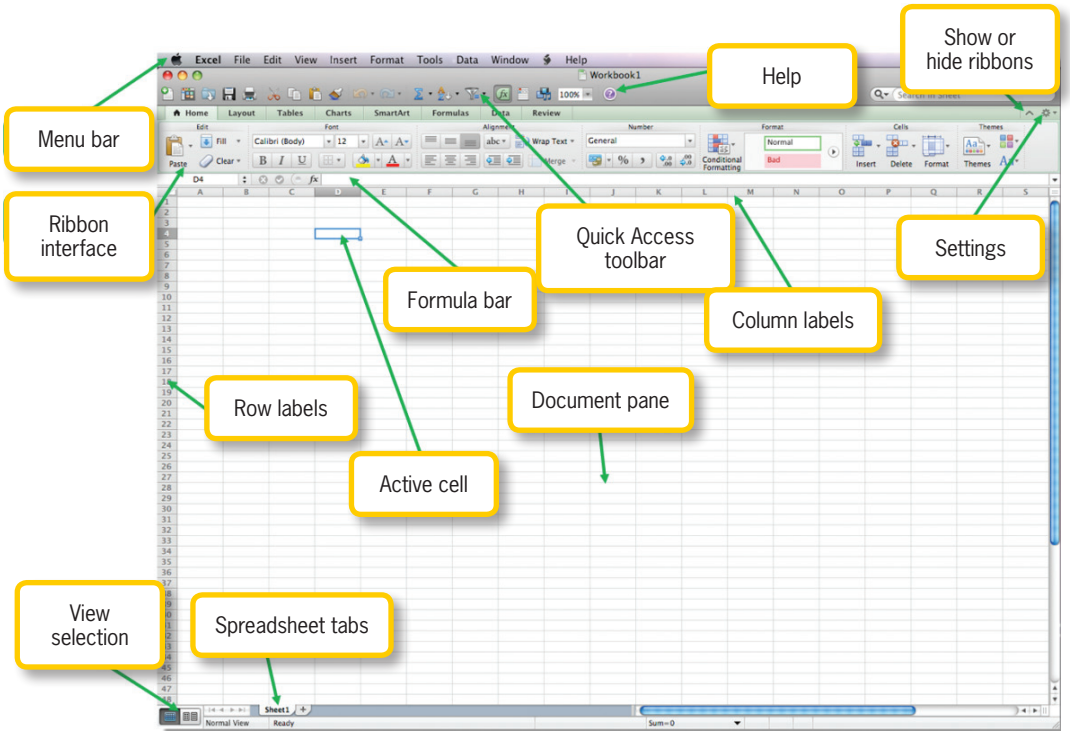


FIGURE 13.7
View ribbon in Excel 2013

➤ **FIGURE 13.8**
Anatomy of Excel 2011



is divided into cells, which can be navigated with the arrow keys on the keyboard. The columns are labeled by letters across the top, and the rows are labeled with numbers down the left side. The tabs at the bottom are the individual spreadsheets within the workbook (the overall document).

Clicking with the mouse on a cell in the document makes that cell the active cell; this action outlines the cell in a thick border and highlights the row and column labels for quick reference. The cell reference will also appear on the left side of the Formula Bar. Options in the Quick Access toolbar include a toggle that allows you to show or hide the Formula Bar and links to common functions like SUM (which is discussed later in this chapter). The bottom of the interface contains the view selection where you can alternate between the *Normal* view and a preview of the page breaks in your document for printing.

The *Home* ribbon contains the standard text formatting options, along with a panel for formatting numeric values. This is necessary for effectively managing and displaying data in the spreadsheets. The *Home* ribbon also contains icons for inserting and deleting rows and columns and for using special preset formatting options.

The *Layout* ribbon, shown in Figure 13.9, contains view settings and print options and is primarily used for establishing print regions and previewing the print area. This ribbon can also be used to set up a workspace where you can open multiple workbook documents on the screen for use at the same time.

The *Tables* ribbon is used to format cells in the document as a table; this is useful for

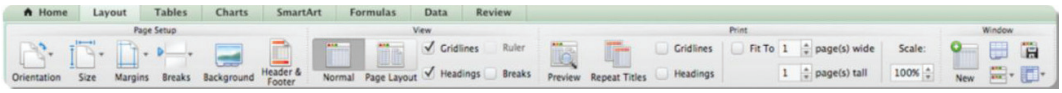


FIGURE 13.9
Layout ribbon in Excel 2011

managing and maintaining lists of information. This ribbon also lets you select whether you want to include specific elements in your table formatting, such as a header row. The *Charts* ribbon is where you create a visual data representation to include in your spreadsheet. There are a number of chart types available for different types of data and different presentations of information. The *SmartArt* ribbon is similar to what is found in Word and PowerPoint; you can use this ribbon to add graphics to your document to convey information visually. These three ribbons are shown in Figure 13.10.

The *Formulas* ribbon is where you can access the available formula library in Excel. This ribbon contains an icon for quick access to formulas for summations and averaging, as well as the *Formula Builder* icon for creating more advanced calculations. You can also control the recalculation options for your formulas from this ribbon (by default, the recalculation is immediate whenever a value is changed) and trace the cells used in your calculations. The *Formulas* ribbon is shown in Figure 13.11.

The *Data* ribbon, shown in Figure 13.12, contains the functionality for managing information in your spreadsheet. You can sort and filter data from this ribbon, manage external data sources, remove duplicate values in a list, and convert the existing text into separate columns. Data validation and grouping is also performed from this ribbon.

The *Review* ribbon, shown in Figure 13.13, is primarily used for document collaboration and markup. You can add or address comments from this ribbon, and also share your document or set document protection so it cannot be altered.

Microsoft Excel Web App

13.3.3

From your OneDrive account, you can also create a new Excel workbook or edit an existing workbook in your online storage using the Microsoft Excel Web App. You can see the interface of the Excel Web App in Figure 13.14. Similar to the other Web

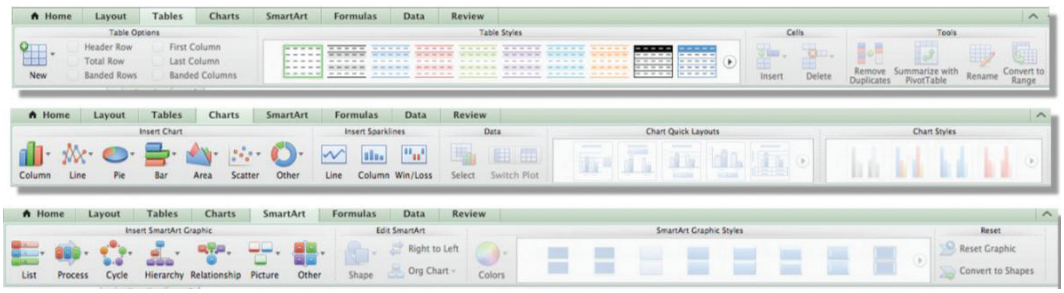


FIGURE 13.10
Tables, Charts, and SmartArt ribbons in Excel 2011

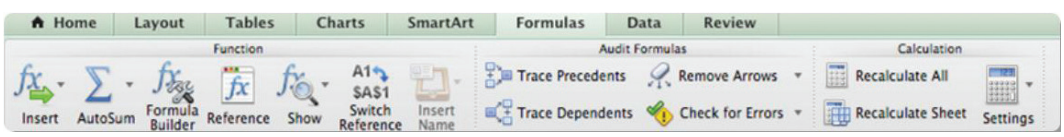
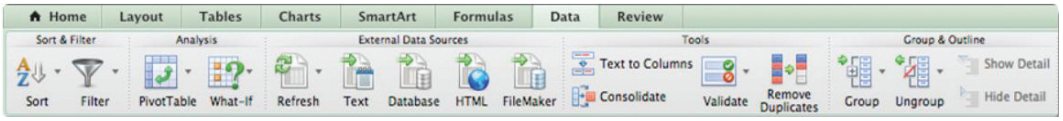
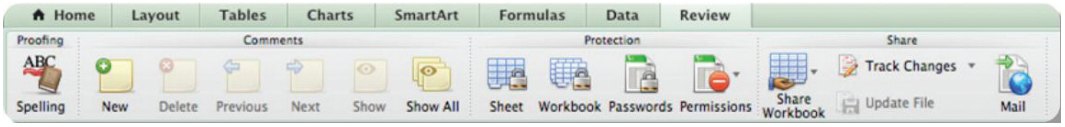


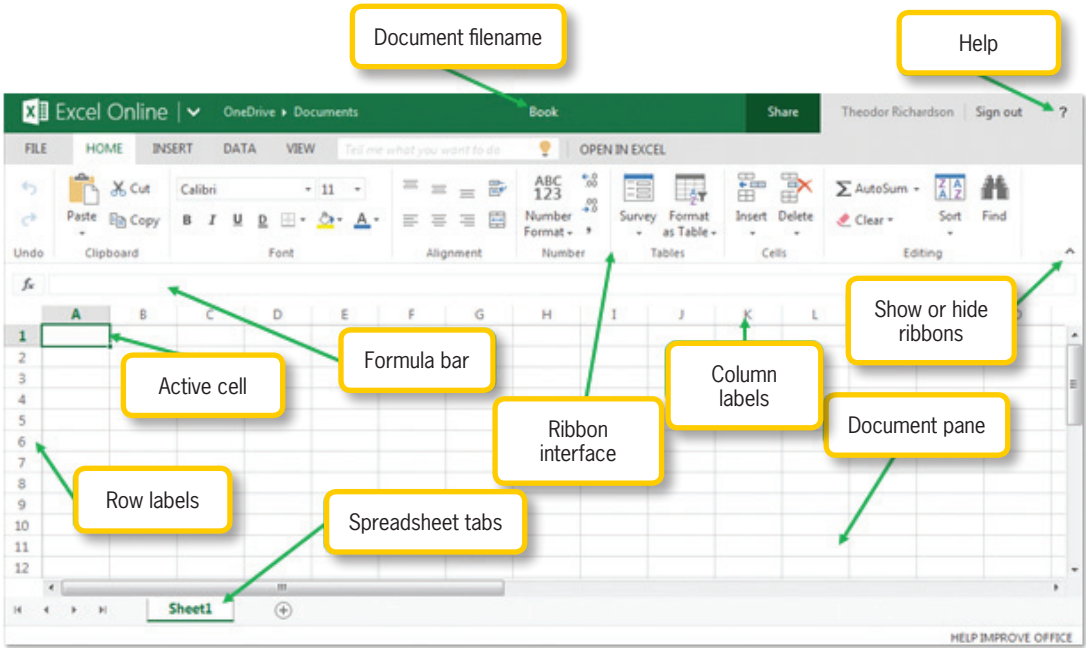
FIGURE 13.11
Formulas ribbon in Excel 2011

➤ **FIGURE 13.12**
Data ribbon in Excel 2011



➤ **FIGURE 13.13**
Review ribbon in Excel 2011





▲ **FIGURE 13.14**
Anatomy of the Excel Web App

versions of the Office software you have seen so far, the Excel Web App has a limited subset of the functionality of the Excel program along with the ability to open the document in the full version installed on the computer and the ability to share the document via the Share option found in line with the other ribbons. The basic organization of the interface is very similar to the 2013 version of Excel. Note the inclusion of the collaboration information at the bottom of the interface, indicating how many people are concurrently working on the document. There is no *Save* icon in the Quick Access toolbar because changes are saved as soon as any action in the document is completed.

The *Home* ribbon, also shown in Figure 13.14, contains formatting commands for text and numerical values. The number formatting options are collapsed in this version into a dropdown list under Number Format as well as the ability to add or reduce significant digits. Most of the commands on this ribbon should be familiar to you from the use of other Office software.

The *Insert* ribbon, shown in Figure 13.15, provides options for adding charts and formulas to your document. You can also add

hyperlinks and tables from this ribbon. The *Data* ribbon contains the Calculate Workbook command to refresh the calculations in the workbook as well as the options for sorting by column. You can see the *Data* ribbon in Figure 13.15 as well. The *View* ribbon, also shown in Figure 13.15, contains only the option to hide the interface in Reading View or show the interface in the standard Editing View. Most of the functions you will need in Excel are limited to the standalone versions installed on the computer, though the Web version can be used for quick edits and computations when you are away from your home or work computer.

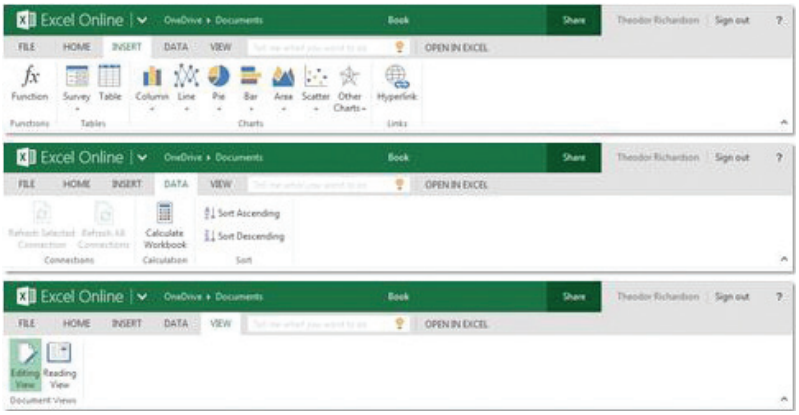


FIGURE 13.15
The Insert ribbon, Data ribbon, and View ribbon in the Excel Web App

13.3 DIVING INTO SPREADSHEETS

Now that you are familiar with the interface of the software, the next step is to start creating the budget document used as a project for this chapter. You are going to establish a projected budget and fill in cells with the actual amounts on a month-by-month basis. When you have completed this project, you can use the document to assist with your own financial planning. Select the first tab (labeled *Sheet1*) at the bottom of the interface, right-click on it, and select *Rename* from the menu. Rename the worksheet *Monthly Budget*. Be sure to save your work after you have made changes.

13.3.1 Adding and Formatting Text

Column A will be used to store the line items you are going to account for in your budget. In cell *A1*, type the words *Monthly Budget*; you can format text in Excel just as you can in other Office products using the formatting commands on the *Home* ribbon. Bold your text to signify its importance as a heading. Because this is not a print document, you can use the sans serif default font for readability. The unformatted text in the cell will appear in the Formula Bar.

Skip over rows 2 and 3 for now; formatting and additional row headings will be added later. Note that skipping rows between major headings is helpful in organizing your information. In cell *A4* (where column A intersects row 4), add the heading *Income*; this is where you will track your monthly income from which you will deduct your expenses using a formula. You should bold category headings and include subheadings in the same column as normal text; in column A beneath the Income heading, add the following categories:

- Household Expenses
    - Rent/Mortgage

- Phone
- Cable
- Groceries

- Utilities
  - Electric
  - Gas
  - Water
- Car
  - Payment
  - Gas
  - Insurance
- Pets
  - Food
  - Miscellaneous (abbreviated Misc.)
- Recreational
  - Clothing
  - Dining Out
  - Entertainment
- Savings

In the line under Savings, enter the percentage of your monthly income you would like to save each month; for the example, this is 10%. The final two categories for column A are *Total Expense* and *Net Income*. Skip a row above each of these category names. A completed example is shown in Figure 13.16. You can modify the categories and headings to meet your own needs for budget tracking, or you can follow along exactly with the example to become familiar with the functionality of the application and then later adjust what you have entered as a test of your understanding.

	A
1	**Monthly Budget**
2	
3	
4	**Income**
5	
6	**Household Expenses**
7	Rent/Mortgage
8	Phone
9	Cable
10	Groceries
11	
12	**Utilities**
13	Electric
14	Gas
15	Water
16	
17	**Car**
18	Payment
19	Gas
20	Insurance
21	
22	**Pet**
23	Food
24	Misc.
25	
26	**Recreational**
27	Clothing
28	Dining Out
29	Entertainment
30	
31	**Savings**
32	10%
33	
34	**Total Expenses**
35	
36	**Net Income**

FIGURE 13.16
Completed budget headings in Excel 2013

If you need more room in a column for the text you have entered, you can resize its width by selecting the line separating it from the next column and dragging it to expand or shrink the column width; for example, select the line dividing column A from column B and drag it to the right to expand column A. You can also select the cells you want to modify and choose the *Wrap Text* icon to display the text of the cell on multiple lines; this is found in the *Alignment* panel of the *Home* ribbon.

Column B will be used to project the monthly estimate of your household income and the cost of each category. In cell *B3*, enter the text *Budgeted Amount*; use the Wrap Text command along with the alignment commands to display the text in the vertical and horizontal center of the cell.

You can use the mouse to click the different cells in which you want to enter data, or you can use the *Enter* key to get to the next cell beneath the one currently selected. Press *Enter* twice to add a blank row between categories.

You can apply formatting to an entire row or column by clicking on the row or column label, respectively, and then selecting the formatting commands you wish to apply. If you want to apply the formatting to the entire spreadsheet, select the small unlabeled area to the left of column A and above row 1 and select the formatting commands.

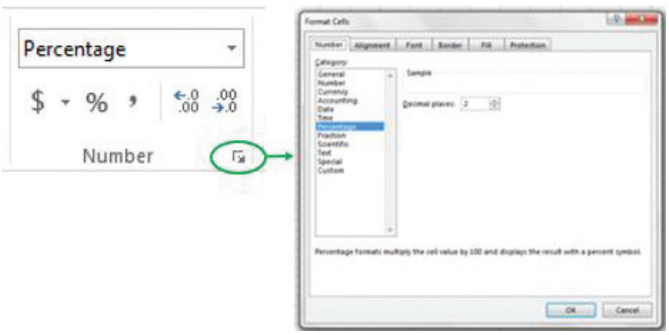
13.3.2 Formatting Values

In column B, you are going to assign your budgeted values for the respective categories in column A. Do not add values for the main headings, like Recreational; focus instead on the values for the subheadings, like Clothing and Entertainment. You will use formulas to calculate the values of the overall categories. You may notice as you add numbers to your spreadsheet that they will align to the right of the cell by default; text, on the other hand, aligns to the left. The text formatting commands are all available for use on numeric values as well.

An additional set of formatting commands is available for numbers in the *Number* panel of the *Home* ribbon. These commands are shown in Figure 13.17. You can select the formatting you want to use from the predefined list, including Currency, Percentage, and Scientific. You can also choose *More Number Formats* from the *Number Format* selection box to customize your own number formatting style. This will open the *Number* tab of the *Format Cells* dialog box, which is also shown in Figure 13.17. In Excel 2013, you can also open this dialog box by selecting the expansion icon on the *Number* panel.

The additional commands available from the *Number* panel include the Accounting Number Format (which defaults to the symbol $, a United States dollar sign) for currency values; this contains a drop-down list of common world currencies. You can also use the Percent Style and Comma Style formats to adjust the cells quickly; apply the *Percent Style* to the number you chose for your monthly savings (in column A). The *Increase Decimal* and *Decrease Decimal* icons are used to increase or decrease the number of significant digits displayed for the value; this does not affect the value itself that is stored in the cell, just the manner in which that value appears.

Check the result of the formatting change to Percentage on your values to make sure you have the number you intended; this formatting converts the value *1.00* to *100%*, so you may need to convert the formatting for the cell and retype the percentage you want.



◀ **FIGURE 13.17** Number panel and Format Cells dialog box in Excel 2013

Once you have entered your monthly budget values in column B up to the value for Savings (you will compute Savings, Total Expenses, and Net Income as formulas), select the *Accounting* style for the values

(which differs from the Currency format in the placement of the symbol identifying the currency, such as $). Now use the *Decrease Decimal* command to remove the decimal points so the numerical values are displayed as whole currency. A completed example is shown in Figure 13.18. Feel free to use your own values rather than those in the example.

Activity 13.1—Formatting Values

For this activity, you will create a new spreadsheet document and save it as Activity13_1 *in the* Activities *folder. In column A, place the number 1 in cells A1 to A10. Use a different numerical format from the dropdown list on each cell. What is the result of each formatting type? When would you use each of these formats? Save your work.*

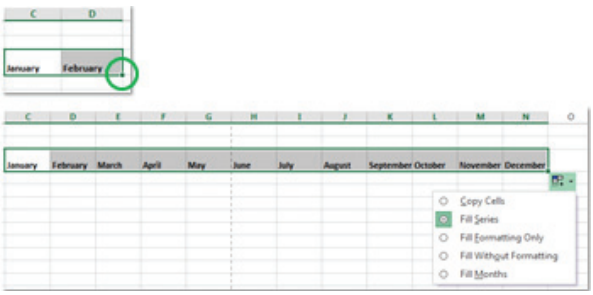
13.3.3 Using Sequences

Excel can use two cells to predict simple series like counting numbers, days of the week, and months of the year. You are going to create a yearly budget plan for this example, so enter *January* in cell C3 and *February* in cell D3. When you select both cells with your cursor, you will see them surrounded by a thick border with a grip point at the lower-right corner of the selection; click and drag this grip point in the direction of the series entry (in this case horizontally) to extend the sequence. Click the grip point and drag it out until you have a complete cycle of months from January to December. The grip point and the completed series are shown in Figure 13.19.

➤ **FIGURE 13.18**
Example monthly budget values in Excel 2013

	A	B
1	**Monthly Budget**	
2		
3		**Budgeted Amount**
4	**Income**	**$ 3,300**
5		
6	**Household Expenses**	
7	Rent/Mortgage	$ 1,000
8	Phone	$ 50
9	Cable	$ 120
10	Groceries	$ 600
11		
12	**Utilities**	
13	Electric	$ 70
14	Gas	$ 70
15	Water	$ 30
16		
17	**Car**	
18	Payment	$ 250
19	Gas	$ 100
20	Insurance	$ 100
21		
22	**Pet**	
23	Food	$ 60
24	Misc.	$ 50
25		
26	**Recreational**	
27	Clothing	$ 100
28	Dining Out	$ 100
29	Entertainment	$ 50
30		
31	**Savings**	
32	10%	
33		
34	**Total Expenses**	
35		
36	**Net Income**	

You can use the automatic series generator in Excel to create headings for months, days, or years and to create an index for data values. The series can be extended vertically or horizontally, but the direction depends on the adjacency of the example cells you select; you can continue the sequence only in that direction. Excel will attempt to predict the sequence as an additive series; you must be sure the pattern you are attempting to have Excel predict is simple and you must verify that the values you get in response are correct. If you have only a single value highlighted, Excel will repeat that value in the adjacent cells.



➤ **FIGURE 13.19**
Series example in Excel 2013

13.3.4 Formatting Cells

Now that you have the headings for the vertical and horizontal entries in your budget, you want to focus on formatting them to make your budget more readable. Start by setting a column width for the monthly entries you have added. To do this, select the column headings from column C (which should contain your January entry) to column N (which should contain December). With all of these columns selected, drag the line separating column C from column D to set a common width for all of the columns you have highlighted. You should set a width that is sufficient to read the month value for each column. You can also set a specific value for the column width using the *Format* command on the *Home* ribbon with the columns selected; select *Column Width* from the drop-down list that appears and choose *9.5* as the value for the width.

You can add formatting to the cells by using the *Fill Color* menu and the *Border* menu on the *Home* ribbon. The *Fill Color* icon gives you the standard selection of theme colors (which can be selected from the *Page Layout* ribbon in Excel 2013 and from the *Home* ribbon in Excel 2011) and standard colors. The *Border* menu allows you to add specific borders (such as a Bottom Border or Outside Borders) from the default selections. You can also select the line styles from this menu in Excel 2013 or choose *More Borders* to access the advanced options for customizing the border; the advanced options are available in Excel 2011 by choosing *Border Options* from the *Border* menu. The selections you make will apply only to the cells that are highlighted when you choose the various options.

To continue building your budget, add the heading *Annual Amount* to cell *O3*. You should use the same formatting as you did for cell *B3*, including enabling Wrap Text. Select cells *B3* through *O3* and choose a light green fill for the background (you can choose another color if you like as long as the text is still visible) using the *Fill Color* command.

Now select cells *B3* through *O36* (this should be the last cell corresponding to the intersection of the column containing *Annual Amount* and the row containing *Net Income*). Select the *More Borders* option from the *Borders* menu. In the dialog box that appears, enable the middle vertical border and the right border, as shown in Figure 13.20, and click *OK*.

Next, select the cells in the row where you have the value for your savings amount beginning with column B and extending through column O. (If you have followed the example, this will be cells B32 through O32.) Select the *Bottom Border* option from the *Border* menu for these cells; you should notice that the formatting you have already applied to the cells is still active. Finally, select the cells in the row corresponding to the *Net Income* entry from column B through column O (this will be cells B36 to

You can access all of these options from the *Format Cells* selection on the right-click menu. You must first select all of the cells to which you want the formatting to apply, right-click, select *Format Cells*, and then choose the tabs for Fill or Border as necessary.

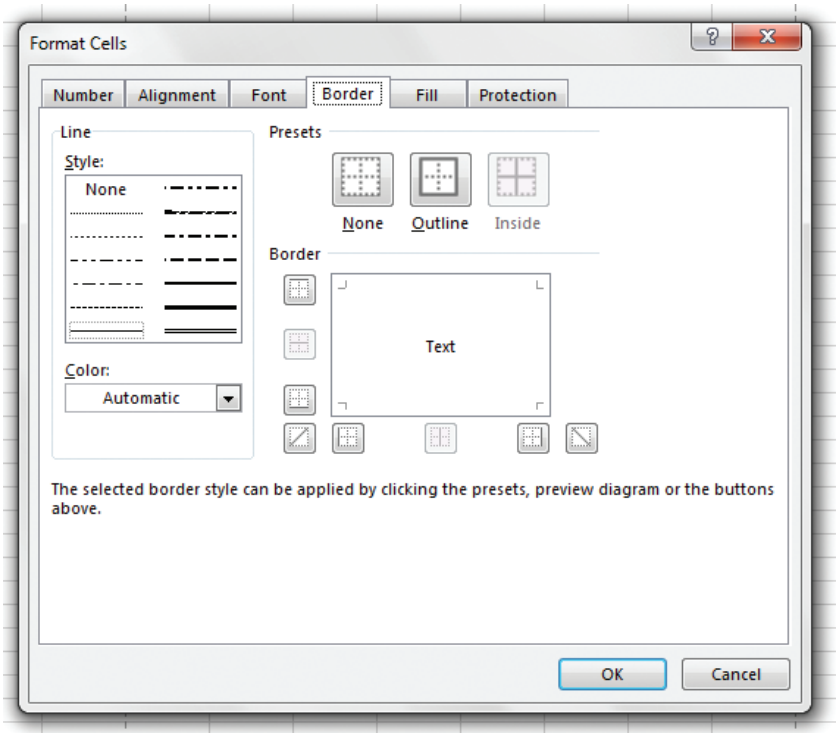


FIGURE 13.20
Border tab of Format Cells dialog box in Excel 2013

Freezing Panes

13.3.5

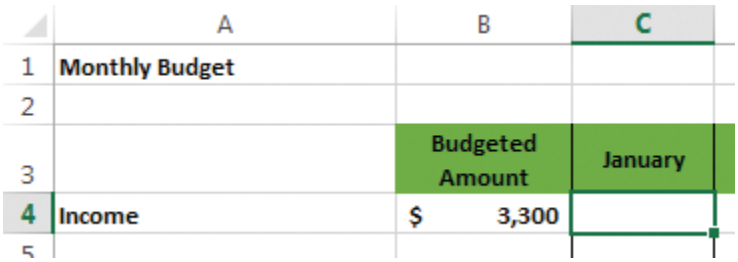
Using the *Freeze Panes* option allows you to keep your headings visible on the page no matter where you scroll within your spreadsheet. You can choose to freeze columns, rows, or both. The only caveat as to what can be frozen is that you must freeze the contents of the upper-left corner of the spreadsheet to the cell you choose for enabling the freeze. The cell you highlight when you choose the *Freeze Panes* option will define the border of what is frozen; any cells above and to the left of the selection (but not including the selected cell itself) will remain in place as you scroll the document.

O36 if you are following the example). Add a Top Border and Bottom Double Border to the highlighted cells. An example of the completed steps is shown in Figure 13.21.

FIGURE 13.21
Completed cell formatting example

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	**Monthly Budget**														
2															
3		**Budgeted Amount**	**January**	**February**	**March**	**April**	**May**	**June**	**July**	**August**	**September**	**October**	**November**	**December**	**Annual Amount**
4	**Income**	$ 3,300													
5															
6	**Household Expenses**														
7	Rent/Mortgage	$ 1,000													
8	Phone	$ 50													
9	Cable	$ 120													
10	Groceries	$ 600													
11															
12	**Utilities**														
13	Electric	$ 70													
14	Gas	$ 70													
15	Water	$ 30													
16															
17	**Car**														
18	Payment	$ 250													
19	Gas	$ 100													
20	Insurance	$ 100													
21															
22	**Pet**														
23	Food	$ 60													
24	Misc.	$ 50													
25															
26	**Recreational**														
27	Clothing	$ 100													
28	Dining Out	$ 100													
29	Entertainment	$ 50													
30															
31	**Savings**														
32	10%														
33															
34	**Total Expenses**														
35															
36	**Net Income**														

In Excel 2013, the *Freeze Panes* icon is on the *View* ribbon; in Excel 2011, the *Freeze Panes* icon is on the *Layout* ribbon. For the example, click cell *C4* and select *Freeze Panes* to lock your headings and estimated budget in place while allowing the rest of your entries to scroll. The correct cell you need for the example is highlighted in Figure 13.22. Move the scrollbars after this step has been completed to see its effect on your document. To remove the Freeze Pane effect, select the *Freeze Panes* icon again and choose *Unfreeze Panes*.



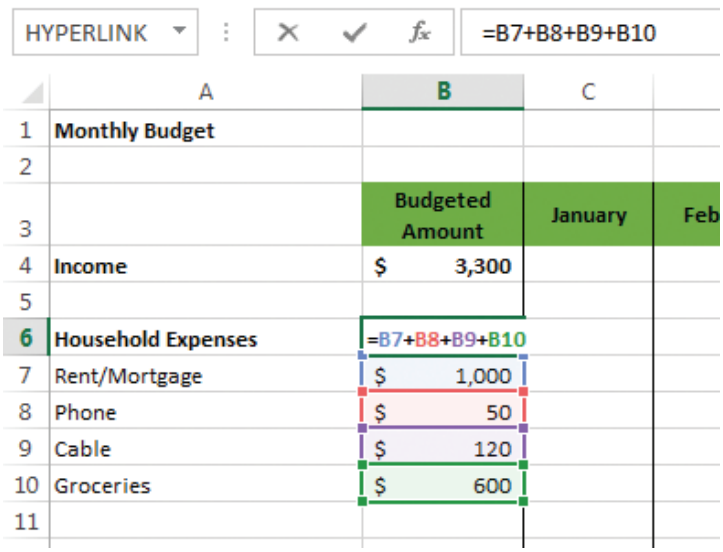
▲ **FIGURE 13.22** Example cell selection for Freeze Panes effect

13.3.6 Adding Basic Formulas

Formulas are an excellent way to perform calculations on the data within your spreadsheet. In fact, a large portion of the power of using spreadsheets is the ability to automate complex calculations. The formulas in your spreadsheet will operate just like equations, with the cells occupying the position of variables. For instance, to calculate the total of the entire Household Expenses category, select the cell in column B beside the category name and type the equals symbol (=), which signifies a calculation. Next, you can use the cell names as values; for the example, type *B7+B8+B9+B10*. You will see your entry in the Formula Bar along with two new symbols for Enter and Cancel; you can use these to finish your formula or you can press the *Enter* key. When you complete your formula, the value will display in cell B6; you can add any formatting to the cell that you want applied to the value. The example formula is shown in Figure 13.23.

Mathematical Calculations 13.3.6.1

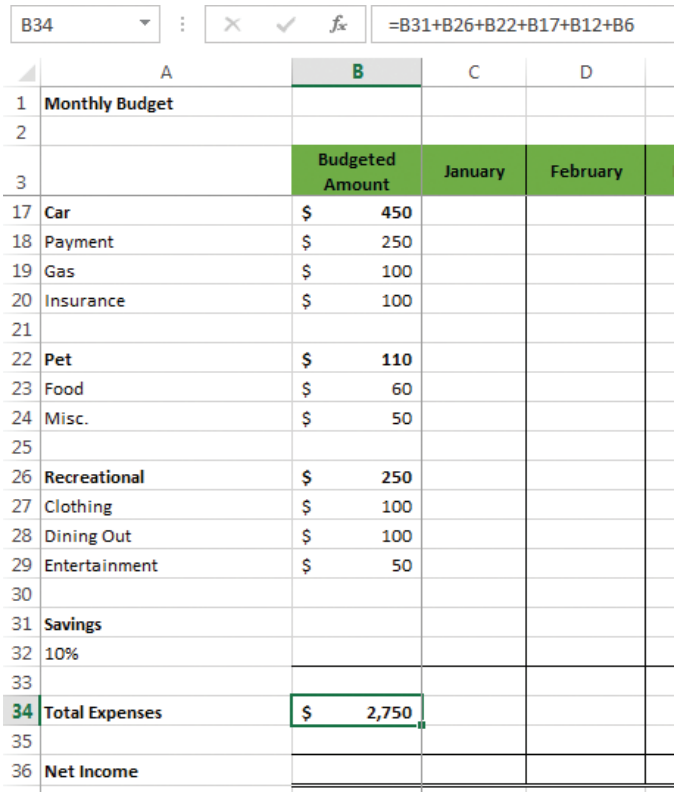
You can perform standard mathematical calculations in Excel in addition to entering formulas. The order of operations hierarchy in mathematics is upheld in Excel, where division and multiplication are ranked above addition and subtraction in performance order. Using parentheses will supersede any



◀ **FIGURE 13.23** Example formula in Excel 2013

operation such that whatever is added inside of the parentheses will be performed first in the operation order. Practice creating simple formulas to add the elements of each category up to the Savings category. Apply bold formatting to the category sums (as well as the income entry if you have not done so already).

➤ **FIGURE 13.24** Example total expenses calculation in Excel 2013



	A	B	C	D
1	**Monthly Budget**			
2				
3		**Budgeted Amount**	**January**	**February**
17	**Car**	**$ 450**		
18	Payment	$ 250		
19	Gas	$ 100		
20	Insurance	$ 100		
21				
22	**Pet**	**$ 110**		
23	Food	$ 60		
24	Misc.	$ 50		
25				
26	**Recreational**	**$ 250**		
27	Clothing	$ 100		
28	Dining Out	$ 100		
29	Entertainment	$ 50		
30				
31	**Savings**			
32	10%			
33				
34	**Total Expenses**	**$ 2,750**		
35				
36	**Net Income**			

Once you have the category sums calculated, you are going to enter the equation for Total Expenses; to do this, simply add together the cells containing each category sum. You can see the formula for the example budget in Figure 13.24. If you have followed along with the example, your result should be $2,750. The final equation you will add in this step is for Net Income; this is the income value (cell B4 in the example) minus the Total Expenses value (cell B34 in the example). If you have followed the example, the result should be $550.

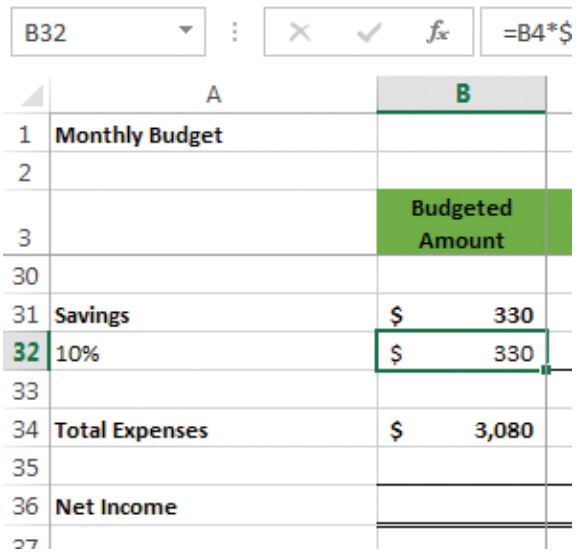
13.3.6.2 *Freezing Cells in Formulas*

When you copy and paste cells or when you duplicate cells as you will in the next steps for constructing a budget, the cell values will automatically update based on the position of the formula. For instance, if you copy the example formula for Net Income in cell *B36* to cell *C36*, the cell references that previously included cells in column B (cells *B4* and *B34*) will now refer to the equivalent cells in column C (cells *C4* and *C34*). To prevent this type of update, use the dollar sign in your formula to fix a certain value.

As an example of this, consider the following:

- $B4 will preserve the column reference as column B when copied but will allow the row reference (row 4) to change.
- B$4 will preserve the row reference to row 4 but will allow the column reference, currently column B, to change.
- $B$4 will preserve the exact reference to column B and row 4, retaining this fixed value no matter where the formula is copied and placed.

You will use this ability to freeze cell values to construct the formula for the Savings value. To do this, select the cell in column B beside the percentage value you selected for savings in column A (for the example, this is cell *B32*). Multiply the percentage value by the income for the budget. When



▲ **FIGURE 13.25** Example formula with fixed/frozen cell reference

you duplicate this formula, you want it to be based on the monthly income, but you want the percentage to remain the same. Therefore, you will freeze the reference to the percentage by entering *=B4*$A$32* as the cell data; this preserves the reference to cell A32 for the percentage value and updates the income reference wherever the formula is copied. Figure 13.25 shows the example.

Activity 13.2—Cell References

For this activity, you will create a new spreadsheet document and save it as Activity13_2 *in the* Activities *folder. In column A you will add the numbers 1 through 3 in cells A1 to A3. Place the numbers 4 through 6 in cells B1 to B3 and then place the numbers 7 through 9 in cells C1 through C3. In cell A4, you should add the formula =A$1, and use the Fill functionality to copy this formula into cells B4 and C4. What values are displayed as a result? In cell A5, add the formula =$A$2. Use the Fill functionality to copy this formula into cells B5 and C5. What values are displayed in each of the cells? Save your work.*

The SUM Function 13.3.6.3

In addition to standard mathematical operations, Excel has a library of existing formulas that you can use to perform complex calculations within your spreadsheet. One of the common formulas is SUM, which computes the numeric sum of the cells listed as its argument. An example of using SUM would be to replace the formula for calculating the total Recreational expenses (*=B27+B28+B29* from the example) with the SUM formula operating on those cells; the formula would then be *=SUM(B27,B28,B29)*. The term SUM is the name of the formula and the entries in the parentheses are the arguments, or values on which the formula is operating. The result of both of these calculations would be the same.

You can use the colon symbol (:) as a shortcut to include adjacent cells in an argument of a formula. Entering *B27:B29* in a formula means all of the cells from cells *B27* through *B29*, inclusive. The SUM function in the example can therefore be rewritten as *=SUM(B27:B29)* to produce the same result. You can only use the shortcut if you want to include all of the cells in an adjacent range. Practice using the SUM formula by replacing the formulas you constructed for calculating the total expense for each category. An example of this is shown in Figure 13.26.

▼ **FIGURE 13.26** Example use of the SUM formula

Activity 13.3— Using Formulas

For this activity, you will create a new spreadsheet document and save it as Activity13_3 *in the* Activities *folder. In column A you will add the numbers 1 through 3 in cells A1 to A3. Place the numbers 4 through 6 in cells B1 to B3 and then place the numbers 7 through 9 in cells C1 through C3. Now, you will add formulas to calculate sums in column D and row 4. In cell A4, you should add the formula =A1+A2+A3. Now repeat the pattern in cells B4 and C4. Do the same in column D to calculate the sums of the row entries. As a final step, in cell D4, you should calculate the sum of all of the cells from A1 to C3. Save your work.*

13.3.7

Using Directional Fill

When you want to duplicate a value or repeat a formula in a spreadsheet, you select the value you want to repeat, highlight the direction in the spreadsheet to which you want to repeat the value, and use the *Fill* menu to repeat it. The *Fill* menu, found on the *Home* ribbon, contains entries for the four primary directions. For example, *Fill Right* will select the leftmost value (which should be the one you want to repeat in the adjacent cells) and copy it to all of the highlighted cells to the right. You are going to practice using the Fill command to duplicate the formulas you constructed for your budget to the cells for the months. Obviously you need to enter the actual monthly values in each of the subcategories and in the cell representing Income, but the calculations will remain the same.

To complete this task for the Household Expenses category, select cell B6 and highlight all of the cells in that row through column N (which should contain the December heading). With all of these cells highlighted, select the *Fill* menu from the icon on the *Home* ribbon and choose *Right*. You can perform this same task by clicking the cell you want to duplicate and using the grab point in the lower-right corner to drag the contents to the adjacent cells into which you want to copy the value. Repeat this task from column B to column N for all of the rows containing category headings as well as the percentage entry for Savings (which has the reference to the percentage frozen), the row containing Total Expenses, and the row containing Net Income.

The final column for Annual Amounts also needs to be completed before your budget is done. This column is a sum of the yearly expenses and income and a report of the annual differences and net income for the year. Therefore, each of the column entries will be a summation of the respective values from January to December. You can use the Fill command to make short work of compiling this information. In cell *O4* (if you have followed the example), enter the text *=SUM(C4:N4)* to calculate the net income for the year.

You may get an error message (which appears as a small green triangle in the upper-left corner of the cell in Excel 2013) when you enter this formula, saying you have omitted adjacent cells in your formula. You should ignore this error since the adjacent cells are the budget value and do not represent the real value of any particular month.

Select cell *O4* and highlight the adjacent cells all the way to the row containing the Net Income entry (cell *O36* in the example). Choose the *Fill Down* command to duplicate the formula for every cell in the column. Now format the cells using the *Accounting* style with no digits after the decimal point. Click any filled cells in column O that correspond to intentionally blank rows and press the *Delete* key to remove the contents. When you are finished, you will have a functional budget sheet to track your annual expenses. Your result should be similar to what is shown in Figure 13.27.

13.3.8 Navigating the Spreadsheet

There are several shortcut commands on the keyboard that will allow you to move through your spreadsheet quickly. The arrow keys can be used to move one step for each keypress in any of the cardinal directions. You can also hold down the Shift key to select the cells between your starting location and where you end (if you move your cursor in two directions, it will select the rectangular set of cells between the starting location and the ending location just as it does when you click and drag the cursor).

The shortcut commands on the keyboard that are coupled with the Control (Ctrl) key can be used for quick navigation as follows (the Command key on a Macintosh is substituted in these examples for the Control key on a Windows machine):

- *Ctrl-a directional arrow*—This will jump the cursor to the last entry in the direction of the arrow key before a blank space in the current selection; if the cursor is already at a blank space, it will jump to the next location in line with content or, if there is no content, the cursor will jump to the end of the spreadsheet.

▼ FIGURE 13.27
Completed budget example

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	**Monthly Budget**														
2															
3		**Budgeted Amount**	**January**	**February**	**March**	**April**	**May**	**June**	**July**	**August**	**September**	**October**	**November**	**December**	**Annual Amount**
4	**Income**	**$ 3,300**													$ -
5															
6	**Household Expenses**	**$ 1,770**	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
7	Rent/Mortgage	$ 1,000													
8	Phone	$ 50													
9	Cable	$ 120													
10	Groceries	$ 600													
11															
12	**Utilities**	**$ 170**	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
13	Electric	$ 70													
14	Gas	$ 70													
15	Water	$ 30													
16															
17	**Car**	**$ 450**	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
18	Payment	$ 250													
19	Gas	$ 100													
20	Insurance	$ 100													
21															
22	**Pet**	**$ 110**	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
23	Food	$ 60													
24	Misc.	$ 50													
25															
26	**Recreational**	**$ 250**	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
27	Clothing	$ 100													
28	Dining Out	$ 100													
29	Entertainment	$ 50													
30															
31	**Savings**	**$ 330**	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
32	10%	$ 330													
33															
34	**Total Expenses**	**$ 3,080**	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
35															
36	**Net Income**	**$ 220.00**	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

- *Ctrl-Shift-a directional arrow*—This has the same effect of moving the cursor as the shortcut command for Ctrl-a directional arrow, but it also highlights/selects the cells between the starting and ending location.
- *Ctrl-Home*—This returns the cursor to cell A1 regardless of the current cursor location.
- *Ctrl-End*—This sends the cursor to the farthest cell to the right and down on the spreadsheet where content has been added.
- *Ctrl-Page Down (PGDN)*—This command advances to the next worksheet in the workbook (just like clicking the tab to the right of the current worksheet).
- *Ctrl-Page Up (PGUP)*—This command opens the previous worksheet in the workbook (just like clicking the tab to the left of the current worksheet).
- *Ctrl-A*—The *Select All* command in Excel will select only the cells that contain information that are adjacent to the current cell. Pressing *Ctrl-A* again with the adjacent information selected will select the entire worksheet.

13.4 ADDING CHARTS

Charts are great tools for visualizing information. Because human beings are generally able to process visual information more quickly than text, charts are a great way to express the overall idea or trend of data in a single image rather than either a lengthy text explanation or large amounts of data that must be read. If you have followed along with the text so far, you should have some idea of how charts work by inserting them into your PowerPoint presentations; Excel is the program that actually manages chart data whenever you add a chart to any Office document. For this example, you are going to create a line graph to view your monthly income and your overall monthly expenses.

Chart Data 13.4.1

To create a chart in Excel, select the data range you want to include in the chart. In this case, you will select the row containing Income (row 4 in the example) from column A (where the heading is located) to column N (representing the December entry). With these cells selected, choose the chart type you want to insert. In Excel 2013, you can add a chart to your document by selecting the type of chart on the *Insert* ribbon; in this case, select the *Line* icon and choose *Line* beneath the *2-D Line* heading. In Excel 2011, you can find this option in the *Charts* ribbon. A chart will be added to your document. Enter values for your income over the months to see the effect it has on the chart display. To preserve your blank chart for your own use, you can save this workbook as *MyBudgetChart* so you can enter information needed for the chart to display correctly.

You may notice that your chart includes the column for your budget estimate, which you want to remove to get a clear picture of your income over the year. To do this, you need to edit the chart data. In Excel 2013, you can find the *Select Data* icon in the context-sensitive *Design* ribbon for Chart Tools; in Excel 2011, the *Select* icon is located on the *Charts* ribbon. When you click this icon, a dialog box will appear from which you can edit

the cell locations that determine the chart. In Excel 2013, click on the *Income* series and choose *Edit* to open a dialog box where you can select your data. In Excel 2011, simply click on the *Income* series and the fields will display on the right side of the pane.

In Excel 2013, you can also use the *Quick Layout* menu on the context-sensitive *Design* ribbon for *Chart Tools* to adjust the layout of your chart and the various elements that will be included in its display. Figure 13.28 also shows the *Chart Elements* menu in Excel 2013. You can use this to decide which elements to show or hide. The paintbrush icon beneath it can be used to make quick style changes to preset styles for the chart as well.

The series name is correct, but the series values should begin at cell C4 and run through cell N4 if you have followed along with the example. You can either enter the information as you normally would for a formula, or you can click the data selection icon and use your mouse to highlight the correct cells in the document (press the *Enter* key when you have selected the correct cells). The result of this data selection change is shown in Figure 13.28.

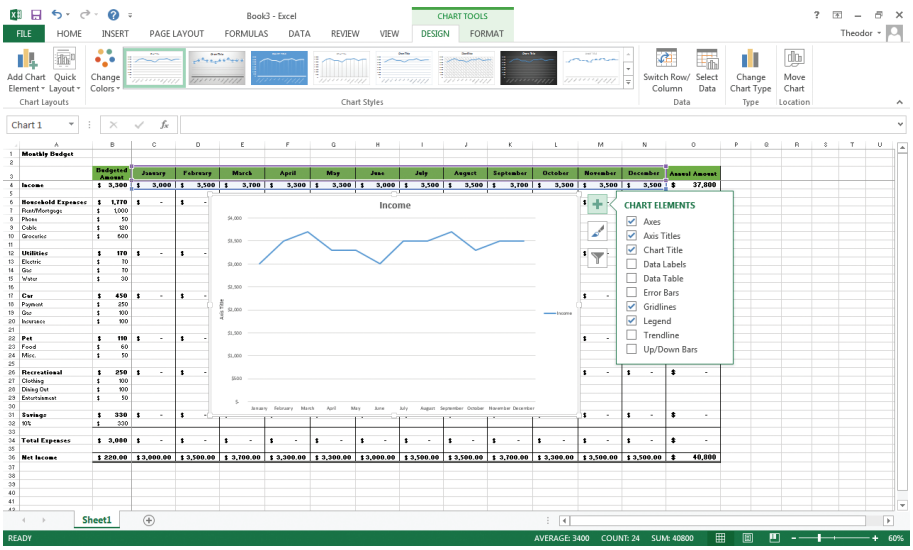
The next step is to add a new series to track the total expenses for each month as a comparison against the Income series you already have in the chart. To do this, activate the data selection dialog box just as you did to edit the Income series. This time, choose the *Add* button to create a new series. The correct data selection is shown in Figure 13.29. The series name should be the cell containing the text "Total Expenses," which is cell A34. The series values should be the cells corresponding to January through December in the row for Total Expenses (row 34).

As a final step for the chart creation, move your chart to another worksheet in your workbook. Click on the tab titled *Sheet 2* and rename it *Budget Chart*; click the chart you created, cut it from the document, select the new *Budget Chart* tab, and paste the chart into the worksheet. Delete any additional worksheets and save your workbook.

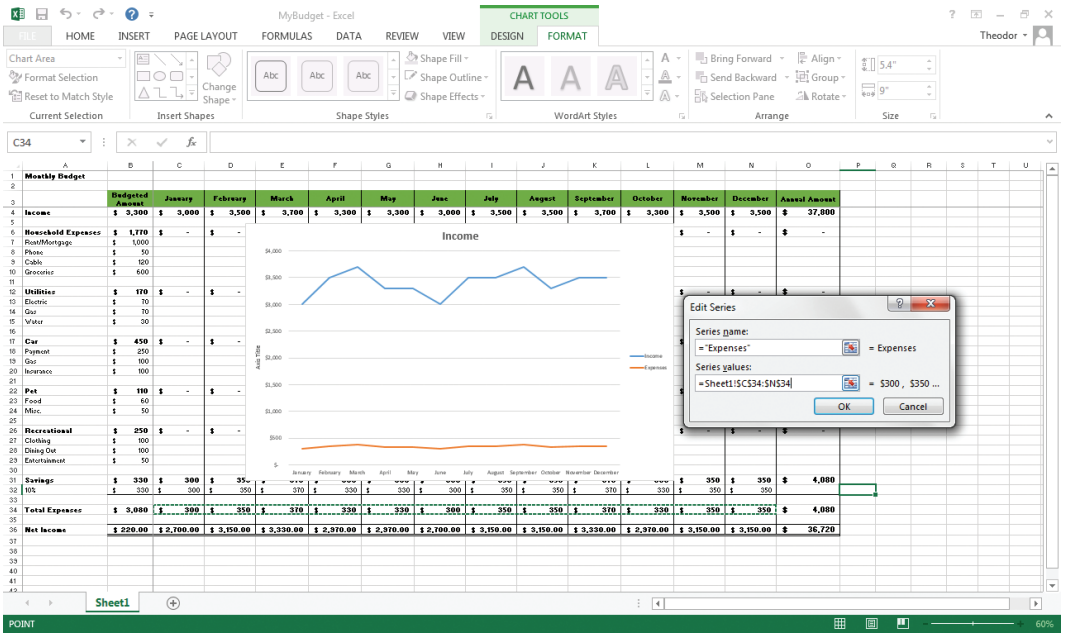
Activity 13.4—Exploring Charts

For this activity, you will create a new spreadsheet document and save it as Activity13_4 *in the* Activities *folder. Copy the contents of your budget file into your*

FIGURE 13.28
Example line chart for income



➤ **FIGURE 13.29**
Chart data selection for Total Expenses



workbook (you can select the empty cell to the left of A and above 1 to select your entire sheet and then press the shortcut command to copy the page. Click the same cell in a sheet in your new workbook and paste the copied contents. Create a different chart out of the data, and compare this chart to the line chart in terms of effectively displaying the data you want to review (in this case Income and Expenses). Which chart is more effective, and why is this the case? Save your work.

13.4.2

Formatting Charts

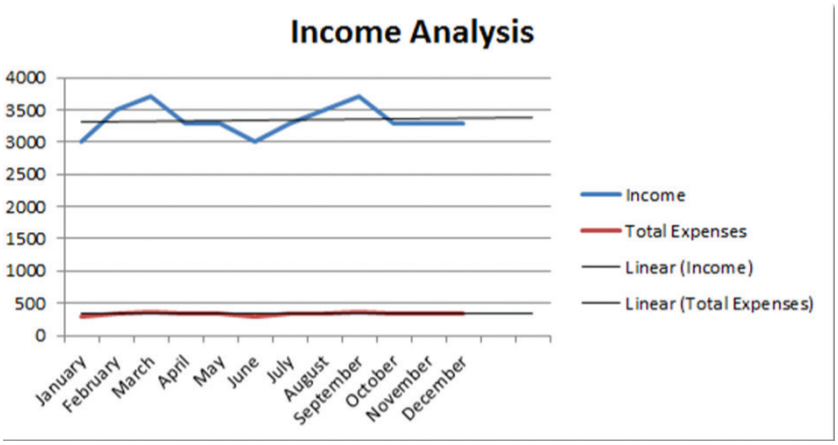
The next step is to format the chart so it is more readable and representative of its contents. You can start this process by adding a chart title. In Excel 2013, the *Add Chart Element* and *Quick Layout* menus can be used to add elements to your chart or change the chart appearance. There are also several preset styles from which you can choose for your chart in the *Chart Styles* pane of the *Design* ribbon for *Chart Elements*. In Excel 2011, select the *Chart Title* icon on the context-sensitive *Chart Layout* ribbon. Clicking the icon will add a default chart title that you can rename by clicking inside the text box and typing; for the example, enter *Income Analysis*.

Next, you will add a forecast trend line to predict both your income and your expenses. In Excel 2013, the trend line commands are located in the *Add Chart Elements* menu on the context-sensitive *Design* ribbon. You should select *Trendline* and then *Linear Forecast*. You will then be prompted to select the series for which to add the trend line. You should add one for both the Income series and the Expenses series. These trend lines can be used to predict the value of the series past the allocated data.

In Excel 2011, these are found on the *Chart Layout* ribbon. To add a trend line, select the *Trendline* icon and choose *Linear Forecast Trendline*. In the dialog box that

opens, select *Income* as the series to predict the income trend past the current cycle. Repeat the process to predict the expenses past the current cycle. This will show you if your expenses are approaching your income level, which is an undesirable situation that should guide you to reevaluate your budget.

As a final formatting step, adjust the labels of your horizontal axis to read the months of the year. To do this, activate the data selection dialog box for your chart. In Excel 2013, select the *Edit* button beneath *Horizontal (Category) Axis Labels*; in Excel 2011, the series data for this is called *Category (x) axis labels*, which allows you to type a direct reference or use the selection icon to choose the cells you want to use. Now that your chart is on a new spreadsheet, you will need to click the Monthly Budget tab to get back to the correct data; select the cells containing the names of the month from January to December. Compare your result with the completed chart in Figure 13.30.



◀ FIGURE 13.30
Completed chart example

CHAPTER SUMMARY

This chapter introduced the basic functionality of spreadsheet software. You learned how to add and format data, whether it is text or numeric values, as well as how to utilize that data in basic calculations. Formulas, charts, and organization of information represent the real power and utility of spreadsheets. Now that you have a basic idea of the interface and the navigation of the spreadsheet environment, it is time to turn to the next chapter where you will construct more involved spreadsheets that demonstrate the more powerful aspects of this type of application.

CHAPTER KNOWLEDGE CHECK

1 The intersection of column B and row 4 is denoted in a cell reference as:

- ◯ **A.** 4B
- ◯ **B.** B:4
- ◯ **C.** B4
- ◯ **D.** None of the above

2 Rows in a spreadsheet are labeled with letters, and columns in a spreadsheet are labeled with numbers.

- ◯ **A.** True
- ◯ **B.** False

3 Formatting can be applied to cell contents whether it is a fixed value or a formula calculation result.

- ◯ **A.** True
- ◯ **B.** False

4 The number of digits to the right of the decimal point that are visually displayed for a value is independent of the accuracy of the value stored in the cell.

- ◯ **A.** True
- ◯ **B.** False

5 A formula begins with the symbol:

- ◯ **A.** %
- ◯ **B.** =
- ◯ **C.** $
- ◯ **D.** None of the above

6 To fix a reference to the column but not the row of cell A6, the correct cell reference in a formula would be:

- ◯ **A.** $A$6
- ◯ **B.** $A6
- ◯ **C.** A$6
- ◯ **D.** A6

7 You can use the Fill command only on numeric values.

- ◯ **A.** True
- ◯ **B.** False

8 The SUM function takes cell references as an argument and calculates their total numerical value.

- **A.** True
- **B.** False

9 The following is the correct use of the SUM function in a cell:

- **A.** =SUM(A4:A6)
- **B.** =SUM(A4, A5, A7)
- **C.** =SUM(A4+A6)
- **D.** Both A and B.
- **E.** Both A and C.

10 A data series in a chart must be contained in a continuous set of cells (or a single cell) in either the same row or the same column.

- **A.** True
- **B.** False

CHAPTER REVIEW QUESTIONS

1 What are the main differences between using a table in a word processing document and using a spreadsheet document for organizing information? List at least six tools available with spreadsheets that are not available in tables.

2 Give two examples of when you would need to use a fixed cell reference in a spreadsheet. Give a brief explanation in your own words on how to freeze a cell reference.

3 SUM is just one example of a formula that is commonly used in Excel. Find at least two more formulas from the list and explain in your own words how to use them and give an example of their use (you do not have to have actual data used in the examples).

4 Choose three of the number formatting styles available in Excel; write a short description of how they format the data and when they would be used.

5 What is the difference between using series prediction and the Fill command in Excel? Give two examples where each of these functions would be used.

6 Choose two of the chart categories available in Excel and identify an example of a data series that would work well when displayed in that type of chart. What makes that data set ideal for the chart type and what visual information does the chart convey which would take a lot of text to explain?

7 What considerations should you have when printing an Excel spreadsheet to include with a business report? Include elements like the paper size as well as considerations of the data being presented.

8 Excel documents allow for the use of headers and footers in the document; give at least two reasons why these would be necessary. Cite examples in your analysis. Why would this information be placed in a header and not in an existing row in the document?

9 Media elements like images and SmartArt can be placed in Excel spreadsheets as well. Why would this be an option for inclusion and when would you suggest using such elements in your document?

10 Conditional Formatting is a function that will analyze the data range on which it is applied and will format the cells differently depending on their value. When would this be useful in a spreadsheet and what visual information does it provide? Give at least three examples in your explanation.

PRACTICE EXERCISES

1 Using the budget example as a basis, create a new spreadsheet page to track your bank account for one week. Categorize the expenses into various categories (you should create a Category column) and add any account credits to the Income category in a separate column from the debits of the account. Use the SUM function and compare the expenses to the credits. You do not have to enter specific information for the purchases, but you should name them so you can recognize what they represent.

2 Using the data from your budget, add a series to the chart for each category of expenses. Format the chart so it is still readable. Is this the correct type of chart to use for this additional information? Do the additional series entries contribute to or detract from the clarity of the visual presentation?

3 Add a new column to your budget document to calculate the average amount per month that is spent on each category and subcategory in your document. You can calculate this value using a direct formula or a calculation from existing data in the document.

4 Construct a budget for a fictional business based on the example you constructed in the chapter. What categories of expenses would you have to add to accommodate the operation of the business? What subcategories would comprise the income?

5 Use the data example in Figure 13.31 to construct an example account management spreadsheet. You should apply the formatting techniques you have learned for spreadsheet data to format the amount column as numbers and format the transaction date column as date values. Make sure to mark debits as negative numbers and credits as positive numbers. Calculate the value for the total using the SUM formula.

FIGURE 13.31
Example account spreadsheet

	A	B	C
1	**Item**	**Transaction**	**Amount**
2	Deposit	13-Aug	$1,000.00
3	Electric	14-Aug	-$120.00
4	Phone	14-Aug	-$50.00
5	Water	15-Aug	-$40.00
6	Groceries	16-Aug	-$200.00
7	Sewage	16-Aug	-$50.00
8		**Total:**	**$540.00**

CHALLENGE EXERCISES

1 Explore the template options available in Excel and compare them to the types of template documents that are available from Word. What do the template documents reveal about the purpose of each software program? Write a comparison document in Word with at least three template examples supporting each software package.

2 Fill in the blank:

- **A.** _____ is the horizontal grouping of data in a spreadsheet.
- **B.** _____ is the vertical grouping of data in a spreadsheet.
- **C.** _____ is the intersection of a row and a column in a spreadsheet.
- **D.** The _____ is the mathematical calculation that results in a data value in a spreadsheet.
- **E.** _____ allows you to keep your headings visible on the page no matter where you scroll within the spreadsheet.
- **F.** _____ computes the numeric sum of the cells listed as its argument.

3 In this exercise, we will test your working knowledge of freezing cells in formulas. You will be given a description of a row or column reference. You must decide how it should be labeled in a formula, making sure to place the dollar sign in its correct position.

- The row reference is preserved to row 4 but will allow the column reference (currently column F) to change.
- The reference is preserved to column C row 83.
- The column reference is preserved to column H but will allow the row reference (currently row 13) to change.
- The reference is preserved to column A row 16
- The column is preserved to B but the row reference (currently row 15) is allowed to change.

4 Explore the different formatting options available for numbers. Create a sample spreadsheet based on Figure 13.31, and test each number format. Describe briefly how each of these formats differs. What is the effect of adding or removing a significant digit from each format type? What element or elements of the value remain constant?

5 Use a different chart in your budget to represent the Income and Expenses series. What other charts accurately convey the monetary values over time? Which chart types are not a good representation of this type of data? Explain your answer.

CHAPTER 14

Developing Worksheets and Graphic Representations

IN THIS CHAPTER

Now that you have a basic understanding of spreadsheet software and how the data in these documents is arranged, it is time to explore some of the options available for data management and visualization. These include the ability to manipulate cells, format them conditionally, and reference them on other worksheets, as well as selecting the correct type of chart to showcase the information you want to convey. When you have completed this chapter, you will be able to:

- Manipulate cells, rows, and columns for information presentation
- Use Filter and Sort functionality on your spreadsheets
- Reference cells across spreadsheets
- Use formatting as a visual indicator of data in your spreadsheets
- Select the correct type of chart to convey the needed information

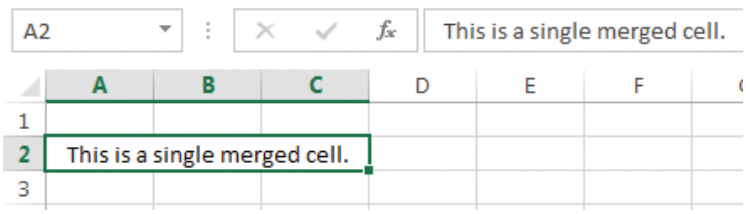
14.1 CONSTRUCTING A WORKSHEET

There are a variety of applications for spreadsheet software across multiple disciplines from office management to accounting. While spreadsheets are commonly associated with calculations and charts (for which they are excellent tools), they can also be used to manage lists and provide more exact formatting for lists. Regardless of the application for which they are used, understanding how to adjust and manipulate the layout of the spreadsheet is essential. Though spreadsheets are primarily used for calculation, considering how to present the results of your calculations is also important. Open a new spreadsheet document to experiment with these options.

14.1.1 Merging and Splitting Cells

You can merge two or more cells together to act as a single cell in your document. This can be useful if you have a heading that spans more than one column (such as a Name heading over a column containing first names and a column containing last names). You can merge cells in multiple directions, but the result must be a square selection within the document. For example, you cannot merge cells *A1*, *A2*, and *B1* into a single cell without including cell *B2*.

To practice merging cells, select cells *A2* through *C2* in your open document; there should be no content in the spreadsheet currently so this should not disrupt any existing data. In Excel 2013, you can merge cells by selecting the *Home* ribbon and clicking on the *Merge & Center* icon; in Excel 2011, this icon is simply called *Merge*. Selecting *Merge & Center* from the drop-down arrow combines the contents of the cells and centers the result; this is useful for creating headings that span multiple columns in a document. The other available options are Merge Across, which creates merged cells for each row but not across rows; Merge Cells, which combines the cells without adjusting the formatting; and Unmerge Cells, which is used to undo the process of merging the cells. You can see the result of merging cells in Figure 14.1.



➤ **FIGURE 14.1** Example of a merged cell

The opposite of merging cells is splitting cells. You can generally only split cells that have already been merged; this process is also called *unmerging* cells. (If you need to add cells to your document, you can add rows or columns in the current location.) The Unmerge Cells option in Excel is located in the same menu you used to merge the cells.

14.1.2 Adding and Deleting Rows and Columns

You can insert new rows or columns anywhere in the document where you need to add additional information. Keep in mind that inserting a row adds it across the entire document. Similarly, inserting a column

adds it all the way from the first row of the document to the last. To add a column in either Excel 2013 or Excel 2011, right-click the column label to the right of where you want to add it (new columns are added to the left) and select *Insert*. Similarly, you can click a row label, use the right-click menu, and select *Insert* to add new rows; these are added above the selected row. You can also add rows and columns via the drop-down menu of the *Insert* icon on the *Home* ribbon.

Existing columns and rows can be removed as well. Doing so will remove the contents of the cells in the column and/or row and move all of the content in the spreadsheet to the left (for a column deletion) or upward (for a row deletion). The letters and numbers will adjust to accommodate the removal, but the complete alphabetic or numeric ordering will be retained (there will be no gaps in column letters or row numbers, so, for example, removing column *B* turns the previous column *C* into the new column *B*). To remove columns or rows in Excel 2013 or Excel 2011, select the elements you want to remove, right-click, and select *Delete*. You can also perform this action from the *Delete* icon on the *Home* ribbon.

You can empty the contents of a cell by selecting it and pressing the *Delete* key, but you cannot remove an individual cell from a document. When you right-click on a cell, select the *Delete* option; this opens a dialog box that allows you to select how you want to resolve the deletion. The Delete dialog box is shown in Figure 14.2.

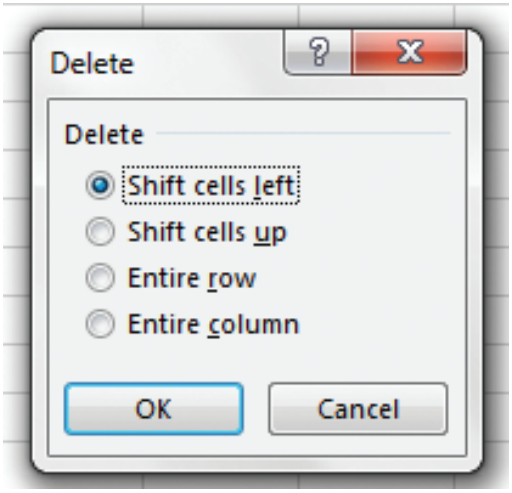


FIGURE 14.2
Deletion resolution dialog box

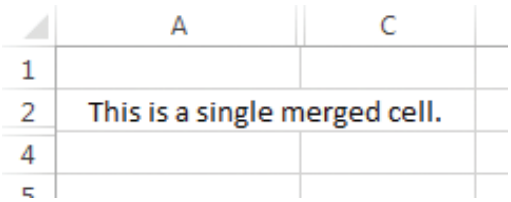
When you remove a cell from the document, the rest of the cells around that cell need to move to accommodate the deletion. You can move all of the contents beneath the cell in the column upward or move all of the cells that are to the right in the row leftward to fill the gap. You can also choose to remove the entire row or column from the document.

Hiding Rows and Columns

14.1.3

Sometimes you may want to retain data in your spreadsheet without visually referencing it. In these circumstances, you can hide columns or rows in the spreadsheet. The data that is contained in the hidden rows or columns is still present in the document and can be referenced just like any other cell (with a direct reference at least); it is simply hidden from view. You can hide or unhide any columns or rows that you wish. Figure 14.3 shows the result of hiding column B and row 3. Notice that if you hide a row or column that is part of a merged cell, the contents will display in the remaining cells.

➤ **FIGURE 14.3**
Hidden row and hidden column in a spreadsheet



To hide rows or columns in Excel, simply select the labels for the columns or rows that you want to hide, right-click, and then select *Hide* from the menu. You can also hide rows or columns (or entire spreadsheets) in your Excel 2013 document by selecting what you want to hide (any cell within the sheet will suffice for hiding the spreadsheet itself), selecting the *Format* icon in the *Home* ribbon, and choosing the *Hide & Unhide* option; you can then select the action you would like to perform from the submenu. In Excel 2011, the options to hide and unhide rows and columns are all accessed directly from the *Format* icon in the *Home* ribbon.

If you want to unhide a row or column that you have hidden in Excel 2013 or Excel 2011, select the labels before and after the hidden selection, right-click, and select *Unhide* from the menu. You can also do this from the *Format* icon on the *Home* ribbon. If you want to unhide everything in the spreadsheet, click the box above row *1* and to the left of column *A* to select the entire worksheet before performing the *Unhide* operation.

14.1.4 Advanced Cell Referencing

You can reference information across spreadsheets in the same workbook; this is a helpful feature if you are using different spreadsheets in the same workbook for complex reporting or information management. It is typically a good approach to reference values rather than retype them. This keeps data consistent across the spreadsheets in your workbook and allows you to perform the necessary update in one location rather than many locations, which helps decrease the potential for human error in entering the information. If you want to perform a cell reference across spreadsheets, type the name of the spreadsheet you want to reference in single quotes, add an exclamation point, and then type the cell reference. This can be either a fixed, or absolute, reference (using dollar signs to keep the row or column reference constant) or a standard reference.

For example, if you open the *MySupplies* document, you can use the blank Sheet1 to reference a cell on the Supply List spreadsheet. To do this, type *='Supply List'!A4* or *='Supply List'!$A$4*; if you have typed this correctly, you should get the value "Funtime Fishery" in the cell when you press *Enter* to activate the formula. A reference to a cell on another spreadsheet is typically a fixed reference using the dollar sign format, but it will work either way.

LIST MANAGEMENT 14.2

List management is one of the tasks for which spreadsheet software is an excellent tool. This primarily applies when you have a fixed list that you are using to construct derivative data, such as a list of unique values or a sort or filter of that data. Most of the tools for managing data apply to

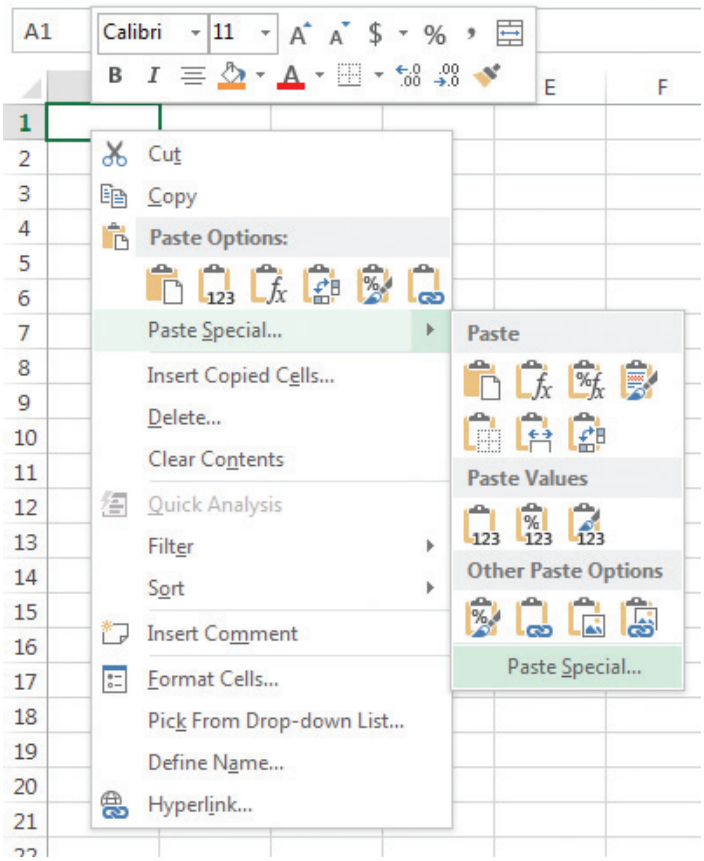
numeric values as well as text. In fact, it is often necessary to give the numeric values context with at least header information, if not further text descriptions. These do not have to be paragraphs of text to be effective; a simple example is a customer and an associated account number. You probably have several accounts of your own where you must maintain some sort of record of your account number and a username.

The example project in this chapter is management of a list of suppliers. Your business proposal from Chapters 11 and 12 went so well that your company has multiple locations, and it is your task to manage the contact information for your suppliers. To begin, open the *MySupplies* document if you do not already have it open, and then open the Supply List spreadsheet on the second tab of the document. Select all of the information on the spreadsheet and copy it to the clipboard.

Excel 2013 offers a variety of options for pasting your data. To see the available options, you can right-click in the top-left cell where you want your data to begin; this will open a menu where you can expand the Paste Options selection. One particular option to note is the Paste Values selections; these allow you to paste the actual calculated contents of any formulas instead of the formulas themselves. The available paste options for Excel 2013 are shown in Figure 14.4. In Excel 2011, you can use the *Paste Special* command in the right-click menu to access the available options for pasting contents into your document, including the Values selection.

The contents of an entire worksheet can be pasted only into cell *A1*. However, you will create a new header line in addition to what is already there, so you should paste the cells (the type of paste option you select does not matter because there are currently no calculated values in the spreadsheet) and then insert a new row above the entries you just added. Save your document as *MySuppliers*. Because this is a list of suppliers and not the supplies you purchased, you should delete the contents of the columns containing the Product, Price, and Quantity information and rename the tab for the spreadsheet *Suppliers*.

▼ FIGURE 14.4
Paste options in Excel 2013



14.2.1 Using Sorting and Filters

The process of sorting can be performed on any column in your spreadsheet. However, each column is treated as independent data, so be aware that if you have an association between columns (such as a name and address), they will be sorted independently if you directly apply the sort functionality. To avoid this circumstance, you can apply a *filter* to the connected data to retain its association. This allows you to set criteria of what you want to view as well as coupling the data in the filtered rows and columns so each row is treated as a line item.

You can apply a filter to any selection of cells in your spreadsheet. When you apply the filter, the software will assume that the first row of the filter contains column headings, so you should include a blank row if you do not have headings entered already. Otherwise, the first data element in your list will be used as heading information and will not be part of the filtered content. Select all of the data that was added to your Suppliers spreadsheet (in this case, cells *A2* to *I27*); this is the data to which you will apply your filter. Note that row *2* contains your heading information, so the headings will not present an issue.

A **FILTER** *is a mechanism in spreadsheet software that allows only list elements that meet defined criteria to be displayed for the selection to which it is applied. This is a way to show only the relevant data from a large list. Filtering also facilitates other functionality such as alphanumeric sorting.*

In Excel 2013, you can apply your filter by selecting the *Sort & Filter* icon on the *Home* ribbon and choosing the *Filter* option on the menu. This will add a drop-down arrow to each of the cells containing your heading information. Select the drop-down arrow next to the cell containing the heading "Company" and choose *Sort A to Z*. The result is shown in Figure 14.5. In Excel 2011, the *Filter* icon is located in the *Quick Access* toolbar and on the *Data* ribbon; the *Sort* command is located beside the *Filter* command in both locations.

There are a variety of options available for use in a filter, including the ability to apply individual filters to each column heading to further refine the data. You can select only one column at a time for alphabetic sorting; selecting a new column to sort alphabetically will undo the previous sort. In addition to alphabetic sorting (either ascending or descending), you can filter by color or select the values you want to retain (any item that is checked will display in the filtered list).

The *Text Filters* option on the drop-down menu for the filter performs a keyword search on the elements and selects what you want to display; you can set up the filter so it omits keyword matches, retains keyword matches, keeps elements that begin with the keyword, keeps elements that end with the keyword, or only retains exact matches. You can use the *Custom Filter* option to define your own criteria for what to retain. This is particularly helpful if you are looking for a data range as a subset of the values in the spreadsheet.

	A	B	C	D	E	F	G	H	I
1									
2	Company	Contact	Address	City	State or Country	Postal Code	Phone	Email	Account Number
3	Bun Bakers	Penelope Pastry	11 Shortcake Lane	Candlyland	SC	19219	218-272-6653	pp@bb.com	4665550
4	Bun Bakers	Penelope Pastry	11 Shortcake Lane	Candlyland	SC	19219	218-272-6653	pp@bb.com	4665550
5	Condiment Capital	Carmen Ketchup	3000 Mustard Maker Circle	Washington	DC	20007	112-555-7778	ketchup@mustard.com	4755555
6	Condiment Capital	Carmen Ketchup	3000 Mustard Maker Circle	Washington	DC	20007	112-555-7778	ketchup@mustard.com	4755555
7	Condiment Capital	Carmen Ketchup	3000 Mustard Maker Circle	Washington	DC	20007	112-555-7778	ketchup@mustard.com	4755555
8	Custom Carts	Cal Carter	33 Mechanic Lane	Brooklyn	NJ	19104	553-228-9909	c.carter@carts.com	4775552
9	Daily Dog Delivery	Dan Dogmeister	12 Sausage Way	New York	NY	11101	212-212-2222	ddogmesiter@dailydogdelivery.com	4735556
10	Daily Dog Delivery	Dan Dogmeister	12 Sausage Way	New York	NY	11101	212-212-2222	ddogmesiter@dailydogdelivery.com	4735556
11	Daily Dog Delivery	Dan Dogmeister	12 Sausage Way	New York	NY	11101	212-212-2222	ddogmesiter@dailydogdelivery.com	4735556
12	Force Star Catering	Lea Princess	44 Darth Drive	Yavin	PA	27789	545-343-1441	princess@force_star.com	4775547
13	Force Star Catering	Lea Princess	44 Darth Drive	Yavin	PA	27789	545-343-1441	princess@force_star.com	4775547
14	Force Star Catering	Lea Princess	44 Darth Drive	Yavin	PA	27789	545-343-1441	princess@force_star.com	4775547
15	Force Star Catering	Lea Princess	44 Darth Drive	Yavin	PA	27789	545-343-1441	princess@force_star.com	4775547
16	Funtime Fishery	Steven Bassmaster	202 Ocean Drive	Gulfport	MI	34087	314-435-9770	bass_and_stuff@seabeasties.com	7865554
17	Funtime Fishery	Steven Bassmaster	202 Ocean Drive	Gulfport	MI	34087	314-435-9770	bass_and_stuff@seabeasties.com	7865554
18	Happy Meatery	Clive Cleaver	1 Green Mile	Denver	CO	45607	777-555-4478	cleave@meat.org	4335549
19	Inhuman Resources	Sam Saruman	8 Uruk Hai Crossing	Mordor	VA	91909	447-446-4445	sam.saruman@orcmakers.net	7555546
20	Nutty Nut Farms	Kat Kennedy	1 Crazy Circle	Port Royal	Jamaica	10001	770-664-3355	kk@nuttynuts.edu	7885553
21	Nutty Nut Farms	Kat Kennedy	1 Crazy Circle	Port Royal	Jamaica	10001	770-664-3355	kk@nuttynuts.edu	7885553
22	Nutty Nut Farms	Kat Kennedy	1 Crazy Circle	Port Royal	Jamaica	10001	770-664-3355	kk@nuttynuts.edu	7885553
23	Produce Producers	Matthew Lane	4 Songbird Lane	New York	NY	56647	112-505-5005	m_lane@produce_producers.com	7335548
24	Produce Producers	Matthew Lane	4 Songbird Lane	New York	NY	56647	112-505-5005	m_lane@produce_producers.com	7335548
25	Produce Producers	Matthew Lane	4 Songbird Lane	New York	NY	56647	112-505-5005	m_lane@produce_producers.com	7335548
26	Produce Producers	Matthew Lane	4 Songbird Lane	New York	NY	56647	112-505-5005	m_lane@produce_producers.com	7335548
27	The Umbrella Company	Al Wesker	Research Compound #7	Tokyo	Japan	13121	888-888-8888	ceo@villainy.org	4335551

FIGURE 14.5
Filter and sort example in Excel 2013

14.2.2 Removing Duplicates

There are cases where you may need to retain duplicate values in your document, such as when you want to track a count of occurrences. However, it is often beneficial to be able to remove duplicate values. In the example project, you are building a list of supplier contacts, so you want to have a single entry for each supplier. To remove the duplicates, highlight the cells for which you want duplicates removed; in the example, this is cells *A2* through *I27*.

In Excel 2013, open the *Data* ribbon and click on the *Remove Duplicates* icon. You will be prompted to select the columns you want to include in the search and whether your data has headers; leave the header checkbox activated and check all of the columns. Click *OK* to process the removal. The result should resemble Figure 14.6.

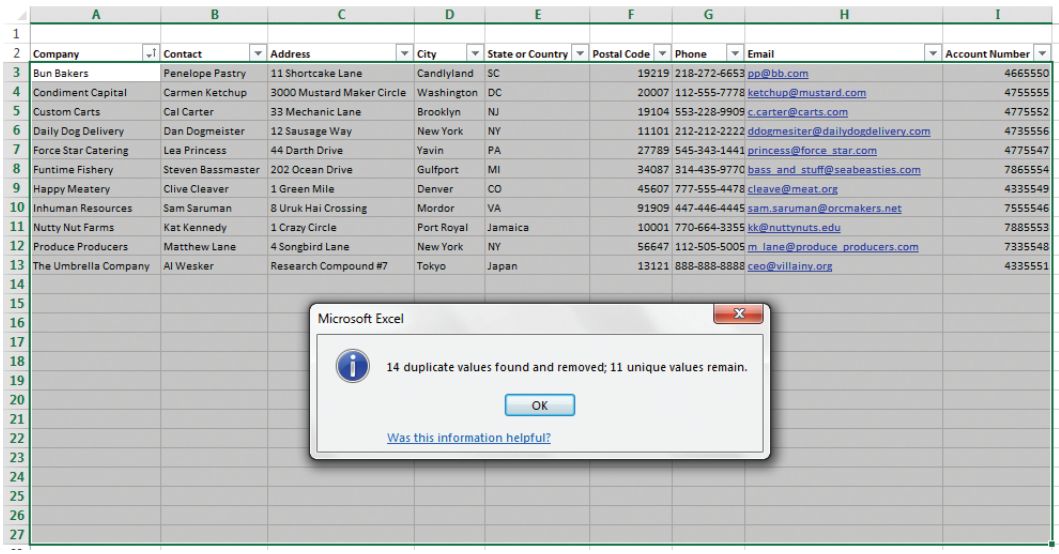


FIGURE 14.6
Figure 14.6 Result of removing duplicates in Excel 2013

In Excel 2011, with the data range selected, you can use the *Remove Duplicates* icon on the *Data* ribbon. Make sure that the items are filtered if you want to treat each row as a single entry in the list. The removal will occur regardless of the number of duplicates present.

14.2.3

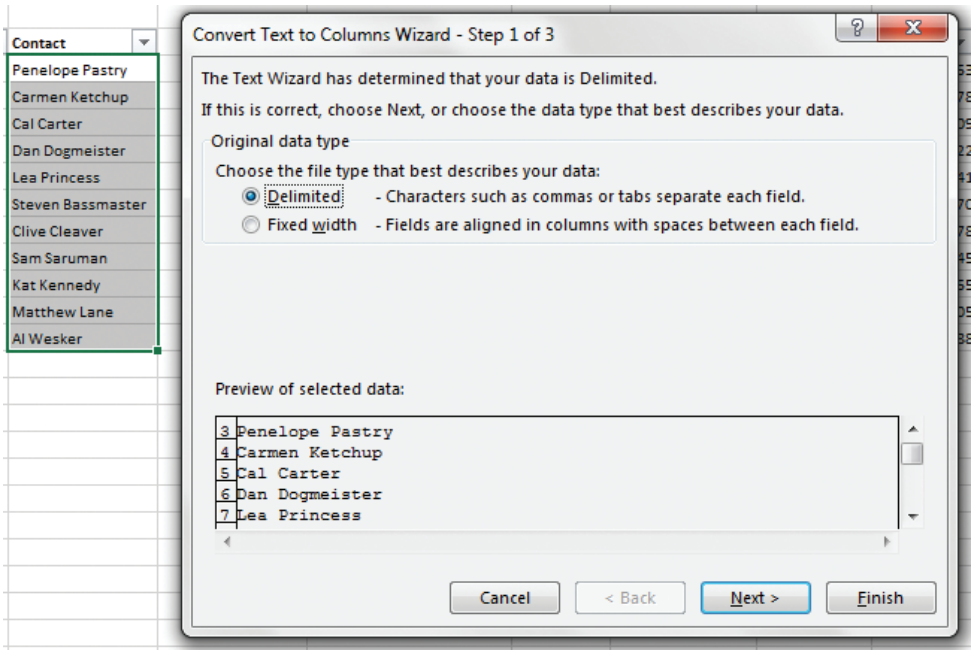
Text to Columns

Most spreadsheet software applications allow you to convert delimited text to columns. Delimited text is separated by a specific character such as a comma (called a *delimiter*); when this process is performed, whatever is to the left of the delimiter will be in one column and whatever is to the right will be in another column. The delimiter character itself is typically consumed in the process and will not appear in the results. You can also convert text to columns based on the number of characters you want to include in each column, or you can use whitespace as a delimiter, creating a new column whenever there is a break in the text.

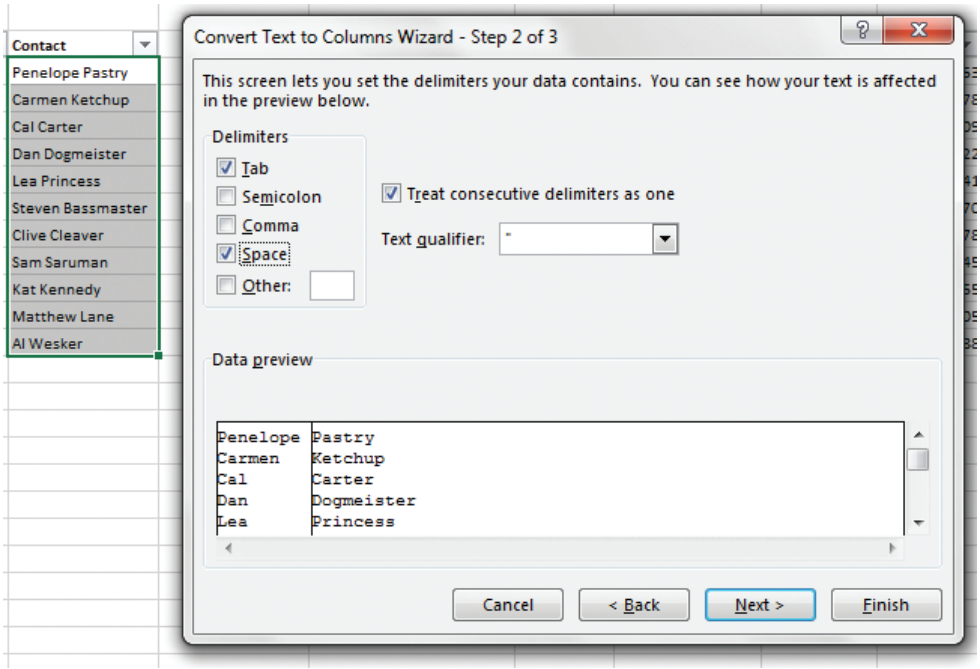
> A *delimiter* is a character that signifies a break in a continuous value. In spreadsheet software, this is used to define the end of data for one cell and the start of a new cell. Common delimiters are commas, semicolons, and whitespace.

For the example project, you are going to split the first name and the last name of the *Contact* person for the supplier. To begin, insert a blank column to the left of the *Address* label. The prior *Contact* column will become *Contact First Name* and the new blank column will become *Contact Last Name*.

To split the text of the Contact column in Excel, select the values and click the *Text to Columns* icon in the *Data* ribbon. This will open the Convert Text to Columns Wizard, as shown in Figure 14.7. There are three steps to this process; the first is to



➤ **FIGURE 14.7**
Convert Text to Columns Wizard Step 1 in Excel 2013



◀ FIGURE 14.8
Convert Text to Columns Wizard Step 2 in Excel 2013

choose whether your text is separated by a delimiter or whether you want to define a fixed width for your new columns. For the example, choose *Delimited* and click the *Next* button.

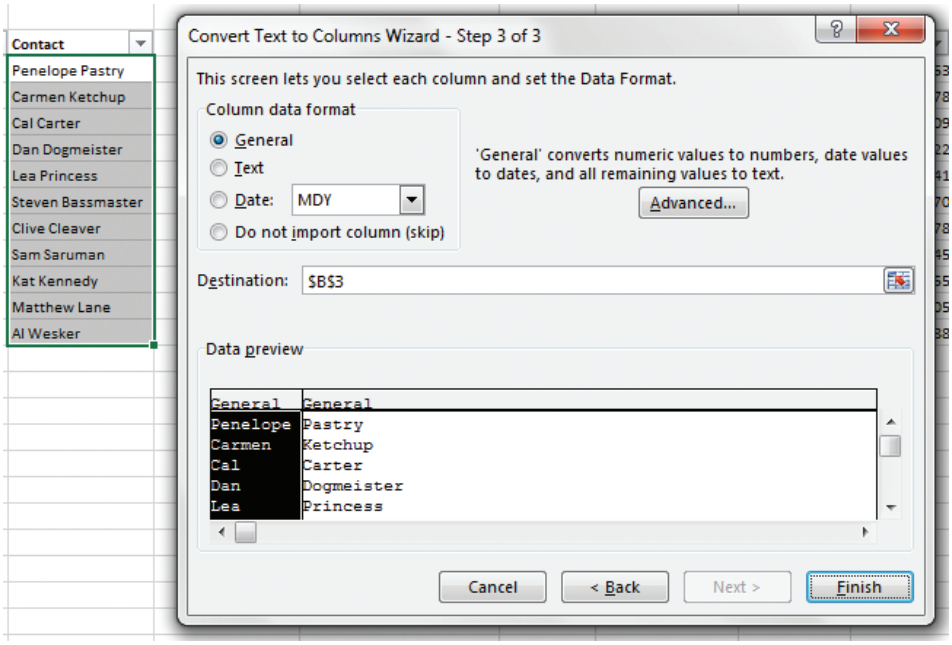
Step 2 allows you to choose your delimiting character. In the example, select the *Space* character as a delimiter and keep the *Treat consecutive delimiters as one* box selected to keep from creating blank columns. A preview of the new columns the process will create appears at the bottom of the dialog box. You should have a display similar to Figure 14.8. When you are ready, click the *Next* button.

Step 3, shown in Figure 14.9, allows you to select the formatting for each column you will create. You select a column by clicking on it. The format for both of the new columns you are creating should be either *General* or *Text*, which will have the same effect in this case because there is no numeric data in the selection.

When you are finished with your formatting selection, click the *Finish* button to complete the process. You should note that any columns created will overwrite the existing contents that exist in those columns. This is why you created the blank column beside the Address label to accommodate the new column creation. Rename the column headings for the two columns that were split from the Contact column and save your work.

Activity 14.1—Text to Columns Practice

Create a new spreadsheet and save it as Activity14_1 *and save it in the* Activities *folder. Add text to cells A1 to A5 that contains at least one comma and one semicolon in each cell. Perform the Text to Columns function and observe the results as you change*



➤ **FIGURE 14.9**
Convert Text to Columns Wizard Step 2 in Excel 2013

delimiters and apply fixed width. What happens when the text length in one cell is less than the width specified? When would you need to use this type of functionality other than separating first and last names?

14.2.4

Table Formatting

You can select a range of cells and format them as a table. This allows you to enhance the visual presentation and organization of your spreadsheet, as well as copy and paste both the cells and formatting to export to other productivity software applications (such as Word and PowerPoint in Office). To perform this operation in Excel 2013, select the range of cells you want to format (in the example, this is cells *A2* to *J13*) and select the *Format as Table* icon on the *Home* ribbon. From here, you can choose the style that you want to apply. An example is shown in Figure 14.10. In Excel 2011, the table formatting options are available on the *Tables* ribbon. Simply select the range of cells to which you want the formatting to apply and choose the style from the available list.

The formatting used for the example is *Table Style Medium 1*. You can also define a custom table style by selecting the *New Table Style* option at the bottom of the drop-down menu. You can format any range of

	A	B	C	D	E	F	G	H	I	J
1										
2	Company	Contact First Name	Contact Last Name	Address	City	State or Country	Postal Code	Phone	Email	Account Number
3	Bun Bakers	Penelope	Pastry	11 Shortcake Lane	Candlyland	SC	19219	218-272-6653	pp@bb.com	4665550
4	Condiment Capital	Carmen	Ketchup	3000 Mustard Maker Circle	Washington	DC	20007	112-555-7778	ketchup@mustard.com	4755555
5	Custom Carts	Cal	Carter	33 Mechanic Lane	Brooklyn	NJ	19104	553-228-9909	c.carter@carts.com	4775552
6	Daily Dog Delivery	Dan	Dogmeister	12 Sausage Way	New York	NY	11101	212-212-2222	ddogmesiter@dailydogdelivery.com	4735556
7	Force Star Catering	Lea	Princess	44 Darth Drive	Yavin	PA	27789	545-343-1441	princess@force_star.com	4775547
8	Funtime Fishery	Steven	Bassmaster	202 Ocean Drive	Gulfport	MI	34087	314-435-9770	bass_and_stuff@seabeasties.com	7865554
9	Happy Meatery	Clive	Cleaver	1 Green Mile	Denver	CO	45607	777-555-4478	cleave@meat.org	4335549
10	Inhuman Resources	Sam	Saruman	8 Uruk Hai Crossing	Mordor	VA	91909	447-446-4445	sam.saruman@orcmakers.net	7555546
11	Nutty Nut Farms	Kat	Kennedy	1 Crazy Circle	Port Royal	Jamaica	10001	770-664-3355	kk@nuttynuts.edu	7885553
12	Produce Producers	Matthew	Lane	4 Songbird Lane	New York	NY	56647	112-505-5005	m_lane@produce_producers.com	7335548
13	The Umbrella Company	Al	Wesker	Research Compound #7	Tokyo	Japan	13121	888-888-8888	ceo@villainy.org	4335551

➤ **FIGURE 14.10**
Format as Table example in Excel 2013

cells as a table no matter where it is located in your document. If a selection is formatted as a table, the formatting will readjust to accommodate any filter settings that are applied. You can see this if you deselect *Custom Carts* from the *Company* filter selection. Select the grab point at the lower-right corner of the table formatting and drag it to extend the formatting over additional rows and columns. In Excel 2013, adding table formatting to your spreadsheet will cause the context-sensitive *Design* ribbon for Table Tools to appear so you can adjust the formatting you selected and refresh the contents.

14.3 ADDITIONAL FORMATTING ELEMENTS

Visual enhancement is typically the key to a readable spreadsheet. It is beneficial to be able to quickly determine which values in a spreadsheet are important. Borders, shading, and font choices help with this visual distinction, but there are a variety of other formatting options you can use to enhance your spreadsheet. Excel, for instance, comes with a predefined set of cell formatting styles that you can use to add emphasis to a particular piece of information. These are accessible in Excel 2013 by selecting the *Cell Styles* icon on the *Home* ribbon; in Excel 2011, these styles are displayed as previews in the *Format* panel of the *Home* ribbon.

There are some final finishing touches you should make to the spreadsheet to practice what you have learned about manipulating spreadsheets. First, hide the columns related to the physical address of the company; you do not want to remove this information, but it is not used very often, so it should not impede the vital information on the spreadsheet. You should also merge cells B1 and C1 and enter the heading *Contact* in the new cell; format the heading to match the headings in the rest of the table. Remove the word "Contact" from the headings for the first and last name of the contact person, enter the text *Suppliers* in cell A1, and change the default color of the email addresses to black text. The table within your spreadsheet should look like Figure 14.11.

	A	B	C	H	I	J
1	Suppliers		Contact			
2	Company	First Name	Last Name	Phone	Email	Account Number
3	Bun Bakers	Penelope	Pastry	218-272-6653	pp@bb.com	4665550
4	Condiment Capital	Carmen	Ketchup	112-555-7778	ketchup@mustard.com	4755555
5	Custom Carts	Cal	Carter	553-228-9909	c.carter@carts.com	4775552
6	Daily Dog Delivery	Dan	Dogmeister	212-212-2222	ddogmesiter@dailydogdelivery.com	4735556
7	Force Star Catering	Lea	Princess	545-343-1441	princess@force_star.com	4775547
8	Funtime Fishery	Steven	Bassmaster	314-435-9770	bass_and_stuff@seabeasties.com	7865554
9	Happy Meatery	Clive	Cleaver	777-555-4478	cleave@meat.org	4335549
10	Inhuman Resources	Sam	Saruman	447-446-4445	sam.saruman@orcmakers.net	7555546
11	Nutty Nut Farms	Kat	Kennedy	770-664-3355	kk@nuttynuts.edu	7885553
12	Produce Producers	Matthew	Lane	112-505-5005	m_lane@produce_producers.com	7335548
13	The Umbrella Company	Al	Wesker	888-888-8888	ceo@villainy.org	4335551

FIGURE 14.11 Completed spreadsheet example

14.3.1

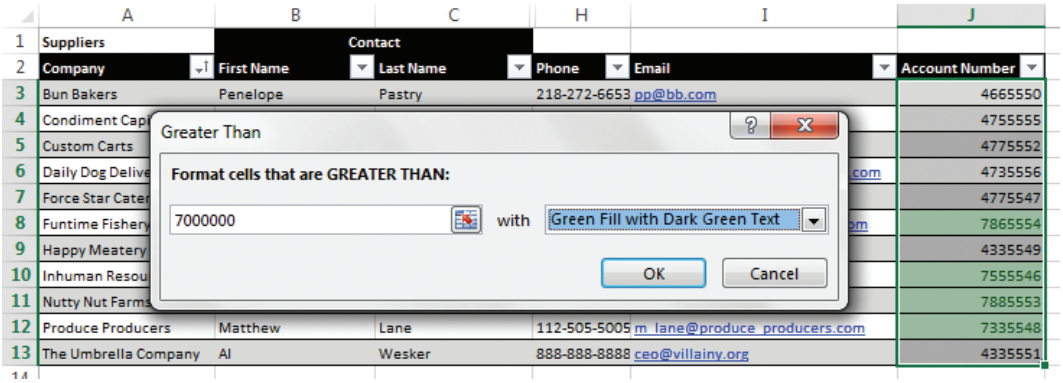
Conditional Formatting

Sometimes it is helpful to have a visual reference for your information without having to read each entry. For instance, in a financial worksheet you may want any value less than zero to appear red so you can recognize it in a list. To accomplish this, you use conditional formatting. This applies a rule to the contents of the cell to determine how it should appear visually. The display has no effect on the actual data stored in the cell, just on the resulting visualization.

For the example project, the starting value of the account numbers differentiates the type of account. You want to create conditional formatting that will display the accounts beginning with the number 7 in green and the accounts beginning with the number 4 in red. To do this in Excel, highlight the cells containing the account numbers. Select the *Conditional Formatting* icon on the *Home* ribbon, choose the *Highlight Cell Rules* entry, and then select *Greater Than*. You should see the dialog box in Figure 14.12.

Set the minimum value to *7000000* so all account numbers beginning with 7 will be formatted and set this to green text. You can apply multiple formatting rules to the same set of cells. With the account number cells still selected, choose the *Less Than* option for conditional formatting, enter *4999999*, and set the formatting to red. A completed example is shown in Figure 14.13.

Conditional formatting allows you to select a variety of options such as value ranges, keyword matches, and dates. You can use the formatting options to display



➤ **FIGURE 14.12** Conditional formatting example dialog box

	A	B	C	H	I	J
1	Suppliers	Contact				
2	Company	First Name	Last Name	Phone	Email	Account Number
3	Bun Bakers	Penelope	Pastry	218-272-6653	pp@bb.com	4665550
4	Condiment Capital	Carmen	Ketchup	112-555-7778	ketchup@mustard.com	4755555
5	Custom Carts	Cal	Carter	553-228-9909	c.carter@carts.com	4775552
6	Daily Dog Delivery	Dan	Dogmeister	212-212-2222	ddogmesiter@dailydogdelivery.com	4735556
7	Force Star Catering	Lea	Princess	545-343-1441	princess@force_star.com	4775547
8	Funtime Fishery	Steven	Bassmaster	314-435-9770	bass_and_stuff@seabeasties.com	7865554
9	Happy Meatery	Clive	Cleaver	777-555-4478	cleave@meat.org	4335549
10	Inhuman Resources	Sam	Saruman	447-446-4445	sam.saruman@orcmakers.net	7555546
11	Nutty Nut Farms	Kat	Kennedy	770-664-3355	kk@nuttynuts.edu	7885553
12	Produce Producers	Matthew	Lane	112-505-5005	m_lane@produce_producers.com	7335548
13	The Umbrella Company	Al	Wesker	888-888-8888	ceo@villainy.org	4335551

➤ **FIGURE 14.13** Completed example of conditional formatting

color gradients for the range of values where they get darker as the numbers get smaller or larger, depending on the condition, and apply data bars to track relative values, which is helpful when you are ranking numeric values or currency.

Activity 14.2—Conditional Formatting

Create a new spreadsheet and save it as Activity14_2. *Add the numbers 1 to 10 in column A from A1 to A10. Apply conditional formatting to display a range of colors based upon the value of the cell. Describe the process that was used to apply this formatting and identify when you may use it on a real data set. Be sure to save your work.*

14.3.2

Tab Color

Spreadsheet programs allow you to change the tab color that identifies your spreadsheets within the overall workbook. This helps provide a visual reference for either the purpose of different sheets or the department to which the tabs apply. Apply a green color to the Suppliers tab in your project by right-clicking on the tab and selecting the *Tab Color* option. You can then select a color from the submenu that appears.

14.3.3

Comments

You can add comments to your spreadsheet to identify values that need to be reexamined or to provide descriptions of a particular cell's contents. Comments in spreadsheet software appear as small icons in the upper-left corner of the cell; by default, the comment itself will appear when the cell is selected. For the sample project, add comments for changes to the supplier contact information; for instance, Custom Carts is undergoing a change in leadership as the business is passed from father to son, so it is worth making a comment in your document to remember that this change is coming and to get the new owner's contact information updated as necessary.

To add a comment to your document in Excel 2013, select the cell in which you want the comment to reside, open the *Review* ribbon, and select *New Comment*. This will open the comment text box in which you can enter the information you want to add. Other tools in the *Comments* panel of the *Review* ribbon help you navigate through the comments in the document, delete comments, or toggle their display. The completed comment example is shown in Figure 14.14.

	A	B	C	H	I	J
1	Suppliers	Contact				
2	Company	First Name	Last Name	Phone	Email	Account Number
3	Bun Bakers	Penelope	Pastry	218-272-6653	pp@bb.com	4665550
4	Condiment Capital			112-555-7778	ketchup@mustard.com	4755555
5	Custom Carts			553-228-9909	c.carter@carts.com	4775552
6	Daily Dog Delivery			212-212-2222	ddogmesiter@dailydogdelivery.com	4735556
7	Force Star Catering			545-343-1441	princess@force_star.com	4775547
8	Funtime Fishery			314-435-9770	bass_and_stuff@seabeasties.com	7865554
9	Happy Meatery			777-555-4478	cleave@meat.org	4335549
10	Inhuman Resources			447-446-4445	sam.saruman@orcmakers.net	7555546
11	Nutty Nut Farms	Kat	Kennedy	770-664-3355	kk@nuttynuts.edu	7885553
12	Produce Producers	Matthew	Lane	112-505-5005	m_lane@produce_producers.com	7335548
13	The Umbrella Company	Al	Wesker	888-888-8888	ceo@villainy.org	4335551

Theodor Richardson: The business is being passed to Cal's son; new contact information will be needed soon.

FIGURE 14.14 Comment example in Excel 2013

In Excel 2011, the comment commands are also located on the *Review* ribbon; to view a comment in the document, however, you have to hover your mouse over the icon representing it.

You can adjust the text as necessary and add other comments to your document as practice. The text of the comment may vary, but you can copy the example shown in Figure 14.14. In Excel 2013, the *New Comment* icon will change to *Edit Comment* when you already have a comment added to the cell; you can use this icon to edit the comment contents. In Excel 2011, the *New* command remains the same, but you can use it to edit an existing comment if the cell that contains it is active.

14.3.4 Text Boxes

A text box in a spreadsheet behaves as an independent object just as it does in word processing software and presentation software. It will occupy the layer above the cells of the spreadsheet by default and will not be affected by resizing elements of the document. Text boxes in spreadsheets can be useful for providing instructions or explanations of the document as a whole. You can see an example text box added to the project in Figure 14.15.

To insert a text box in Excel 2013, open the *Insert* ribbon and select *Text Box*. You can resize the text box by using the outer grab points just as you can in the other Office programs. The text box can be moved around the spreadsheet independently and will cover the cells behind it. Selecting the text box will also activate the context-sensitive *Format* ribbon for Drawing Tools. In Excel 2011, you can insert a text box by selecting the *Insert* menu and choosing *Text Box*; you can then draw the text box in the location you desire.

Activity 14.3—Media Elements

Create a new spreadsheet and save it as Activity14_3 *and save it in the* Activities *folder. Use the ribbon interface to add an image to your Excel worksheet. When would this functionality be necessary or beneficial in a business environment? Now add an element of SmartArt to your document.*

FIGURE 14.15
Text box added to a spreadsheet

	A	B	C	H	I	J
1	Suppliers		Contact			
2	Company	First Name	Last Name	Phone	Email	Account Number
3	Bun Bakers	Penelope	Pastry	218-272-6653	pp@bb.com	4665550
4	Condiment Capital	Carmen	Ketchup	112-555-7778	ketchup@mustard.com	4755555
5	Custom Carts	Cal	Carter	553-228-9909	c.carter@carts.com	4775552
6	Daily Dog Delivery	Dan	Dogmeister	212-212-2222	ddogmesiter@dailydogdelivery.com	4735556
7	Force Star Catering	Lea	Princess	545-343-1441	princess@force_star.com	4775547
8	Funtime Fishery	Steven	Bassmaster	314-435-9770	bass_and_stuff@seabeasties.com	7865554
9	Happy Meatery	Clive	Cleaver	777-555-4478	cleave@meat.org	4335549
10	Inhuman Resources	Sam	Saruman	447-446-4445	sam.saruman@orcmakers.net	7555546
11	Nutty Nut Farms	Kat	Kennedy	770-664-3355	kk@nuttynuts.edu	7885553
12	Produce Producers	Matthew	Lane	112-505-5005	m_lane@produce_producers.com	7335548
13	The Umbrella Company	Al	Wesker	888-888-8888	ceo@villainy.org	4335551
14						
15						
16						
17						
18						
19						
20						

Supplier List and Contact Information for the company.

Address information is located in Column D through Column G; you should unhide these columns to view the company address.

What type of information can this graphic provide better than a chart? What are some examples of when this would be a useful inclusion in a worksheet? Be sure to save your work.

14.4 CHART TYPES

Charts can take a wide variety of forms, and different chart types are useful for representing different types of information. The common types of charts you will encounter in spreadsheet software include column, line, pie, area, and scatter charts; all of these types are constructed from underlying data of some form, although not all data can support all chart types. When choosing a chart type, you need to consider what information you want to present and how you want to present it. There are other forms of charts available for you to construct from your data, but those typically require an area of expertise beyond general use. The following sections provide a further explanation of some common chart types, along with examples of their usage so you can determine which charts are best for your own use.

Sparklines (a term originally proposed by Edward Tufte) are small, highly dense graphs intended to be placed where they make an impact in a document rather than occupying a large amount of space on a separate page or sheet like a traditional chart. These occupy a single cell in Excel. Sparklines can be used to emphasize a particular goal or main point; there is no significant detail or axes in these, but you can easily see a trend or outcome. These can be inserted in Excel 2013 from the *Insert* ribbon or in Excel 2011 from the *Charts* ribbon.

For this project, open a new spreadsheet document and save it as *MyChartExamples*. Create a spreadsheet tab for each of the main types of charts discussed here: *Column*, *Line*, *Pie*, *Bar*, *Area*, and *Scatter*. Use the data provided for each of the following examples and create the charts yourself to investigate the variances in construction of the different chart types. You should be familiar with the process of creating a chart by now, so the details will be omitted unless there is a departure from the standard procedure. For a review of how to insert a chart into your document, you can review Section 13.4.

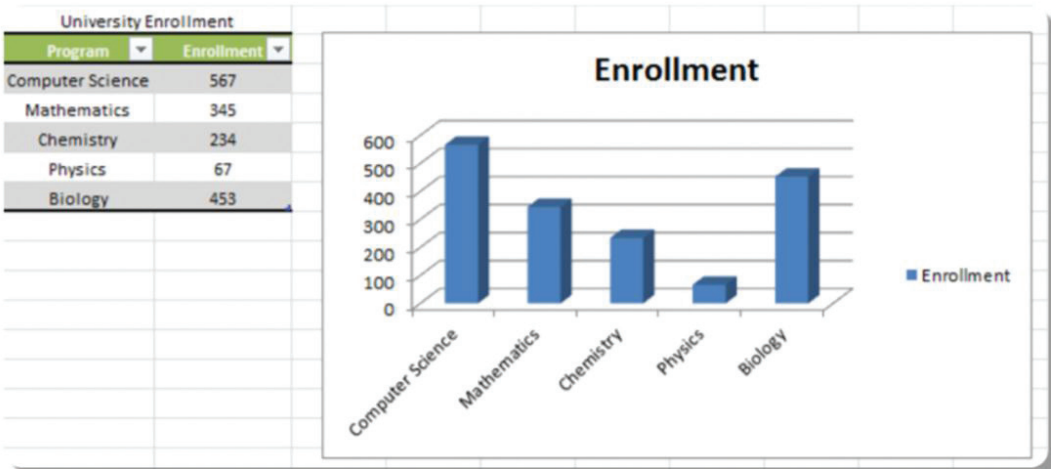
Column 14.4.1

A column chart is primarily used for comparisons, such as changes over time or a comparison of regions or countries. The best use of a column chart is when the highest column represents the optimal condition. When there are multiple columns coupled together, it is typically to show a comparison of parts of the same overall whole. Figure 14.16 shows an example of a column chart and the accompanying data to reproduce it.

Line 14.4.2

A line chart is used to track data over set intervals. In most cases, the data in each series has an existing (primarily linear) relationship and the points of data are connected. A line chart is a basic graphing tool that can be used to demonstrate a variety of data in a variety of circumstances; multiple series represent independent sets of observations that may or may not be interrelated.

➤ **FIGURE 14.16**
Column chart example



An example of a line chart is shown in Figure 14.17.

14.4.3

Pie

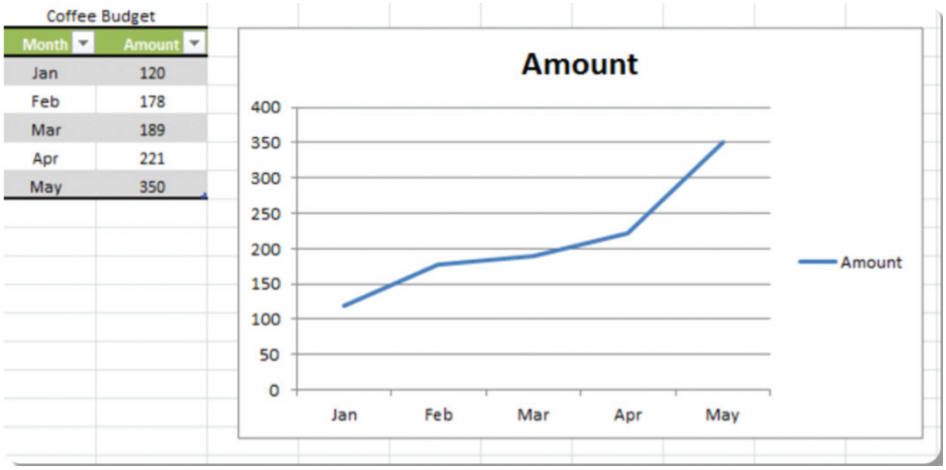
A pie chart is a representation of the elements that comprise a total value. The visual display is a circle comparing the relative values of the components, typically as a percentage of the whole. A pie chart is best used when you want to showcase the proportional contribution of one element of the whole, such as the number of answers selected in a multiple-choice question. Pie charts are best used to illustrate a single item. An example of a pie chart is shown in Figure 14.18.

14.4.4

Bar

A bar graph shows comparisons among individual items for a single observation. The stacked version of the bar graph compares elements that comprise a whole within each individual item. A representation of sales by region for a single quarter would be appropriate for a bar graph. Figure 14.19 shows an example bar graph and the data used to construct it.

➤ **FIGURE 14.17**
Line chart example



Multiple-Choice Question Results

Answer	Number of Answers
A	2
B	12
C	37
D	16

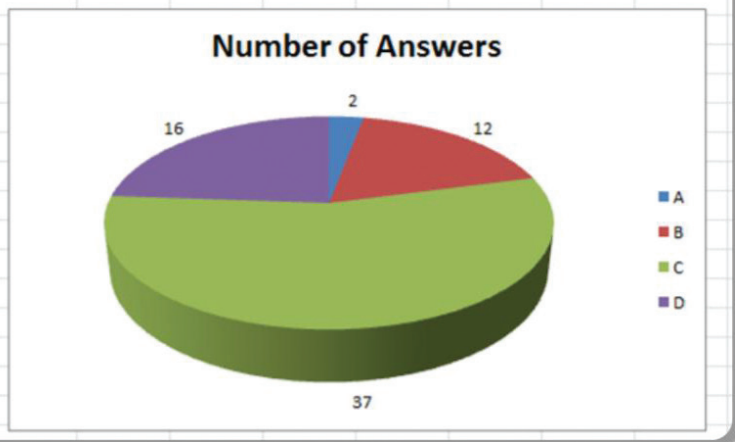


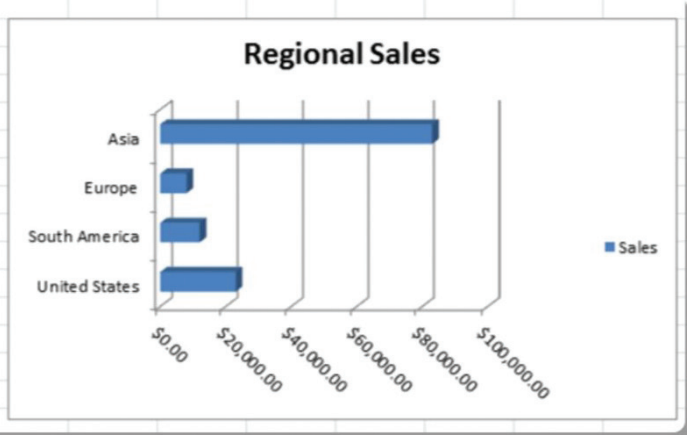
FIGURE 14.18
Pie chart example

FIGURE 14.19
Bar chart example

14.4.5 Area

Regional Sales

Region	Sales
United States	$23,000.00
South America	$12,000.00
Europe	$8,000.00
Asia	$83,000.00



An area chart demonstrates how pieces contribute to a total value through multiple observations. Each piece in each observation should represent a piece of a total value. The area chart should demonstrate relative contributions and trends over time along with the overall trend of the total data measured. You can see an example of an area chart in Figure 14.20.

14.4.6 Scatter

A scatter chart is best used to show data clustering or alignment between multiple series of data; it consists of points plotted on multiple axes without connections (or with

Download Tracking

File	Jan	Feb	Mar
index.htm	163	276	223
main.pdf	77	156	112
contact.htm	35	54	90
email.jsp	56	34	12
portfolio.pdf	56	67	34

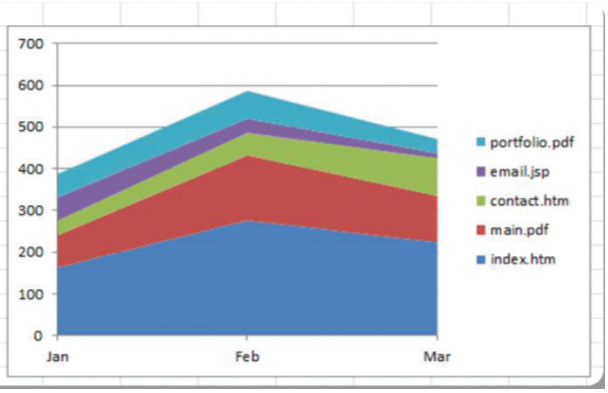
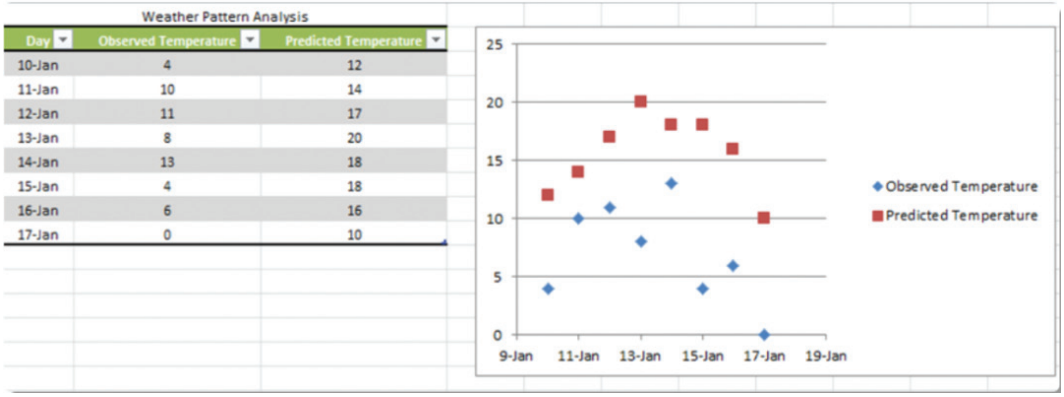


FIGURE 14.20
Area chart example

nonlinear connections) between either the series or the consecutive points in the series. It assumes there is no defined relationship between points in the data series or at least significant enough variation that a linear connection would be inaccurate. An example of this type of chart would be a map of predictions versus observations in an area where the relationship is not linear, such as observed temperatures. An example of a scatter chart is shown in Figure 14.21.

Activity 14.4—Chart Modification

Create a new spreadsheet and save it as Activity14_4 *and save it in the* Activities *folder. Add data to replicate one of the chart types presented in this chapter. Use the context-sensitive chart tools to add all possible chart elements. Change the display style of your chart using the available formatting tools. What options are provided for altering the appearance of your chart? When would this be beneficial in business and how does it help you convey information? Be sure to save your work.*



➤ **FIGURE 14.21** Scatter chart example

CHAPTER SUMMARY

This chapter presented more advanced concepts for navigating, formatting, and manipulating cells in a spreadsheet document. One of the common functions of a spreadsheet is to manage a list of information, which includes filtering and sorting data; the necessary procedures for these tasks were covered here. Additional formatting tools like table formatting and tab coloring for easy identification were also described. Finally, various common types of charts that can be produced were explained with examples. The next chapter focuses on the advanced use of formulas for calculation in spreadsheets and describes some of the tools for automatically associating and calculating results; these include the use of data tracing, subtotals, and PivotTables.

CHAPTER KNOWLEDGE CHECK

1 You can sort multiple columns in the same filter at the same time.

- ◯ **A.** True
- ◯ **B.** False

2 You can apply multiple conditional formatting rules to the same cell at the same time.

- ◯ **A.** True
- ◯ **B.** False

3 You can unmerge cells that have not been merged to add columns or rows to your spreadsheet.

- ◯ **A.** True
- ◯ **B.** False

4 Hiding one of the columns of a merged cell also hides the contents of the merged cell.

- ◯ **A.** True
- ◯ **B.** False

5 The Values selection of the Paste Special option removes formulas from the copied cells and retains only the data calculated by the formulas.

- ◯ **A.** True
- ◯ **B.** False

6 The following is a valid cell reference for a workbook containing Sheet1 and Sheet2.

- ◯ **A.** 'Sheet2'!6B
- ◯ **B.** Sheet2.B4
- ◯ **C.** 'Sheet2'A3
- ◯ **D.** All of the above
- ◯ **E.** Both A and B
- ◯ **F.** None of the above

7 The following type of chart assumes no clear relationship between the entries in a series:

- ◯ **A.** Column
- ◯ **B.** Line
- ◯ **C.** Scatter
- ◯ **D.** All of the above
- ◯ **E.** None of the above

8 A pie chart is primarily useful for displaying:

- ◯ **A.** Changes over time
- ◯ **B.** Contributions to a total value
- ◯ **C.** Nonlinear relationships
- ◯ **D.** All of the above
- ◯ **E.** None of the above

9 The following is an option for converting text to columns:

- ◯ **A.** Adding a column break where there is whitespace
- ◯ **B.** Using a delimiter such as a comma or semicolon
- ◯ **C.** Establishing a fixed width for each column
- ◯ **D.** All of the above
- ◯ **E.** None of the above

10 Hidden values cannot be used in formula calculations.

- ◯ **A.** True
- ◯ **B.** False

CHAPTER REVIEW QUESTIONS

1 How could Excel be used to benefit you in your daily life? Give specific examples as part of your answer.

2 Other than accountants, who are some professionals that might use Excel? What types of data would they want to enter into a spreadsheet?

3 How does formatting cells help to better interpret data? What kind of formatting is available in Excel to make interpretation easier?

4 What would be a reason to have multiple worksheets within one workbook? Why not make each worksheet its own workbook? Explain your answer.

5 How does merging cells affect data presentation? How would a merged cell be applied in a formula calculation?

6 Why might there be unwanted duplicate values in a spreadsheet? Give examples to explain your answer.

7 When would you want to convert text to columns? Give examples to support your answer.

8 Considering the types of data you encounter on a daily basis, whether it is currency data, percentages, or various other types of values: what chart type would be most helpful in interpreting and/or displaying this data? Explain your answer.

9 How can sorting and filtering be used to manage large amounts of data? Justify your answer with examples.

10 Explore the options for inserting media elements into an Excel document. Why are fewer options available for including media in Excel than there are in Word and PowerPoint?

PRACTICE EXERCISES

1 Using the MySuppliers example you constructed in this chapter, provide more complete management of the Supply List data. Because data should not be repeated in multiple lists, remove the values in the Supply List sheet other than the company and account number that do not pertain to the order. Add a column to calculate the cost of the order using a formula (Cost = Price * Quantity). Filter and sort the list so all of the orders from a particular company are listed together. Format the list as a table and change the tab color. Apply conditional formatting to show the most expensive orders in the list. Use data bars to assist in the visualization if your software application supports them.

2 Add an additional data series to each of the chart examples you constructed and save your work as a new file. How does this affect the display? Which charts should allow additional data series and which should not? Add a text box to your spreadsheet to answer these questions.

3 Using Figure 14.22 as a guide, construct a balance spreadsheet for a checking account. Use the Conditional Formatting function in Excel to define a rule for how positive numbers (credits) and negative numbers (debits) display in the amount column. You should format the debit values in red and the credit values in green.

▼ FIGURE 14.22
Example account spreadsheet

	A	B	C
1	**Item**	**Transaction**	**Amount**
2	Deposit	13-Aug	$1,000.00
3	Electric	14-Aug	-$120.00
4	Phone	14-Aug	-$50.00
5	Water	15-Aug	-$40.00
6	Groceries	16-Aug	-$200.00
7	Sewage	16-Aug	-$50.00
8		**Total:**	**$540.00**

4 Use the list example in Figure 14.3 as a guide to construct an address list in Excel with your own data (either real or fictional). Add headers to your data and format the result as a table using one of the preset table styles available in Excel. How do these styles differ from the styles used in Word?

5 Using Figure 14.3 as an example, construct an address list in Excel using your own data (real or fictional). Add a row of headers to your data. Use the Filter function available for formatting lists in Excel; select only the rows and columns you want to include in the result before applying the filter. Define a custom rule for the state/country value to narrow down the entries to a single state.

CHALLENGE EXERCISES

1 Fill in the blank with the appropriate type of chart:

- **A.** _____ charts are used to represent elements that comprise a total value.
- **B.** _____ charts are used to show data clustering or alignment between multiple series of data.
- **C.** _____ charts are used to track data over set intervals.
- **D.** _____ charts are used to show comparisons among individual items for a single observation.
- **E.** _____ charts are used to demonstrate how pieces contribute to a total value through multiple observations.
- **F.** _____ charts are used for comparisons, such as changes over time or a comparison of regions or countries.

2 Using Microsoft PowerPoint, develop an Excel worksheet tutorial. Use screenshots when explaining the following concepts: merging, column manipulation, cell referencing, list management, and tab colors. Make sure to develop an outline for your presentation.

3 Use Microsoft Excel to detail your personal finances. Construct a worksheet that calculates your monthly expenses and income. Use the formatting tools you learned in this chapter as well as Chapter 13. Then use a pie chart to show where the majority of your money is being spent for that month. Make sure to use the formatting elements you have learned in this chapter. If you need to turn this in to your instructor, feel free to use imaginary values.

4 Write a summary of the different categories of charts available in Excel (this is best suited to a Word document). Describe one example of the type of dataset that would be best represented by each specific chart type.

5 Create a pie chart like the one shown in Figure 14.18, but change the data set type to multiple choice results where the total is a number instead of a percentage. When you have placed it in your document, add additional data to the data set. What happens to the chart when you expand the data set? What steps do you have to take to refresh of reset the chart data?

CHAPTER 15

Advanced Features of Spreadsheet Software

IN THIS CHAPTER

Spreadsheet software is a great tool for managing lists and visualizing information, but it is most commonly used for the advanced analysis and management of data. To that extent, this chapter focuses on the advanced tools of spreadsheet software such as the use of complex formulas, data validation, and variable tracing to equip you to use your spreadsheet software for financial, business, or personal data management. Additional features, including pivot tables, subtotals, variable tracing, and external data management, are also covered to give you a better understanding of the power of this type of software application. At the completion of this chapter, you will be able to:

- Use common functions in your spreadsheet document
- Use IF statements to conditionally evaluate data
- Trace variables through a complex spreadsheet application
- Construct pivot tables and subtotals as additional evaluation methods
- Perform goal seeking and evaluate what if scenarios on numeric data

15.1 BUSINESS APPLICATIONS

Spreadsheet software has a variety of uses, but it is most prevalent in accounting and other business applications. For the example project in this chapter, you will manage the financial information for the company that was proposed back in Chapters 11 and 12. The business has gone exceedingly well while you were reading the intervening chapters and your first monthly financial analysis has come due. While this is decidedly business oriented (and primarily financial), as that is the general setting in which most people encounter spreadsheets, you should note that there are a variety of formula types to accommodate complex mathematics, statistics, and engineering applications. Data analysis and calculation belongs almost exclusively to spreadsheet software in terms of the productivity applications in common use.

The project file you will use in this chapter is *MyBusinessWorkbook*, which is available as part of the companion resources for this text. The workbook contains a number of spreadsheets within it that you will utilize and manipulate. Since you are working on the financial information for January and you want to keep the original file as a clean copy in case you need to correct anything, you should save the file as *MyJanuaryRevenue*.

The first sheet in the workbook is *January Commissions*; this is a blank worksheet where you will calculate the commissions for your sales team as the chapter

SPREADSHEETS VERSUS DATABASES

Spreadsheet software and database software both excel at managing information. The major difference between the two is the relational aspect of the database, which minimizes data duplication errors, and the calculation abilities of the spreadsheet software. The choice of which to use should ultimately be driven by the purpose of the document you are constructing and the reuse of the information in that document.

For instance, you can manage a list in a spreadsheet with ease, and as long as you do not have multiple copies of the list in existence, the data should be consistent; using a database ensures the list is consistent, but it would probably be a more involved process to initially create the list and to maintain and access it. Similarly, databases can manage information well, but they are not useful for calculation; to perform analysis on the data beyond filters and reports, you will likely need the power of a spreadsheet application. Fortunately, part of the functionality of a spreadsheet program is to connect with a database; this means if you are willing to expend the effort to construct and manage the database, you can use it to store your information and use the spreadsheet to access it and perform the necessary analysis. While there is no complete list of criteria for this decision, a database is probably necessary for storing your information if any of the following are true in the particular circumstance:

- The data is subject to numerous changes by multiple people.
- Changing information in one spreadsheet requires updating multiple other spreadsheets.
- The information has permanence to the organization and cannot afford to be lost.
- The amount of data makes it unmanageable in a single spreadsheet document.

progresses. The second sheet is *January Sales*, which is a list of the total sales numbers for the month for all of the companies purchasing your products for use in their venue; some of these are franchises of your original business and others are external companies. The third sheet is called *January Supply List*; this is a record of the supplies that were ordered to fulfill your customers' orders for the month. You should recognize the companies and products from the construction of the supplier list in the previous chapter. The fourth tab is for the *Customer List* spreadsheet. This sheet is a mapping between the customers and the sales representative handling the account. Fifth in the list is the chart of *Sales Representatives*; this details the sales personnel, their commission rate on sales, the threshold for them to qualify for a bonus, and the bonus amount they are awarded if they meet their goals. The final tab is for the *Suppliers*; this should be almost identical to the results you have from the project in the previous chapter.

15.2 USING FUNCTIONS

One of the most powerful components of spreadsheet software is the ability to evaluate complex mathematical formulas and trace numeric data through multiple iterations of calculation. There are an enormous number of functions available for use in spreadsheet calculations; this chapter will cover the fundamentals and common functions you will likely encounter and give you guidance on where to look up information on the rest of the functions that exist if you need to utilize them. You were introduced to the SUM function in Chapter 13; this is one of many common functions that you will encounter with even basic analysis in a spreadsheet document.

Common Functions 15.2.1

As you may already know, all of the common mathematical operations of addition (+), subtraction (-), multiplication (*), and division (/) can be used in the construction of formulas in spreadsheet software. Whenever mathematical operations are used, they will follow the defined order of operations, calculating whatever is inside parentheses first, then completing formulas, and finally performing division, multiplication, subtraction, and addition. The cell references act as the variables in the calculations, but the actual data in the cell is used as the value wherever the cell is referenced. For the most part, functions operate on numeric values; there are some functions, though, that perform operations on text as well.

You can identify a range of values by separating the cell references with a colon (:), so the reference value *A1:A4* would indicate cells *A1* to *A4* inclusive of the cells between them. When using a range of cells as input, you can use a comma to skip values, so the reference value for the familiar SUM function of *SUM(A1:A4,A6)* would include cells *A1* through *A4*, skip cell *A5*, and include cell *A6*. The comma can be used to skip any number of cells horizontally or vertically; you can view this as separating the sequence of input. You should be aware that not all formulas will allow interrupted input.

Some of the common functions you will encounter in addition to the SUM function (which simply adds the value of every cell given as input) are AVERAGE, COUNT, MAX, MIN, and ROUND. The parentheses after the function name hold the arguments (or parameters) of the function; these are the values on which the function operates. Some functions use a specific set of values and others allow any input (represented here by an ellipsis). The details of these functions are as follows:

- *AVERAGE* calculates the total value divided by the number of inputs given for the formula. The format is AVERAGE(…) and it will accept any number of cells either in range format or individually separated by comma. You will use this to calculate the average sales value for a customer in the list for January on the *January Sales* sheet. To calculate this value, enter *=AVERAGE(B2:B13)* in cell *B15*. If you have done this correctly, you should get the value *8,614* as the whole number component (the digits to the right of the decimal point will vary based on the number of decimal digits your formatting is set to display).
- *COUNT* returns the number of entries in a list of cells; the format is COUNT(…), and it will accept cells, cell ranges, and comma-separated entries. Add an entry for the count of the total number of sales for the month using the formula *=COUNT(B2:B13)* in the same *January Sales* sheet. You should get the value *12*.
- *MAX* returns the single maximum value from the set of cells given as input arguments; it takes the form MAX(…) and accepts any list of cells or cell ranges with or without comma separators. Use the formula *=MAX(B2:B13)* to determine the highest single value for sales in January; this should be *24,000*.
- *MIN* returns a single minimum value from the set of cells given as input arguments; it takes the form MIN(…) and accepts all lists of cells or cell ranges with or without comma separators. The formula to return the minimum single value for sales in January is *=MIN(B2:B13)* on the *January Sales* sheet. The value returned should be *400*.
- *ROUND* takes two arguments, a value on which to operate and a whole number representing the number of digits to the right of the decimal point to include; this takes the form ROUND(*A single numeric value*, *Integer number of significant digits*). Unlike changes that simply modify the display, using the ROUND function will actually alter the value in the cell itself. Apply the ROUND function to the AVERAGE calculation you used earlier and use two decimal places for the cents component of the currency. The adjusted formula for the average should be *=ROUND(AVERAGE(B2:B13),2)* and the return value should be *8614.17*.

Notice the nesting of functions in the last example. Nesting functions is common in spreadsheet software to calculate complex values; whatever is located in the innermost parentheses or functions will be calculated first. In this case, the AVERAGE is computed and used as the input value in the ROUND function, which is calculated to two significant digits. Take this opportunity to further practice applying formatting to your spreadsheet by formatting all of the numeric values as currency except for the total number of sales in column *B*. A completed example of the formatted spreadsheet is shown in Figure 15.1.

	A	B
1	Client Company	Revenue
2	Dog Eat Doggery	$14,600.00
3	Top Dog Dogs NY	$24,000.00
4	Top Dog Dogs LA	$2,800.00
5	Tokyo Dogs	$23,700.00
6	Singapore Dogs	$4,600.00
7	Dubai Dogs	$910.00
8	Top Dog Dogs DC	$8,800.00
9	Top Dog Dogs ATL	$400.00
10	Top Dog Dogs BWI	$3,570.00
11	Doggy Dogs	$10,800.00
12	Dog Factory	$3,490.00
13	Dig Dogs	$5,700.00
14		
15	Average Sales	$8,614.17
16	Number of Sales	12
17	Maximum Sale	$24,000.00
18	Minimum Sale	$400.00

FIGURE 15.1
Calculation results for January Sales spreadsheet

Activity 15.1—Numerical Functions

Create a new spreadsheet and save it as Activity15_1 *and save it in the* Activities *folder. Add numeric values to cells A1 through A10. Explore the calculation functions you have learned in the chapter by creating a table similar to the one in Figure 15.2 except using calculations instead of text. Explore one additional calculation function in Excel. What is the result of using this function? When would this be useful? Be sure to save your work.*

Text Functions

15.2.2

There are a number of functions that apply to the manipulation of text as opposed to numeric values. For the most part, these are useful for converting text values that are imported from another data source. Some of the most common functions for manipulating text are as follows:

- *CONCATENATE* is used to join the contents of two or more cells containing text into the same text result. CONCATENATE can accept multiple arguments, whether they are individual cells, cell ranges, or cells separated by a comma. The format of the function is CONCATENATE(…), and it returns a text result. An example is CONCATENATE(A2,A3), which would return the text of both cells joined without spaces in the order specified.
- *LEFT* takes the form LEFT(*A single cell containing text, A whole number value of characters*) and returns the specified number of leftmost characters of its first argument. An example is LEFT(*A4*, 2), which would return the two leftmost characters of cell *A4*. This can be helpful when you need a subset of information to display, such as a piece of an account number. You can use LEFT inside of other functions; it returns a text result but can be applied to numbers or text cell contents.
- *RIGHT* works in exactly the same way as LEFT except it takes the number of rightmost characters specified in the second argument. An example is RIGHT(*B4*, 2), which would return the two rightmost characters in cell *B4*.
- *UPPER* converts its argument to all uppercase text; this can allow for more accurate searching if casing is an issue. It can also help to display

entities of importance if coupled with an IF condition, as discussed later in this chapter. An example use of UPPER is UPPER(*A3*), which would return the text of cell *A3* in uppercase.

- *LOWER* converts its argument to all lowercase text; this works in the same manner as UPPER and has the same format. An example use of LOWER is LOWER(*A4*), which would return the contents of cell *A4* in all lowercase letters.
- *VALUE* evaluates the text in the cell entered as an argument into a numeric value; this is particularly helpful if the data is from an external source such as a text file or database that lacks the capacity to convert it to a number implicitly. The VALUE function takes the form VALUE(*A single cell containing a text representation of a number*) with only one argument referencing a cell containing text. An example of the use of VALUE is VALUE(*B4*), which would return the numeric value equivalent of the text contents of cell *B4*. The result can be used in other formulas. This can often help to correct data reading errors if they are present when the formula is otherwise correct, particularly when the data being used is imported.

You can represent a literal text string by surrounding it in double quotation marks (“”). This can be used to include a keyword in a search formula you are constructing or to simply represent a display condition such as “Yes” or “No” in a cell based on an IF condition (as covered in a later section of this chapter). The text concatenation operator is the ampersand (&); this is a shorthand way to invoke the same result as the CONCATENATE function. The results of “=CONCATENATE(A2,A3)” are the same as “=A2&A3” in terms of return value and display. One use of both concatenation and literal strings is adding a space between first and last names; if they were contained in columns *A* and *B*, respectively, the formula would be *A3&“ ”&B3* to return the contents of cell *A3*, a space, and the contents of cell *B3* as a single text result. While they should not be a part of your final document, Figure 15.2 shows the results of the example functions described earlier as applied to the January Sales spreadsheet.

If you are importing text and you are not getting the correct results in your formulas, you can use the *Text to Columns* conversion to format the text into the format expected by your spreadsheet software. You can do this without constructing multiple columns by choosing the delimited option and selecting a character that does not appear in the text as the delimiter. The preview at the bottom of the dialog box should let you know if you have set it up correctly because it should display only a single column.

Activity 15.2—Text Functions

Create a new spreadsheet and save it as Activity15_2 *and save it in the* Activities *folder. Add text to cells A1 through A10. Explore the text functions you have learned in the chapter by creating a table similar to the one in Figure 15.2. Explore one additional text function in Excel. What is the result of using this function? When would this be useful? Be sure to save your work.*

Value Lookup

15.2.3

The ability to look up data in one spreadsheet or section from another is vital in most complicated projects. Using the lookup

	A	B	C	D	E
1	Client Company	Revenue			
2	Dog Eat Doggery	$14,600.00		Formula	Result
3	Top Dog Dogs NY	$24,000.00		CONCATENATE	Dog Eat DoggeryTop Dog Dogs NY
4	Top Dog Dogs LA	$2,800.00		LEFT	To
5	Tokyo Dogs	$23,700.00		RIGHT	00
6	Singapore Dogs	$4,600.00		UPPER	TOP DOG DOGS NY
7	Dubai Dogs	$910.00		LOWER	top dog dogs la
8	Top Dog Dogs DC	$8,800.00		VALUE	2800
9	Top Dog Dogs ATL	$400.00		&	Dog Eat DoggeryTop Dog Dogs NY
10	Top Dog Dogs BWI	$3,570.00		A3&" "&B3	Top Dog Dogs NY 24000
11	Doggy Dogs	$10,800.00			
12	Dog Factory	$3,490.00			
13	Dig Dogs	$5,700.00			
14					
15	Average Sales	$8,614.17			
16	Number of Sales	12			
17	Maximum Sale	$24,000.00			
18	Minimum Sale	$400.00			

FIGURE 15.2
Text functions applied to the January Sales spreadsheet

features also reduces the manual duplication of values, which will help reduce the overall errors in the spreadsheet document. There are two primary functions that can be used to perform a value lookup in your workbook: VLOOKUP and HLOOKUP.

VLOOKUP is a function for performing a vertical lookup of information in a spreadsheet. The format is VLOOKUP(*Item to find*, *Range of cells in which to look*, *Offset value of column to return*, *Exact match or approximate match*). While it may seem complicated, as you become familiar with the function, you will gain an understanding of the arguments. The first argument is simply the text to locate; this can take the form of a literal text string (enclosed in double quotation marks) or a cell reference. The second argument is the list of cells in which to look for the text; the VLOOKUP function will search the first column identified in the range for the value specified in the first argument. The third argument is the offset value of the column of information you want to return if a match is found; the column in which the information is found is considered column *1*, so a value of *2* in this argument would indicate the column immediately to the right of the column being searched. The final argument is a TRUE or FALSE value; these are literal values representing a condition case of true or false, which can also be equated to *yes* or *no* and *1* or *0* for binary values. In this case, FALSE represents the case where you want the search to return an exact match for the item for which you are searching and TRUE represents the allowance of partial matching for identifying a value to return.

To use this function in practice, you will place the sales representative for the customer in your *January Sales* sheet in

column *C*. The column heading should be *Sales Representative* and the formula in cell *C2* should be *=VLOOKUP(A2,'Customer List'!$A$1:$B$14,2,FALSE)*, where *A2* is the cell whose contents you want to find in the Customer List spreadsheet in the range of cells *A1* to *B14*; these cell references need to be absolute (using the dollar sign for both the row and column) in order to repeat this function for the rest of the column without changing your search range. For this function to work properly, you should make sure the value you are trying to find will occur exactly once in the cell range you are searching. The third argument specifies that the return value is the content of the cell immediately to the right of the matched item, where the search column is considered column *1* and the return value would be the *2* value specified. The FALSE argument indicates only an exact match should be considered. This function works only for returning values to the right of the matched column, so you may need to rearrange your data if your search column is to the right of the value you want to return. A completed example of this lookup is shown in Figure 15.3; use this to compare your results.

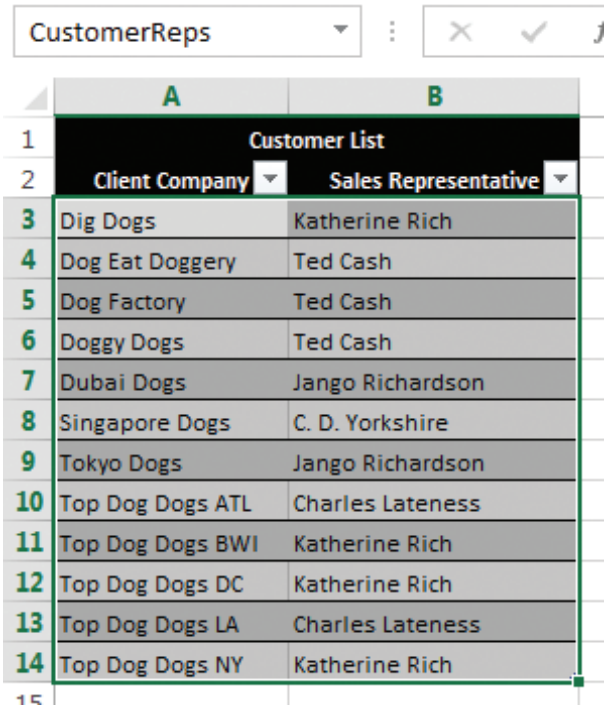
There is an equivalent horizontal lookup function called *HLOOKUP* that searches the first row of the cell range instead of the first column. It assumes the return data is located in the same column but in a row beneath the one being searched. The parameters and usage are otherwise identical.

If you are using a specific cell range to search for values repeatedly, you can actually name the range of cells and use the name to reference the range instead of retyping the reference. You can add a name to a range of cells using the name box to the left of the Formula Bar on the spreadsheet application where the cell reference typically appears. For instance, select the range of cells for the customers and the assigned representatives in the *Customer List* sheet and name it *CustomerReps* as shown in Figure 15.4. You can now substitute the

C13 =VLOOKUP(A13,'[MyJanuaryRevenue.xlsx]Customer List'!$A$1:$B$14,2,FALSE)

	A	B	C	D	E	F	G
1	Client Company	Revenue	Sales Representative				
2	Dog Eat Doggery	$14,600.00	Ted Cash		Formula	Result	
3	Top Dog Dogs NY	$24,000.00	Katherine Rich		CONCATENATE	Dog Eat DoggeryTop Dog Dogs NY	
4	Top Dog Dogs LA	$2,800.00	Charles Lateness		LEFT	To	
5	Tokyo Dogs	$23,700.00	Jango Richardson		RIGHT	00	
6	Singapore Dogs	$4,600.00	C. D. Yorkshire		UPPER	TOP DOG DOGS NY	
7	Dubai Dogs	$910.00	Jango Richardson		LOWER	top dog dogs la	
8	Top Dog Dogs DC	$8,800.00	Katherine Rich		VALUE	2800	
9	Top Dog Dogs ATL	$400.00	Charles Lateness		&	Dog Eat DoggeryTop Dog Dogs NY	
10	Top Dog Dogs BWI	$3,570.00	Katherine Rich		A3&" "&B3	Top Dog Dogs NY 24000	
11	Doggy Dogs	$10,800.00	Ted Cash				
12	Dog Factory	$3,490.00	Ted Cash				
13	Dig Dogs	$5,700.00	Katherine Rich				
14							
15	Average Sales	$8,614.17					
16	Number of Sales	12					
17	Maximum Sale	$24,000.00					
18	Minimum Sale	$400.00					

➤ **FIGURE 15.3**
VLOOKUP example results



▲ **FIGURE 15.4**
Naming a cell range

name tag *CustomerReps* to reference these cells on any of the spreadsheets within your workbook. You use the *Name Manager* icon on the *Formulas* ribbon in Excel 2013 to add or edit the labels for these selected cell ranges; in Excel 2011, use the *Insert Name* icon on the *Formulas* ribbon to add defined names.

15.2.4 IF Statements and Logic

The *IF* function evaluates a condition to either true or false and then returns a different value based on the outcome. The format is IF(*Condition*, *Result if TRUE*, *Result if FALSE*). The result of the condition needs to be either the literal TRUE or the literal FALSE; you must make sure the proper logic is applied to return one of these conditions.

To do this, you typically need to use logical operators. Logical operators evaluate the relative value of the arguments on both sides and return whether the condition is true. For example, in the conditional statement *B2>B3*, if the value of cell *B2* is larger than the value of cell *B3*, the result will be TRUE; otherwise it will be FALSE. There are six logical operators you can use: less than (<), less than or equal to (<=), equal (=), not equal (<>), greater than (>), and greater than or equal to (>=).

There are also three functions that can assist in developing a logical evaluation—NOT, OR, and AND.

- The *NOT* function simply negates its argument, returning TRUE if the argument is FALSE and vice versa. For example, NOT(F8) would return FALSE if F8 is TRUE; NOT will only accept as input logical values that will return TRUE or FALSE.
- The *OR* function accepts any number of inputs as long as they return logical values of TRUE or FALSE; it will return TRUE if any individual argument it is given is TRUE and will return FALSE only if all of the arguments given are FALSE. An example is OR(*F5*,*F6*) where *F5* and *F6* are cells containing either TRUE or FALSE values.
- The *AND* function takes input arguments in the same format as OR. The main difference is that AND will return TRUE only if all of the input arguments are TRUE and will return FALSE if any of the input arguments are FALSE. An example is AND(*F6*,*F7*) where *F6* and *F7* are cells containing logical values.

You should include an IF statement in column *D* of your *January Sales* spreadsheet to evaluate whether the sales for that customer are greater than the average

value; this may be superfluous at this point, but it would help to identify the largest customers for a business. The formula for cell *D2* should be *IF(B2>=$B$15,"Yes","No")*; this will be the basis for the column, so make sure you use an absolute reference to cell *B15*, which contains the average value you calculated for the monthly sales. This formula will display the text "Yes" if the value of the individual sale is greater than or equal to the average sale value or "No" if it is less than the average sale value. Fill the column with this formula. The results of this calculation along with the logic examples provided earlier are shown in Figure 15.5.

Activity 15.3—Logic and IF Statements

Create a new spreadsheet and save it as Activity15_3 *and save it in the* Activities *folder. Add values to cells A1 through A10. Explore the logic comparators you have learned in the chapter by creating a table similar to the one in Figure 15.5. Create a complex IF statement to produce a different calculation depending upon whether the condition is true or false rather than just printing a different text response. When would this type of IF statement be useful? Be sure to save your work.*

Function Wizard

15.2.5

There are a large number of functions available for use in spreadsheet calculation. Those introduced so far are common functions and operators that you will likely encounter with even casual use of the software. You can look up the functions yourself if you want to use them or you can use the Function Wizard to help you identify and construct the function you want. The Function Wizard is available in both Excel 2013 and Excel 2011; you can activate it from the *Insert Function* icon on the Formula Bar.

D13 =IF(B13>=$B$15,"Yes","No")

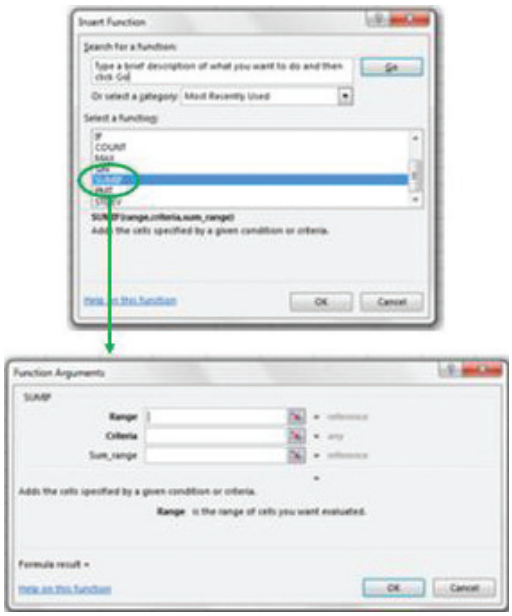
	A	B	C	D	E	F	G
1	Client Company	Revenue	Sales Representative	> Average			
2	Dog Eat Doggery	$14,600.00	Ted Cash	Yes		Logic	Result
3	Top Dog Dogs NY	$24,000.00	Katherine Rich	Yes		B2>B3	FALSE
4	Top Dog Dogs LA	$2,800.00	Charles Lateness	No		B2>=B3	FALSE
5	Tokyo Dogs	$23,700.00	Jango Richardson	Yes		B2=B3	FALSE
6	Singapore Dogs	$4,600.00	C. D. Yorkshire	No		B2<>B3	TRUE
7	Dubai Dogs	$910.00	Jango Richardson	No		B2<B3	TRUE
8	Top Dog Dogs DC	$8,800.00	Katherine Rich	Yes		B2<=B3	TRUE
9	Top Dog Dogs ATL	$400.00	Charles Lateness	No		NOT(F8)	FALSE
10	Top Dog Dogs BWI	$3,570.00	Katherine Rich	No		OR(F5,F6)	TRUE
11	Doggy Dogs	$10,800.00	Ted Cash	Yes		AND(F6,F7)	TRUE
12	Dog Factory	$3,490.00	Ted Cash	No			
13	Dig Dogs	$5,700.00	Katherine Rich	No			
14						Formula	Result
15	Average Sales	$8,614.17				CONCATENATE	Dog Eat DoggeryTop Dog Dogs NY
16	Number of Sales	12				LEFT	To
17	Maximum Sale	$24,000.00				RIGHT	00
18	Minimum Sale	$400.00				UPPER	TOP DOG DOGS NY
19						LOWER	top dog dogs la
20						VALUE	2800
21						&	Dog Eat DoggeryTop Dog Dogs NY
						A3&" "&B3	Top Dog Dogs NY 24000

➤ **FIGURE 15.5**
Logical function evaluations

In Excel 2011, the Function Wizard is called the Formula Builder; it has the same functionality, but it appears in a toolbox outside of the main interface.

The Function Wizard first prompts you to look up the formula or function you want to include in your calculation. When you have selected it, you can then add each argument separately in the dialog box that opens. You can see an example of the Function Wizard for Excel 2013 in Figure 15.6. In Excel, the Function Wizard (or Formula Builder) allows you to type keywords associated with the function to help you look up the correct function or formula you want to use.

▼ **FIGURE 15.6**
Function Wizard example



15.2.6

Calculation Options

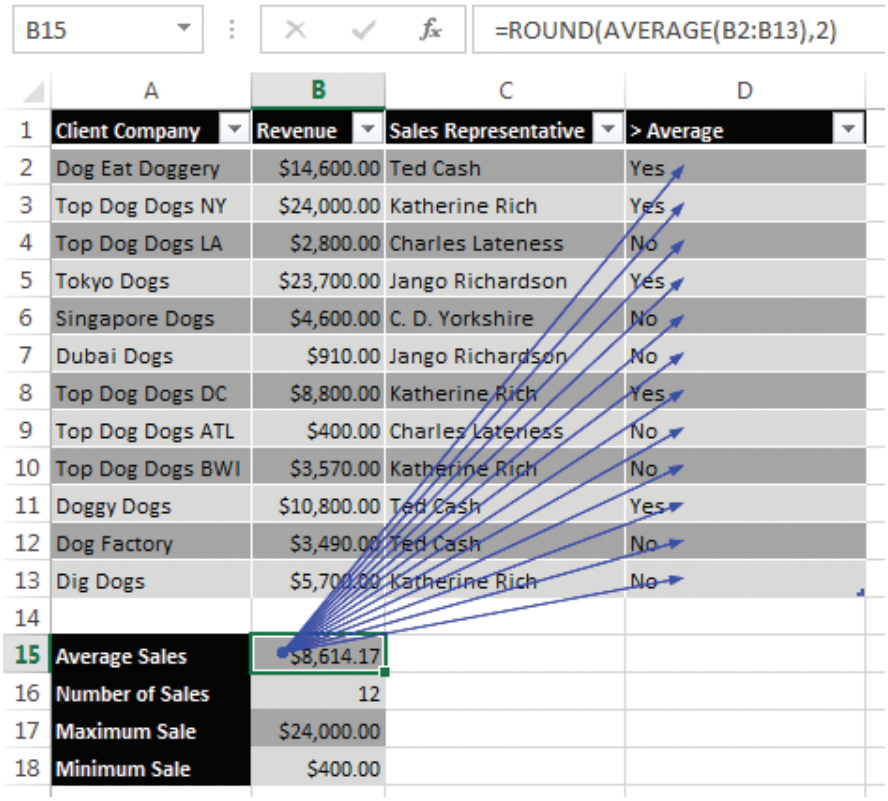
You can force a manual recalculation of your workbook by pressing the *F9* key on the keyboard. By default, all calculations are updated as soon as one of the cells that affects a formula result is changed. You can control this behavior, however, if you want to delay the update operation. If you choose to change this setting in Excel 2013, select the *Formulas* ribbon and change the *Calculation Options* menu settings from *Automatic* to *Manual*. You can then use either of the icons to the side; *Calculate Now* will manually recalculate the entire workbook and *Calculate Sheet* will calculate only the current spreadsheet. In Excel 2011, the settings for manual and automatic calculation are found under the *Settings* icon on the *Calculation* panel of the *Formula* ribbon; this ribbon also has icons to *Recalculate All* and *Recalculate Sheet* manually.

15.2.7

Tracing Variables

You can visually trace the variables used in the construction of your formulas in spreadsheet software; this can be a helpful when you are updating data and want to see how the update will affect your work. You can trace both the dependents and the precedents of your formula; these operations are only valid on formula data. *Dependents* show the connections to cells that are affected by a change to the selected formula. *Precedents* show the cells that contribute values to the current formula, such as cells referenced by the formula for calculation.

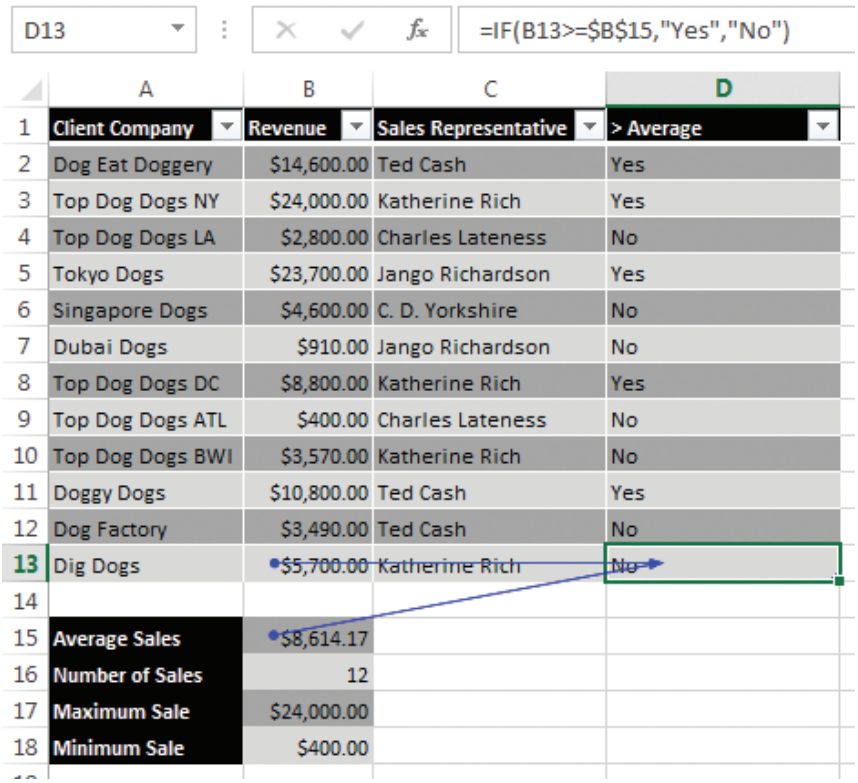
In Excel 2013 and Excel 2011, you can activate the arrows displaying the dependents of a cell by activating a cell containing a formula calculation, selecting the *Formulas* ribbon, and clicking the *Trace Dependents* icon. An example of the visual result for performing this action on cell *B15* is shown in Figure 15.7.



▲ **FIGURE 15.7**
Trace Dependents example

To remove the traces in Excel, select the *Remove Arrows* icon with the cell selected; this is also located in the *Formulas* ribbon. In Excel 2013, the panel that contains this functionality also allows you to toggle between the display of calculated values and the formulas themselves by using the *Show Formulas* icon. You can also select the *Evaluate* icon to open a dialog box that will progress through the formula step by step to allow you to examine the results at each stage. In Excel 2011, you can display the formulas instead of the

You can also activate the visual arrows for precedents of a formula. It is possible to have both of these traces active at the same time. To activate the tracing for precedents in Excel, select the cell containing the formula you want to trace, activate the *Formulas* ribbon, and click the *Trace Precedents* icon. An example of tracing precedents on cell D13 is shown in Figure 15.8.



➤ **FIGURE 15.8**
Trace Precedents example

calculated results by checking the *Show Formulas* option under the *Show* icon on the *Formulas* ribbon.

15.2.8

Data Validation

Data validation can be used to monitor specific cells for a range of valid input. This is useful if you are using complex formulas that accept only certain data types or values. For instance, you can apply data validation to the cells containing sales amounts in column *B* of the *January Sales* spreadsheet so they will only accept positive decimal values. To apply data validation in Excel, select the cell or cells to which you want the data validation to apply, open the *Data* ribbon, and select *Data Validation*. The *Data Validation* dialog box that appears is shown in Figure 15.9.

You can set the criteria from the various drop-down lists. In the example, set the allowed type to *Decimal* and configure the allowed data so it only accepts values greater than zero. You can use the *Input Message* tab to give your users a text prompt about the allowed values. You can also use the *Error Alert* tab to define what will occur when invalid data is entered.

SUBTOTALS

15.3

Subtotals are a tool in spreadsheet software that allows you to select the granularity with which you want to view the elements that contribute to an overall summation. Using subtotals is one application of grouping in a spreadsheet. Grouping cells in a spreadsheet couples the display of the cells so either all are showing or none are showing; you can group cells by rows or by columns.

Grouping Cells

15.3.1

When you group cells in a spreadsheet, they can be hidden or shown as a group with the use of a toggle icon. To group a set of rows or a set of columns in Excel, select the row or column labels you want to include and select the *Group* icon from the *Data* ribbon. An example of grouping rows on the

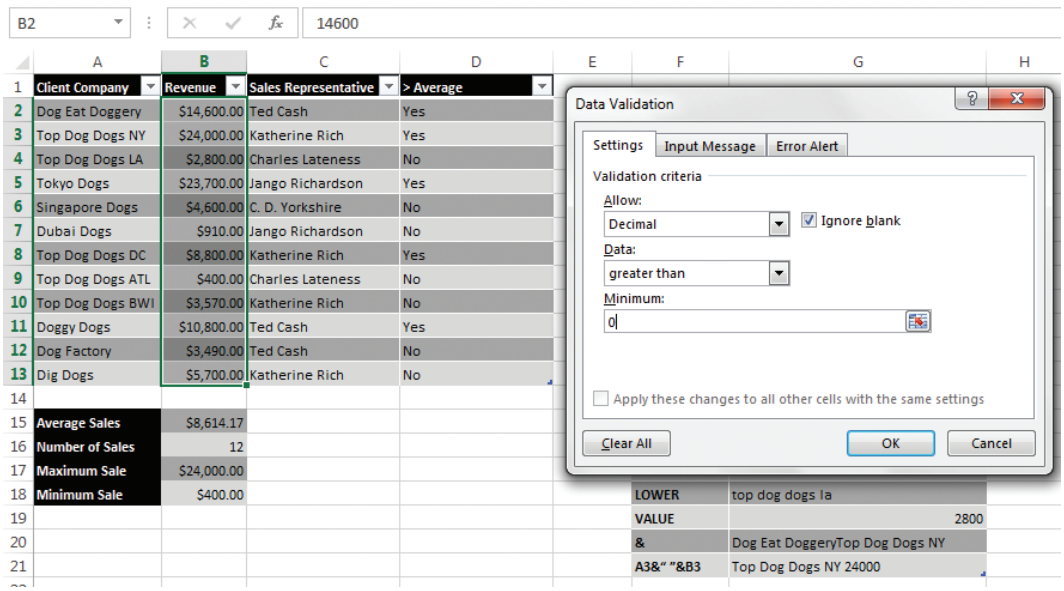


FIGURE 15.9
Data validation example

January Supply List spreadsheet is shown in Figure 15.10.

When you have grouped the rows or columns, you will see an additional space to the left of the row labels or above the column labels. This shows you where your groups are and the current status of their display; when a group is displayed, you will see a line bounding the range of cells included in the group and an icon for a minus sign (-). Clicking this icon will hide the group and turn the icon into a plus sign (+), which can be used to show the hidden group. This is helpful if you have information that you do not always want displayed but is necessary to keep. This is also an alternative to hiding individual rows and columns.

Grouping items at multiple levels allows the formation of subgroups. You remove a group in Excel by selecting the group and clicking on the *Ungroup* icon on the *Data* ribbon. You can also use the *Show Detail* and *Hide Detail* icons to show or hide the group without using the plus or minus icons in the margin. For the example, remove the grouping since this data set will be used for the construction of a subtotal example.

15.3.2 Constructing Subtotals

Subtotals are an offshoot of the grouping functionality in spreadsheets that allow for the inclusion of incremental totaling for groupings of similar content. To construct a subtotal example on the *January Supply List* spreadsheet, add a column after the existing data for calculating the cost (which should be the price times the quantity). Subtotals work on filtered data for automatically coupling information into subgroups, so you should filter the data and sort it by *Account Number*. This will place all of the orders from the specific accounts in the same location. You should remove any formatting and filters because the *Subtotal* command will only operate on regular cells.

To construct this example in Excel 2013, select all of the rows in the *January Supply List* spreadsheet (after you have filtered and sorted the data) and then select the *Subtotal* icon on the *Data* ribbon. In Excel 2011, this option is available by selecting the *Data* menu and choosing *Subtotals*. This will open a dialog box where you can select the settings for your subtotal results. In the example, you should subtotal at changes in *Account Number*, use the *SUM* function, and add totals to the *Cost* value. Make sure the *Summary below data* option is checked. The Subtotal dialog box and results are shown in Figure 15.11.

1 2

	A	B	C	D	E
1	Company	Account Number	Product	Price	Quantity
2	Daily Dog Delivery	4735556	Minidogs	$2.00	9999
3	Condiment Capital	4755555	Premium Ketchup	$5.00	500
4	Funtime Fishery	7865554	Sardines	$10.00	4000
5	Nutty Nut Farms	7885553	Premium Peanut Butter	$25.00	300
6	Custom Carts	4775552	Custom Cart DBZ	$5,700.00	4
7	The Umbrella Company	4335551	Cart Umbrella	$300.00	4
8	Bun Bakers	4665550	Sprinkle Assortment	$5.00	1000

➤ **FIGURE 15.10**
Group example

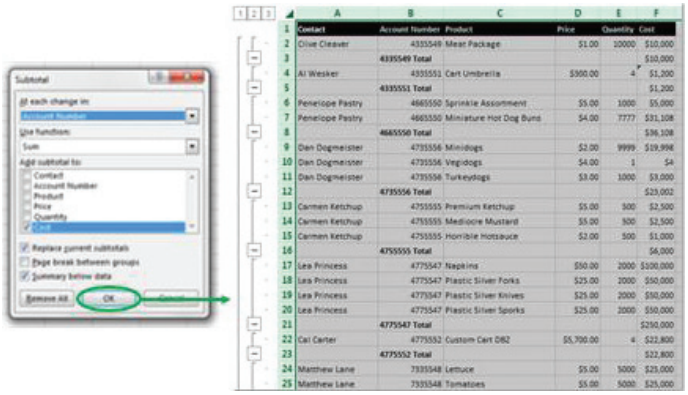


FIGURE 15.11
Subtotal dialog box and results

When you have finished, you can format the result as a table; you are free to show and hide individual elements by grouping. This allows you to view the details of the orders or just the total cost of the order per account. You can also hide all of the information except for the final total cost of all orders.

15.4 PIVOT TABLES

A *pivot table* is a tool for visualizing complex data that allows you to select the granularity with which you want to see the information presented. These can also perform limited automatic data calculation such as averages, summations, and counts. Pivot tables can be used as a supplement to spreadsheet information, and you can even reference the automatic calculations for your own use in other areas of your document.

15.4.1 Constructing a Pivot Table

To construct a pivot table in Excel, first select the data range you want to incorporate into the table and then click the *PivotTable* icon on the *Insert* ribbon in Excel 2013; in Excel 2011, the *PivotTable* command is an option under the *Data* menu. In the example, the data range is the sales information in the *January Sales* spreadsheet. When you click the *PivotTable* icon, the *Create PivotTable* dialog box, shown in Figure 15.12, will appear. You will be prompted to select the range of cells you want to include and where you want your table located; for the example, choose cell *I2* (the intervening columns containing the formula examples have been hidden).

When you click *OK*, the PivotTable Field List will appear as a pane on the side of

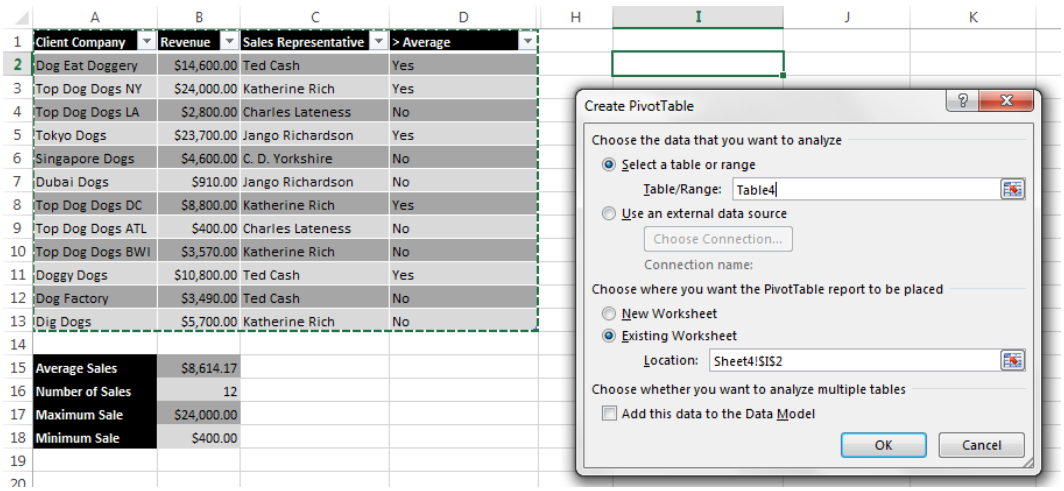


FIGURE 15.12
Create PivotTable dialog box

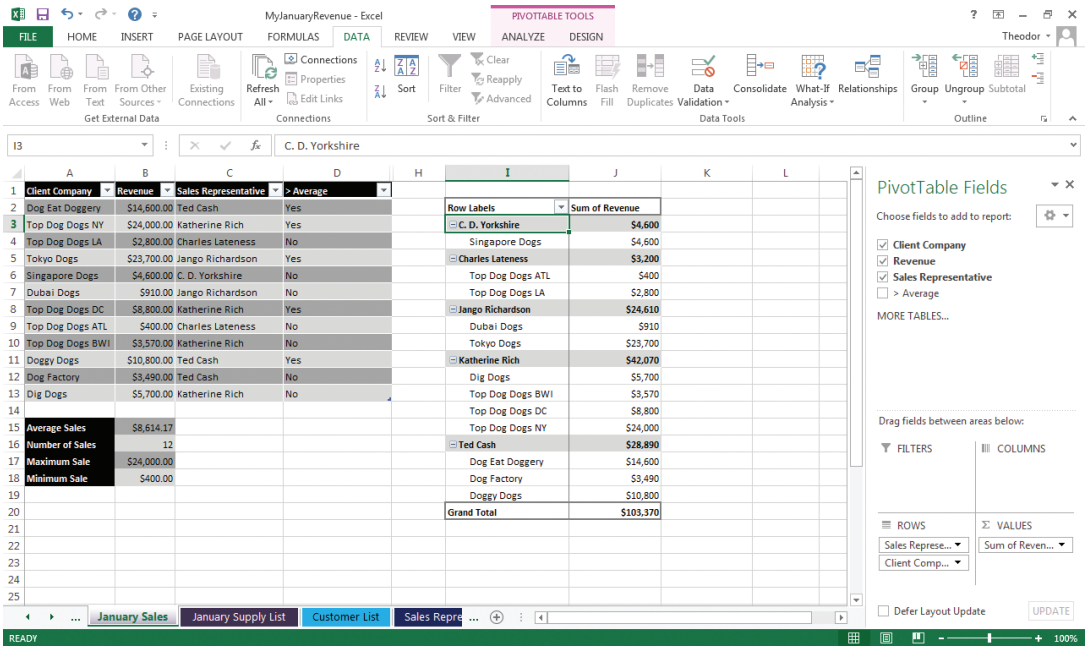
the interface (this is the PivotTable Builder window in Excel 2011) along with a placeholder in your document that the resulting pivot table will occupy. Notice there are four categories in the lower portion of the PivotTable Field List; you can drag and drop the category information into each of these areas to arrange your pivot table information, as shown in Figure 15.13.

Each heading can only occupy a single field. The options for selection are *Row Labels*, *Column Labels*, *Values*, and *Report Filter*. The row and column labels provide organization to the table; you can stack multiple values in these categories to create subgroups of data. In this case, add *Sales Representative* as the first row label entry and *Client Company* as the second row label entry; this arranges the data by representative and creates a subgroup of companies beneath the representative's name. Drag *Revenue* to *Values* to create an automatic column header for *Sum of Revenue*. You can change the formula used for computing values by selecting the *Value Field* settings on the menu of options for the *Sum of Revenue* entry (this is the *i* icon beside the field name in Excel 2011); this will open a dialog box where you can alter your choices for reporting information as necessary. There is a much larger range of functions that can be performed with pivot tables, but these are beyond the scope of this text.

Using Pivot Table Values in Formulas

15.4.2

Now you can calculate the commissions for the sales team and determine the overall net profit or loss for the month of January. To do this, you will first need to set up your spreadsheet on the *January Commissions* tab. The categories for this spreadsheet should be *Sales Representative*, *Revenue*, *Commission Rate*, *Commission*, *Qualify for Bonus*, *Bonus Amount*, and *Total Payout*.



➤ **FIGURE 15.13**
Pivot table example

Copy and paste the names of the sales representatives into the first column. You should then use VLOOKUP and IF statements to construct everything but the *Revenue* amount. The formulas for the first entry in each of these are as follows:

- *Commission Rate* for the first sales representative in cell *A2* is *VLOOKUP(A2,'Sales Representatives'!$A$1:$D$7,2,FALSE)*.
- *Commission* for the first sales representative is *B2*C2*.
- *Qualify for Bonus* for the first sales representative is *IF(B2>=VLOOKUP(A2,'Sales Representatives'!$A$1:$D$7,3,FALSE),"Yes","No")*,
- *Bonus Amount* for the first sales representative is *IF(E2="Yes",VLOOKUP(A2,'Sales Representatives'!$A$1:$D$7,4,FALSE),0)*.
- *Total Payout* for the first sales representative is *D2+F2*.

and functional, use the fill down command to duplicate them to the cells below.

The function you will use to access the pivot table data is *GETPIVOTDATA*. It has the format GETPIVOTDATA(*Return value category*, *Pivot Table location*, *Search category*, *Search value*). In the example, you want to look up the revenue value for the sales representative, so the formula for looking up the first sales representative would be *GETPIVOTDATA("Revenue",'January Sales'!$I$2,"Sales Representative",A2)*. If you have followed along with the example, your result should look like Figure 15.14.

You should now calculate the total payout for commissions. You will use this and the total payout for supplies to compare against the total income from sales. This will give you an idea of your net revenue for the month of January.

FIGURE 15.14 Commission calculation example

B2 | =GETPIVOTDATA("Revenue",'January Sales'!$I$2,"Sales Representative",A2)

	A	B	C	D	E	F	G	H
1	Sales Representatvie	Revenue	Commission Rate	Commission	Qualify for Bonus	Bonus Amt	Total Payout	
2	C. D. Yorkshire	4600	18%	$828	No	$0	$828	
3	Charles Lateness	3200	12%	$384	No	$0	$384	
4	Jango Richardson	24610	20%	$4,922	Yes	$500	$5,422	
5	Katherine Rich	42070	22%	$9,255	Yes	$750	$10,005	
6	Ted Cash	28890	20%	$5,778	Yes	$750	$6,528	
7								
8								
9	Total Payout	$23,167						

These formulas are just more complex examples of what you have already practiced. By using VLOOKUP, you can base everything off of the sales representative name and avoid unnecessary duplication. Once you have all of these values in place

WHAT IF ANALYSIS 15.5

The tools for conducting a "what if" type of analysis in spreadsheet software include the ability to perform goal seeking on a value in a formula. Goal Seek will solve

a formula to find a single optimum value by varying one of the input arguments.

To prepare the final financial information for January, you should import the cost of supplies and the cost of payouts to your sales team and subtract them from the sales revenue. This will give you your net profit or loss for the month. Since you have a substantial loss when you compute this value, you will need to calculate the payoff of a business loan to cover the amount. If you have completed the example correctly, the amount to be borrowed should be $698,907.

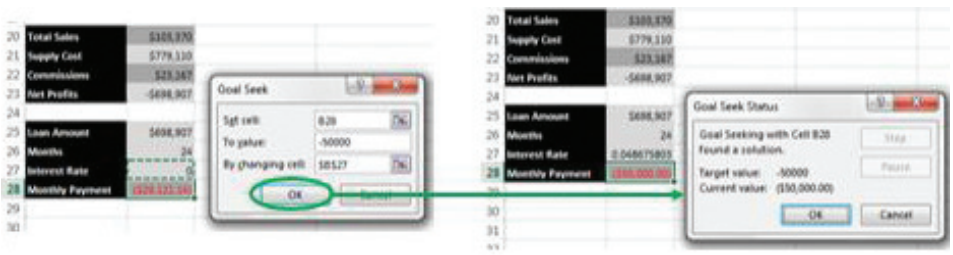
Prepare a new section of your spreadsheet to calculate the monthly payment to pay off this loan in 24 months. You will use Goal Seek to determine the interest rate you need to negotiate to make that happen. The values you will need are the total loan amount (which should be the negative of the loss amount for the month), the interest rate (you can start with 5 percent), the number of months to pay off the debt (24), and the payment amount per month; use the PMT function to calculate the monthly payment based on the other entries. This function has the format PMT(*Interest rate*, *Months to pay*, *Amount to pay*) and it returns the expected monthly payment. Divide your interest rate by 12 since it is an annual interest rate and you want a monthly payment result. You can now use Goal Seek to determine the ideal interest rate you will need to match your expected payoff.

Goal Seek takes three values: a formula to optimize, the formula result desired, and a parameter to tune to achieve the desired result. To activate Goal Seek in Excel, open the *Data* ribbon, and choose *What-If Analysis* and then *Goal Seek*. You will be prompted with a dialog box as shown in Figure 15.15.

For this example, use the formula for the monthly payment as the formula to optimize. You should set the ideal value to *-50,000*; this is negative because it represents a payment and not a gain. Set the interest rate as the parameter to tune. When you click *OK*, the formula will be optimized to show the maximum interest rate you can have to pay off the loan in the specified amount of time with a monthly payment of $50,000.

Activity 15.4— What-If Analysis

Create a new spreadsheet and save it as Activity15_4 *and save it in the* Activities *folder. Add content to the cells similar to the calculations for the interest rate in Figure 15.15. What other values can be determined using Goal Seek? What other options are available for What-If Analysis in Excel? When would this type of analysis be useful? What type of problems could not be solved using these tools?*



➤ **FIGURE 15.15**
Goal Seek dialog box

15.6 EXTERNAL DATA MANAGEMENT

Spreadsheet software has the ability to import and export data for use across multiple applications. This is especially useful if you want to analyze information from a database source or convert exported text to a spreadsheet for analysis. The common format for a text document that can be opened in spreadsheet software is a *comma-separated values* (CSV) file, which simply uses commas as delimiters for the text and treats each new line as a new row. You can import or export this type of information.

15.6.1 External Data Sources

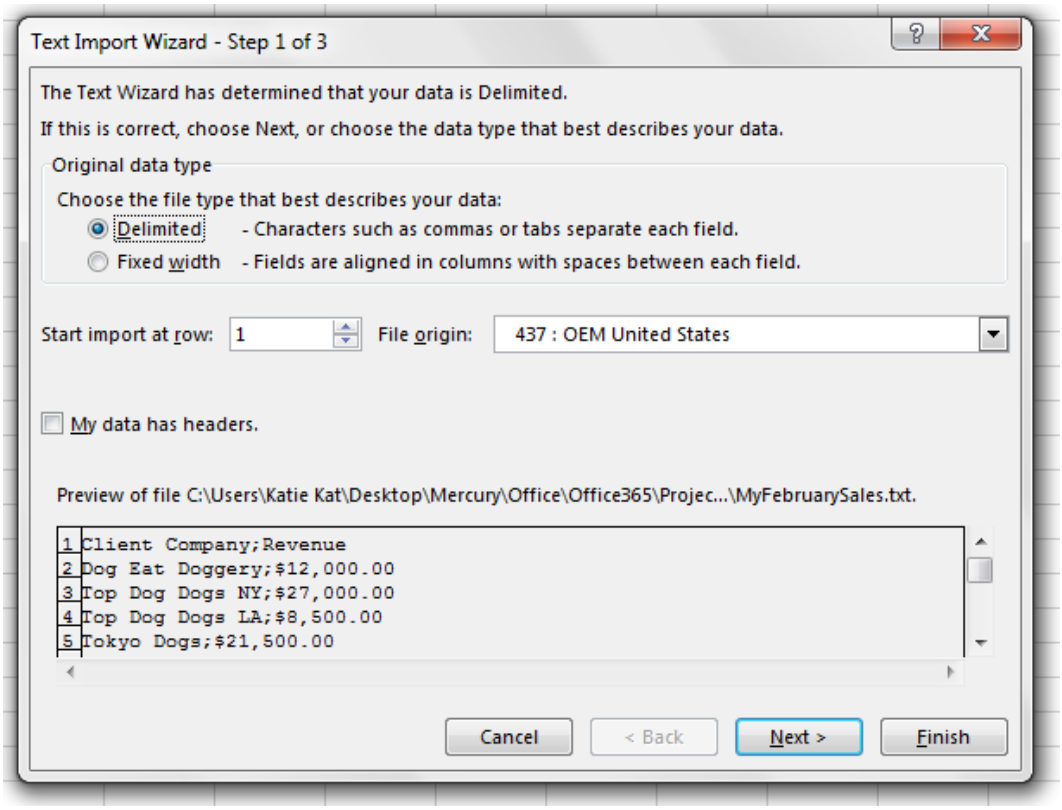
You can import data into your spreadsheet from a variety of external sources. In business, it is most likely the data is from a database, which you will learn about in Section V, "Database Software and Microsoft Access." You can connect to several data sources from your spreadsheet software including delimited text files, database connections, and other spreadsheet documents. As an example, you can create a new spreadsheet in your workbook and name it *February Sales* and then import the *MyFebruarySales* text file into the spreadsheet as an example. To do this in Excel, select the *From Text* icon (simply called *Text* in Excel 2011) on the *Data* ribbon and follow the prompts for formatting your text; this is similar to the Text to Columns functionality. An example dialog box for this formatting option is shown in Figure 15.16. Because the data includes commas in this case, the delimiter used is a semicolon (;).

You can also connect your spreadsheet to a database, Web location (via URL), or text file. The database connection options include SQL Server and the alternate connections include XML data. You can also click the *Existing Connections* icon to manage the connected data and use the *Refresh* icon to access options to update the data in your spreadsheet to match the most current information from the data source.

15.6.2 Exporting Data

Spreadsheet software has a variety of export options available from the Save As command. The most common exports for spreadsheet data are XML, HTML, and text. XML (eXtensible Markup Language) is a special kind of markup language similar in origin to HTML that provides a defined formatting style command based on the tag information provided. XML is commonly used for data formatting and is increasingly used to pass data from one database to another. The XML option allows databases to easily pick up the spreadsheet data. HTML is the common language of the Web and it contains predefined tags for table elements; you can export data from spreadsheet software directly to HTML where it can be used online or interpreted by other programs. Text export is another option; the two common varieties of text export are tab-delimited and comma-delimited text information, where each line in the text document equates to a row. The columns are determined by the delimiter character.

➤ **FIGURE 15.16**
Text Import Wizard



15.7 ARRANGING THE WORKSPACE

Excel gives you a number of options for managing your workspace. These options are located on the *View* ribbon in Excel 2013 and on the *Layout* ribbon in Excel 2011. You can select the *New Window* icon (which is just labeled *New* on the *Window* panel in Excel 2011) to open a new window with a view of the current document; this allows you to view multiple spreadsheets in the same document simultaneously. You can then arrange the windows in a manner that lets you manipulate your spreadsheet best. Commands like Cascade and Side by Side allow you to place your Excel windows in a practical arrangement. You can also use the *Save Workspace* command (called *Save Layout* in Excel 2011) to retain this arrangement for future use.

If you want to view multiple areas of the same spreadsheet, you can use the *Split* command on the current view of your document. This separates your document pane into four separate panes with scrollbars to manipulate pieces of them independently and allows you to view different areas of a complex sheet at the same time. This icon acts as a toggle, so you can deactivate it to return to the standard view.

CHAPTER SUMMARY

Spreadsheet software provides powerful tools for data management, analysis, and visualization. It is capable of effectively managing lists and organizing information. You can create complex formulas that span multiple spreadsheets of data and multiple subformulas. The disadvantage of spreadsheet software is the need to maintain the consistency of data and the potential for errors in duplicating values in multiple locations. You can control this to an extent if you use lookups to keep your spreadsheets as consistent as possible with a piece of data existing in only one location, but the potential for error, especially in collaborative efforts, is high. You can address this disadvantage with the use of database software, which is the focus of the next section of this text. Database software allows you to manage information via relationships so data is gathered by lookup of a value and by reference, minimizing the potential for unwanted duplication and reducing consistency errors. Spreadsheet software also possesses the ability to access external data from database connections, so you can use both tools to manage your data for consistency and perform the analysis you need.

CHAPTER KNOWLEDGE CHECK

1 The VALUE function will return a numeric equivalent to text even if the text on which it is operating is not a number.

- ◯ **A.** True
- ◯ **B.** False

2 The following function would be the most likely to require the use of ROUND to limit the digits following the decimal point:

- ◯ **A.** MIN
- ◯ **B.** LEFT
- ◯ **C.** AVERAGE
- ◯ **D.** SUM

3 The AND function will accept any number of logical input arguments and return TRUE if any of the arguments are TRUE.

- ◯ **A.** True
- ◯ **B.** False

4 You can nest functions within each other to calculate a complex result.

- ◯ **A.** True
- ◯ **B.** False

5 The following is true of VLOOKUP:

- ◯ **A.** It searches a column for values that match the search criteria.
- ◯ **B.** It allows for exact matches or partial matches.
- ◯ **C.** It can return values only to the right of the search column.
- ◯ **D.** All of the above.
- ◯ **E.** None of the above.

6 Goal Seek can optimize values for only a single parameter.

- ◯ **A.** True
- ◯ **B.** False

7 You can name a range of cells and use the name to identify the range in a formula.

- ◯ **A.** True
- ◯ **B.** False

8 The Split function separates your view window into different sections so you can view different spreadsheets at the same time in a single window.

- ◯ **A.** True
- ◯ **B.** False

9 You can create subgroups of rows or columns that will be hidden or shown as a single element.

- ◯ **A.** True
- ◯ **B.** False

10 The Goal Seek function can optimize up to two parameters at the same time.

- ◯ **A.** True
- ◯ **B.** False

CHAPTER REVIEW QUESTIONS

1. How are IF statements used to evaluate data? Give at least two examples of where this would be useful in evaluating data.

2. How could data validation be useful in calculating your course grades? What rules should be added to the values for grades?

3. Why are recalculations necessary? When would you switch between automatic and manual calculation?

4. What types of spreadsheets might require text functions? What type of business setting do you think would require this most often?

5. Explain the steps for applying a function in Excel (assuming you are not typing the function directly). What are some alternate ways of adding a function to your worksheet?

6. By now you should be very familiar with the common Microsoft Applications. Consider your daily activities, personal, academic, and professional. What documents will be most useful for increasing your productivity? How will these help you?

7. Choose a function for manipulating text in Excel. Describe the result of applying the function and give a correct example of the function. When would this be useful in practice?

8. Choose a function for performing numerical calculations in Excel. Describe the result of applying the function and give a correct example of the function. When would this be useful in practice?

9. Choose one of the basic logic comparators available in Excel. Describe the result of applying the function implementing this logic and give a correct example of the function. When would this be useful in practice?

10. Compare the VLOOKUP and HLOOKUP functions. What is the primary difference between these functions and how they work? When would each be useful in practice? What is the limitation on both of these functions?

PRACTICE EXERCISES

1 Using the data from the *MyFebruarySales* file and the completed example you produced in the chapter for January, construct sheets in your business document for *February Sales*, *February Supplies*, and *February Commissions*. The sales figures should be derived from the *MyFebruarySales* document and you can assume a reorder of all of the supplies from January except the one-time items associated with the business startup; these are any items in the supply list that have 4 as the total number ordered. Perform all of the steps on the February data that you did for completing the tasks for January. You should also use formulas to determine whether sales are improving or declining for each of the customers. Analyze which products from the supply list are too costly to continue to use based on the sales amounts and whether the business can remain viable if the sales trends and supply costs continue. You can provide your analysis on a separate *Outcome* spreadsheet using text boxes with support from the numbers within the spreadsheet.

2 Use the features discussed in Chapters 14 and 15 to develop a workbook that details your grades for this semester. Use a separate worksheet for each course you are enrolled in. List all of the assignments, the total points possible, and the points awarded. Develop a line graph with this data that tracks your progress in each course. Use a single line graph with multiple lines representing each course.

3 Now, using the spreadsheet you just created to monitor your grades, evaluate your performance using the functions available in Excel. Determine your highest, lowest, and average grade for each course. Then use Goal Seek to determine the grade you need on your final to receive your desired grade in the course.

4 Identify the following Text Functions:

- ◯ **A.** Used to join the contents of two or more cells containing text into the same text result.
- ◯ **B.** Converts its argument to all lowercase text.
- ◯ **C.** Coverts its argument to all uppercase text
- ◯ **D.** Returns the specified number of leftmost characters of its first argument.
- ◯ **E.** Returns the specified number of rightmost characters specified in the second argument.
- ◯ **F.** Evaluates the text in the cell entered as an argument into a numeric value.

5 Identify the following Numeric Functions:

- ◯ **A.** Returns a single minimum value from the set of cells given as input arguments.
- ◯ **B.** Calculates the total value divided by the number of inputs given for the formula.
- ◯ **C.** Returns the number of entries in a list of cells.
- ◯ **D.** A value on which to operate and a whole number representing the number of digits to the right of the decimal point to include (requires two arguments).
- ◯ **E.** Returns the single maximum value from the set of cells given as input arguments.

CHALLENGE EXERCISES

1 Using one of the worksheets from the sample files or one that you developed for this chapter, create a new Pivot Table. What does the Pivot Table you created show about the data? What options are available to manipulate the data or show different calculations? Give a brief summary of the purpose of Pivot Tables and at least two examples of their application in practice.

2 Explain the primary difference between groupings and subtotals in Excel. What is the benefit of being able to group columns and rows? Is it possible to group a cell into both a column group and a row group? What are the other options available for subtotals in Excel? Choose two of these options and describe when they would be useful in practice.

3 When importing text to Excel to be converted to columns, what would happen if a delimiter was not in the correct place in the text? What steps would have to be taken to correct the data after it has been imported into Excel? Give an example of when you may want to select multiple delimiters to expand the text data into columns.

4 Experiment with data and using Goal Seek in What-If Analysis to find a problem it cannot solve. What are the conditions that caused the Goal Seek to fail? Is this a solvable problem numerically? Are there other conditions in the problem setup that could be changed to find a solution?

5 Use the Side by Side view in Excel for two of the business documents on which you worked in this chapter. Toggle them to move in step with each other as you scroll. When would this be a useful feature in practice? What conditions would there be on the data to make this useful? When would the functionality to arrange windows be more suitable for working on multiple files at once? Give examples to support your answer.

CHAPTER
16

Introduction to Access and Database Software

IN THIS CHAPTER

This chapter covers database development and management using the Microsoft Access data management platform. You will learn basic database concepts and how to gather business requirements to develop a functional database. You will also learn how to navigate the Access interface and develop strong database management practices that promote security and data integrity. The real power of a relational database system comes with its ability to link tables using relationships, which is a great tool for querying and reporting based on related data within your database schema that will lead to the production of useful information. At the completion of this chapter, you will be able to:

- Create a table using database software
- Develop and link related tables of data
- Develop a simple query with the Query Wizard
- Develop simple forms

16.1 INTRODUCTION TO ACCESS

The Access database application is a Relational Database Management System (RDBMS) that is primarily designed to meet the data management needs of small to medium businesses. Access can store all types of data to include text, numbers, and pictures. You can even import Excel data that can then be queried to produce useful information. Access also has the ability to be used as a single desktop instance or be shared within an organization's network. One of the nicest enhancements is the ability to upgrade a database to the industrial-strength Microsoft SQL Server® platform. You can also use Access as the front end to an SQL Server engine, which means you can develop the user interface using Access and have SQL Server on the back end.

You might be wondering what exactly an RDBMS is. A relational database management system is a database management platform based on the relational theory formulated by E.F. Codd in the 1970s. E.F. Codd established the theoretical foundation of developing relationships between tables in a database using algebraic set theory. A *database* is simply a collection of data structures that are organized to serve the particular needs of an organization or person. The RDBMS can have more than one database instance open at once. For example, you might have an inventory database and a customer contacts database that use the same RDBMS. One of the first questions a student might ask in an Access course is "What is the difference between Access and the Excel application?" This question is a common one because Excel also stores and organizes records.

Imagine you work at a local police department that has a serious problem with evidence management. In the department's early years, there were fewer crimes and a small amount of items in the evidence room. The evidence room is the location where police agencies store items used in a crime for later use in prosecution. Evidence rooms might also store items that have been found and are awaiting recovery by their rightful owner. Matthew, the administrative officer, is quite handy at working with Microsoft applications and decides to use Excel to manage the inventory in the evidence room.

Matthew knows that Access is a superior application for this task but at the time did not have Access available. As the years go by, the evidence list log continues to grow, and Matthew begins to struggle to keep up with the log he maintains in the Excel file. Every time officers add new items, he must make changes to the file, which can be a tedious process. The other compounding problem is that much of the evidence must leave the evidence room temporarily at times to be sent to the crime lab or court and accurate records of each of these transactions must be kept. Using the Excel spreadsheet requires a manual search using filtering to search through the records. This is why many refer to Excel as a flat file database system. The disadvantage to using Excel for a project such as managing inventory is that

there are no relationships between data and no ability to query the data.

In Matthew's case, on the most recent check the evidence inventory had grown to more than 10,000 items and he was beginning to think that maybe he truly needed a database management system. A relational database management system would give Matthew a more user-friendly interface in which to enter and remove pieces of evidence from the system and the ability to pull detailed reports on evidence availability and inventory levels. It is also possible to query the dataset on specific criteria, such as a case number, and produce within seconds the exact location of the item, important dates, names of individuals handling the evidence, and detailed item descriptions.

16.2 WORKING WITH THE INTERFACE

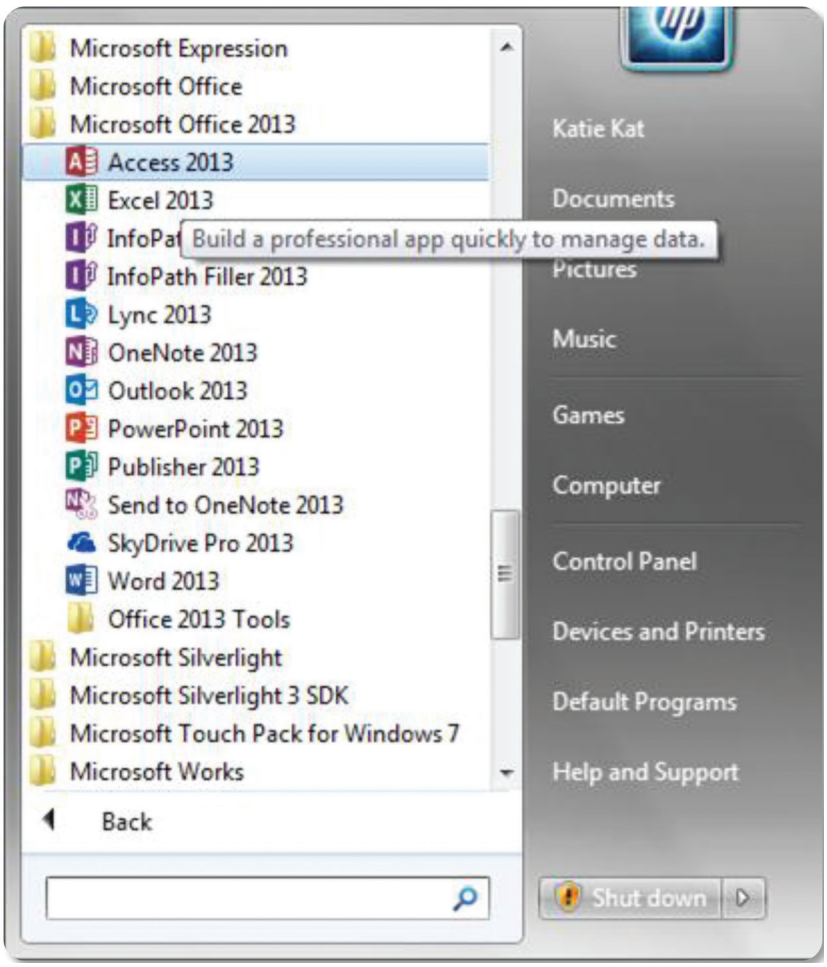
The Access 2013 user interface is quite user friendly; even though it is packed with many options, you can easily master the application with patience and practice. To start Access, you must first make sure you have the correct version of Microsoft Office Suite.

Note that Access is not available in the Office 2011 suite for the Macintosh operating system.

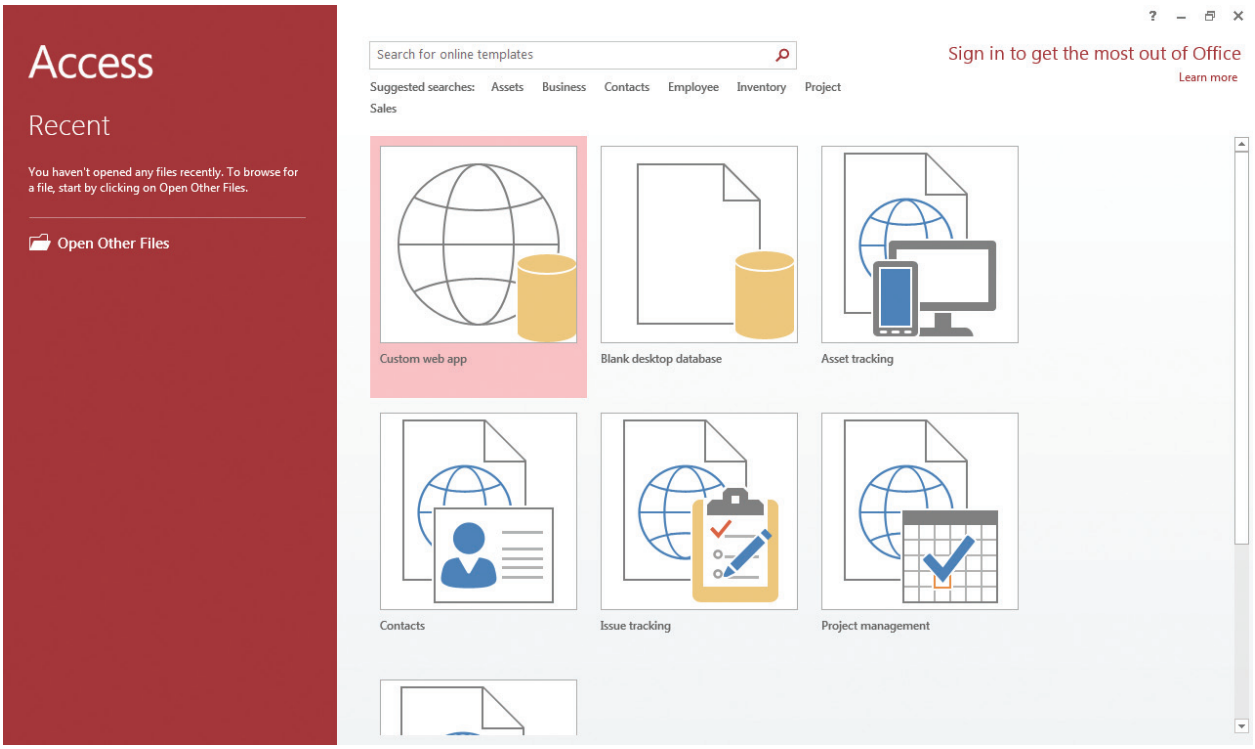
Starting Access is as easy as clicking the *Start* menu button and selecting *All Programs*. Once you have made this selection, you will notice a program menu with a listing of all applications available for use. Find and click *Microsoft Office 2013*; all of the programs available appear as shown in Figure 16.1.

Now simply click on *Microsoft Access 2013* to open the user interface, shown in Figure 16.2.

The Access interface opens to the *File* menu, which is also called the Backstage view and is designed as a place to handle all of your background processes. From the Backstage view, you can complete a series of tasks that include opening a database, creating a database, changing settings, publishing your database to a SharePoint® server



▼ **FIGURE 16.1** Starting the Access application



▲ FIGURE 16.2 Access interface on startup

or the Web, repairing your database, and even encrypting your database. You can create a series of databases and they will all be listed in the Backstage view. You can open a database file and simply click *File* to return to the Backstage view at any time.

The *Home* ribbon, shown in Figure 16.3, is the easily recognizable toolbar used in all Office applications. This ribbon has different options that you will become familiar with as you continue to work through the Access chapter of this text.

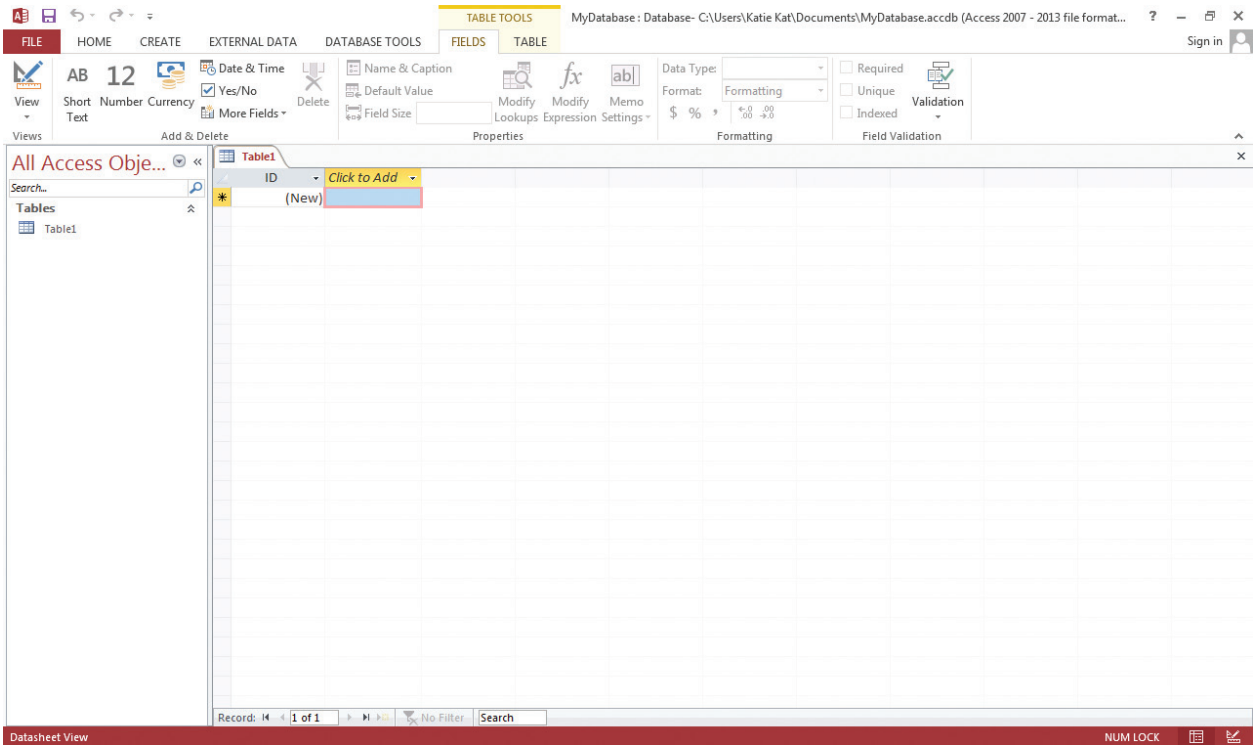
There are several ribbon tabs, some of which are visible only at certain times. The four main ribbons you will see when you first open a database are the following:

- *Home*—Provides similar functionality to what you might be used to seeing in other Office applications; used to check spelling and format text.
- *Create*—Creates database objects in your database environment.
- *External Data*—Imports data from other sources, such as an Excel file that has data you want to use in your database.
- *Database Tools*—Provides tools to help migrate your Access database to SQL Server and to analyze your database.

Creating a Database

16.2.1

There are many details to implementing a good database design. Planning your new business database offers many benefits, but there are unfortunately many bad outcomes from bad design. One of the most important concepts to grasp is the gathering of business rules. *Business rules* are the rules that govern an organization and are engrained in daily processes. All business rules must be documented to be implemented into the database design. It is important to develop



▲ FIGURE 16.3
Access ribbon

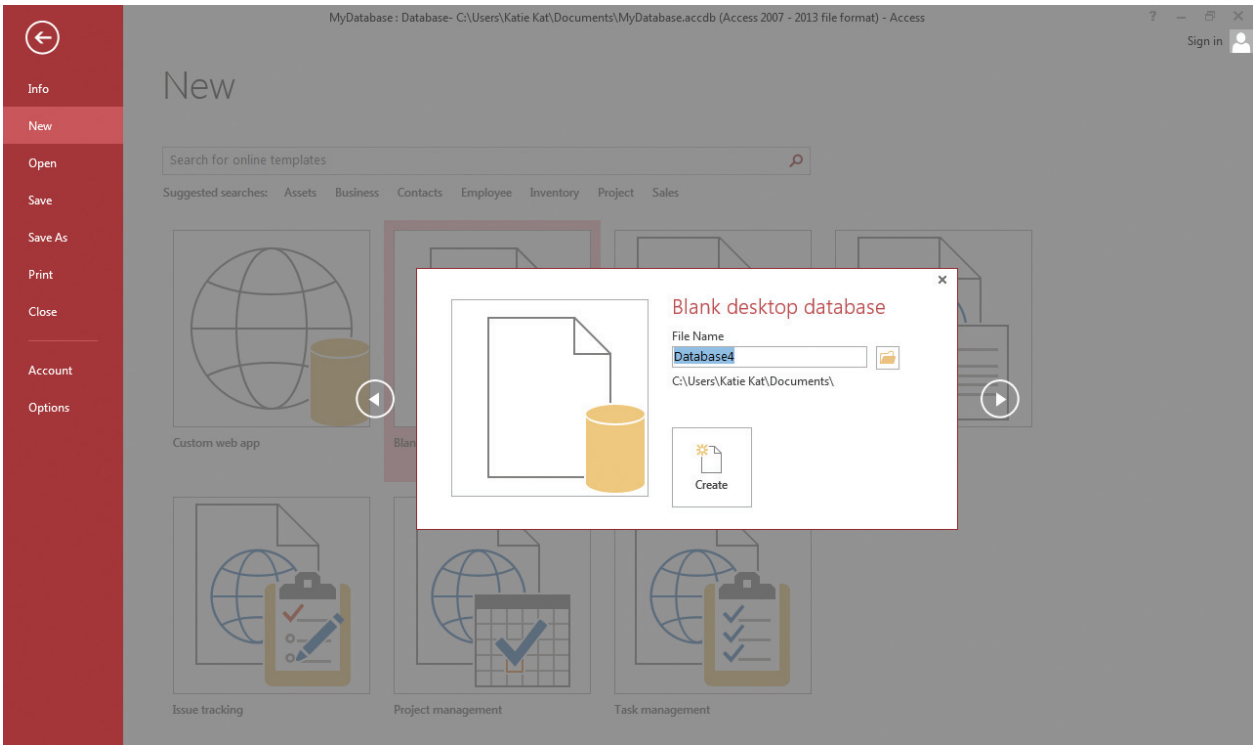
the conceptual design before building any type of database. Before getting too much further into the design process, however, you need to learn how to create your first database and then you can move toward the development of a fully functional database design. If you have been following along, you probably already have Access open on your screen and you can see the Backstage view. If not, follow the procedures outlined at the beginning of the chapter and start Access.

From the Backstage view, select *New* and then *Blank database*, as shown in Figure 16.4. You must then select a name for your new database; for this example, enter the name *JPDEvidenceInvenDB*. The final step is to click on the *Create* button on the lower-right side of the screen. Once the new database is created, Access creates your database file in the location you selected and a datasheet appears where you can begin developing your first table. Notice at the center of the window in Figure 16.4 that there is a series of templates you can use to create a database. Many templates are available online, but be sure that any templates you download are coming from a trusted source. Recall from earlier chapters that accepting any file from an unknown source should be carefully deliberated.

Creating a Database Table

16.2.2

So you might be asking, what exactly is a table? A *table* is an object within a database used to store individual sets of related data. For example, you might start off with an employee table that stores employee records for the inventory database. Each table has fields to store related pieces of data, so for the employee table you might have fields



▲ FIGURE 16.4
Creating a new database

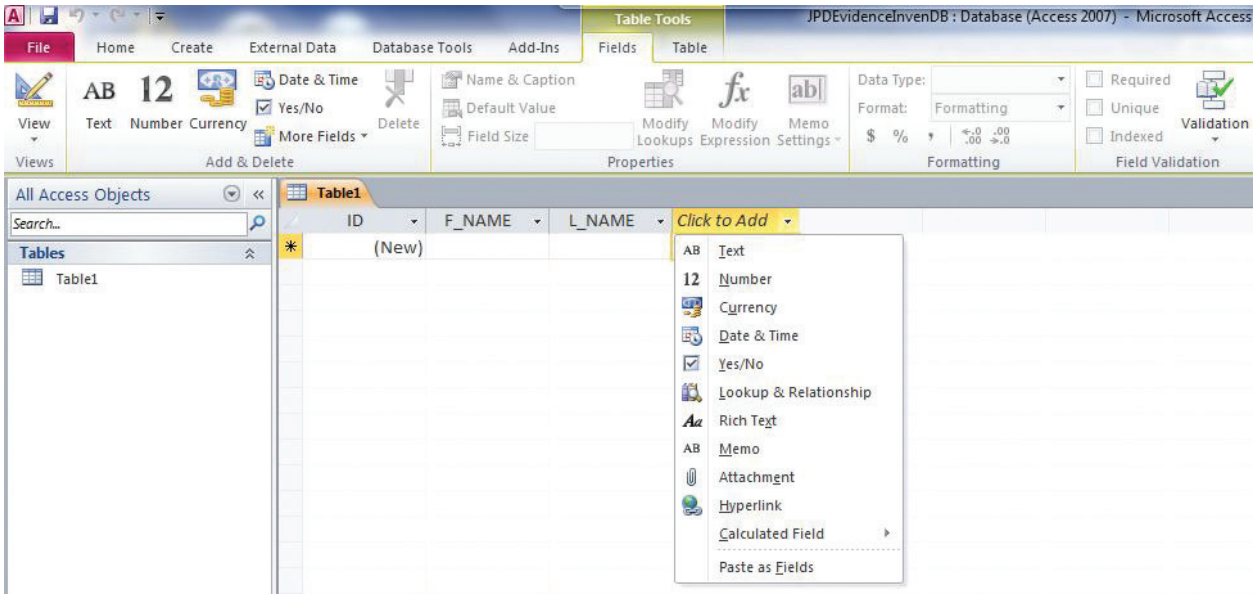
that describe the employee's name, address, and phone number.

If you still have your database open with the database you created, then you are at the Datasheet view with an empty table ready to be developed. If not, reopen the database, select the *Create* tab, and then select the *Table* button. You should know that developing a database table is a structured process. The first step is to build the fields you will use in your first table. Every database table field has what is known as a data type. There are some schools of thought that would start by simply creating a table, populating the table with data, and working backward by adding the data types later. That is not the process used here.

You will notice in the *Datasheet* view in Figure 16.5 that there are four fields: ID, F_NAME, L_NAME, and a field that is being built. Before you can add any data into a field, you must specify the type of data the field will hold. There are a couple of ways to add or modify a data type while building your table. One way to do so is from the *Datasheet* view. You can see in Figure 16.5 that the fourth field has a drop-down menu, called *Data Type Parts*.

As you build your table from the *Datasheet* view, you can use the Data Type Parts to correctly configure and name your fields. For more data type choices, select the *More Fields* icon in the *Fields* ribbon, and

APPLICATION PARTS *is a feature within Access that provides a complete set of common tables that can be customized to suit your needs.* **DATA TYPE PARTS** *are a feature designed to help you quickly develop tables and field data types.*



▲ **FIGURE 16.5**
Database instance in Datasheet view

choose from among the data type options in the drop-down menu, shown in Figure 16.6. Note that the *Fields* ribbon is active when you are editing a field within your table.

An alternative way to build database objects is to use Application Parts, as shown in Figure 16.7. You can simply close the table that opened up when you started the new database, select the *Create* ribbon, and then select *Application Parts*. Application Parts provides the following five common objects found in databases that you can implement to develop your own database:

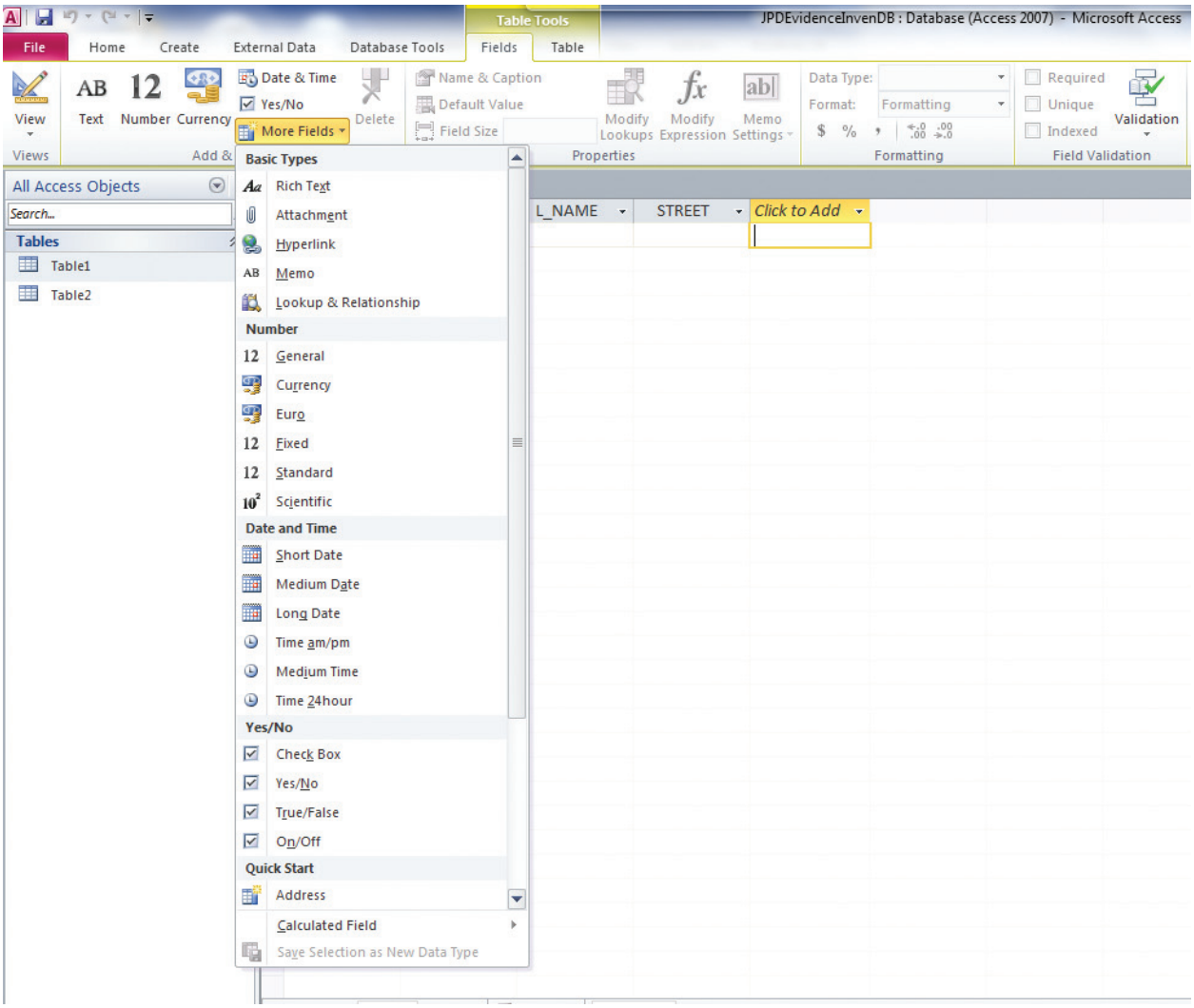
- *Comments*—Tracks comments on an issue along with dates. For example, you might be developing a database that tracks comments on papers submitted to a database by students.
- *Contacts*—Tracks contact information for your customers.
- *Issues*—Tracks issues in an organization. For example, you might be developing a database that tracks work orders at a help desk.
- *Tasks*—Tracks projects in an organization.
- *Users*—Tracks users for your database. The tables and forms can be used to hold basic user information.

When you click on one of the Application Parts, you can add all objects and table structures associated with the chosen Application Part. What happens if the table fields do not quite match what you need? This is no problem at all, as you can modify these objects and tables to meet your needs.

Working with Design View

16.2.3

Building tables using Data Type Parts and Application Parts might work for some projects, but true professionals develop their tables using *Design* view. You could probably round up enough parts from Application Parts to build the *JPDEvidenceInvenDB* database discussed earlier with some modification, but you can also develop the tables from scratch. The nice thing about



▲ **FIGURE 16.6** Extended data types

Application Parts is that you have forms, reports, and tables already available.

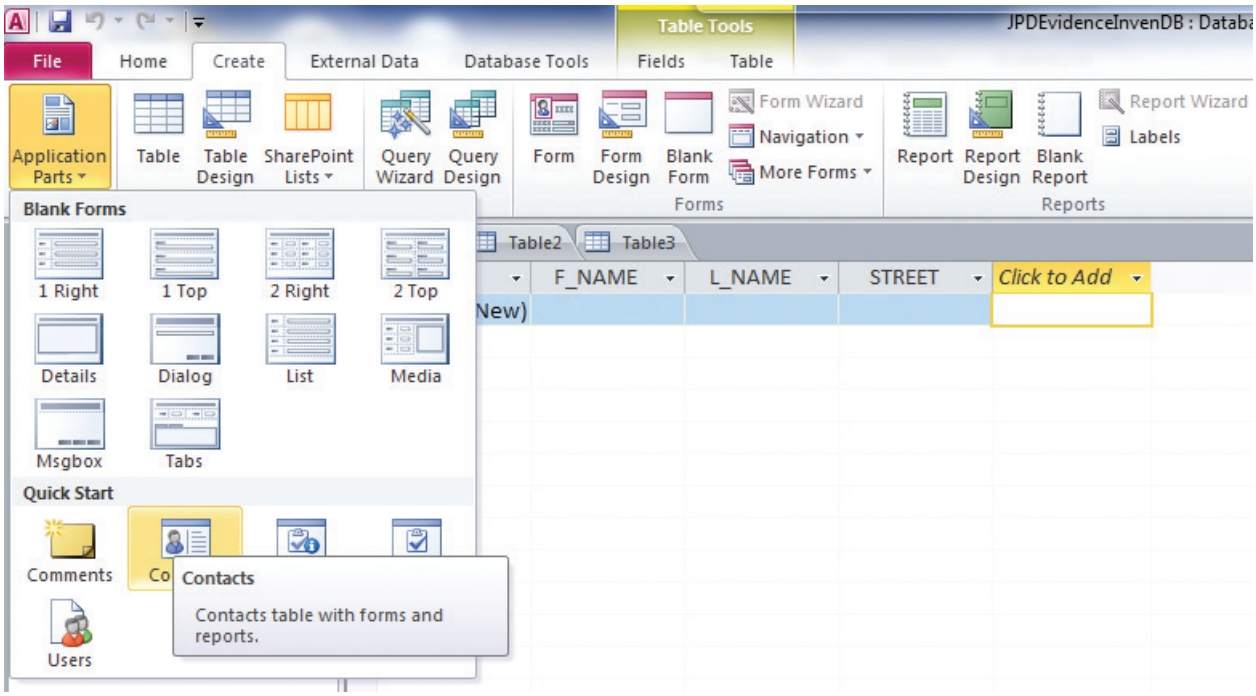
With *Design* view, you have to develop all of the objects on your own, preferably by following a plan you created before beginning the project.

Notice in Figure 16.8 that there are three columns to enter a name, data type, and description for each field. Because you are building the table from scratch, you will need to develop all of the fields. As this is a table of employees, make the first field *EMPLOYEE ID*. This number should be unique for every employee, as this identifier will be used to identify the employee not just in this table but throughout the entire database. This will be the *primary key* for the employee table, and every table you develop should have one.

Primary Keys

16.2.4

A *primary key* is a unique identifier that is used to identify each table in your overall database schema design. Each of your tables will have a primary key that will help to make each record unique; this feature will



▲ FIGURE 16.7 Application Parts accessed from the Create ribbon

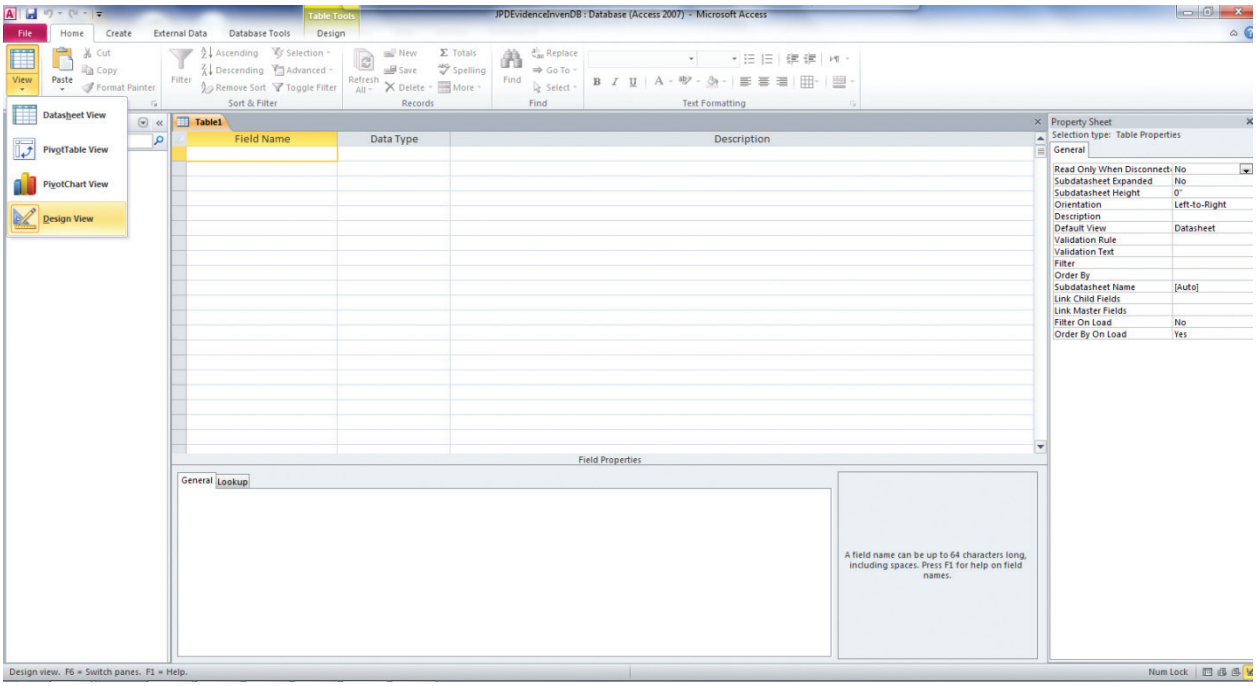
help prevent the duplication of records in your database. A primary key can be composed of one field or a combination of multiple fields. Notice in Figure 16.9 that the first field in the database has been created and named *EMPLOYEE ID*.

Note that the first field in every table will be the primary key in this example. Now that you have named the first field, you have two options for creating the unique identifier for the primary key: create a unique ID for the employees that will be different each time a record is entered or have Access develop unique identifiers by selecting *AutoNumber* from the drop-down menu in the Data Type column. It is important to keep in mind that there are other numbers that are unique and widely available, such as a driver's license number or a social security number, although you should keep in mind that some information, such as social security numbers, is subject to privacy laws, and proper security measures must be taken.

Highlight the *EMPLOYEE ID* field and select the *Primary Key* button on the left side of the *Design* ribbon to make this field the primary key for the table. Notice in Figure 16.10 the icon to the left of the *EMPLOYEE ID* field; this indicates the field is the primary key. After making this change, it is a good idea to save the table.

You can save your table in one of two ways. First, select the *File* menu, then select *Save Object As*; when the *Save As* dialog box appears, name your object, fill in the *As* box with *Table*, as this is a table, and click *OK*; this process is shown in Figure 16.11.

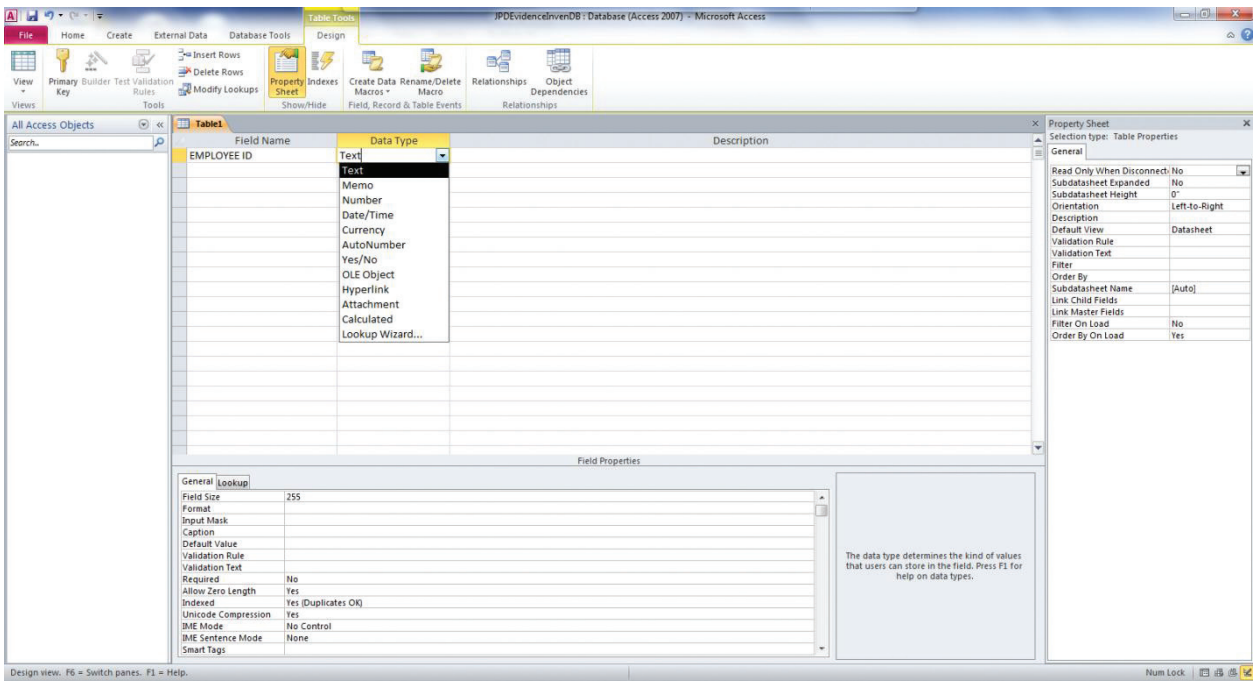
A quicker method to save a table is to right-click on the *Table1* tab within the

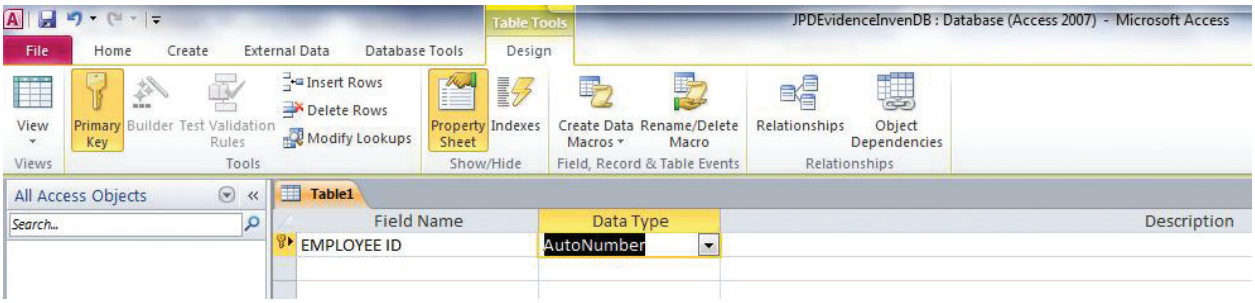


▲ FIGURE 16.8
Design view in Access

Design view and select *Save*, as shown in Figure 16.12. A dialog box will appear that gives you the option to name the table prior to executing a save.

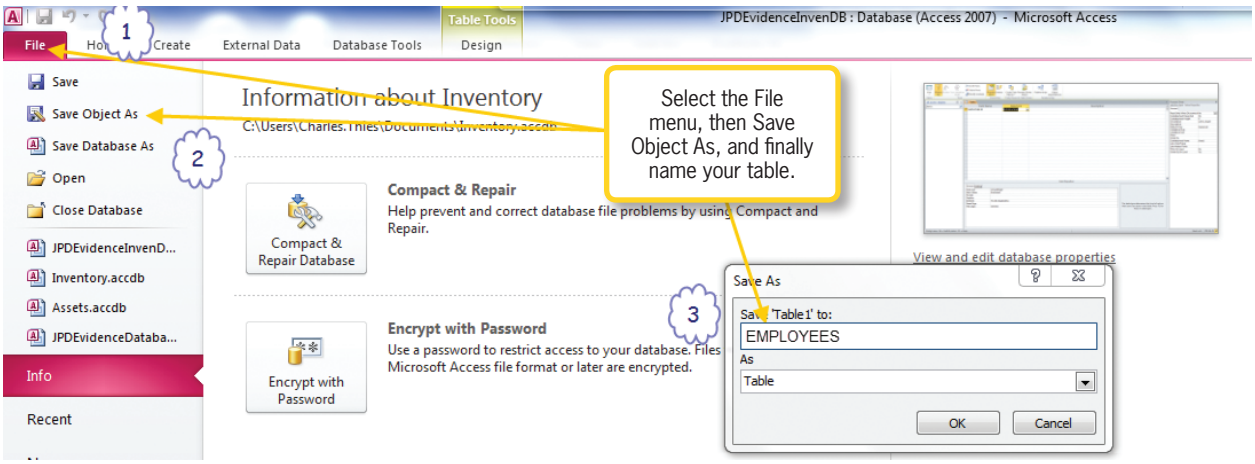
▼ FIGURE 16.9
Creating a field in Design view





▲ **FIGURE 16.10**
Selecting the primary key

▼ **FIGURE 16.11**
Saving a table



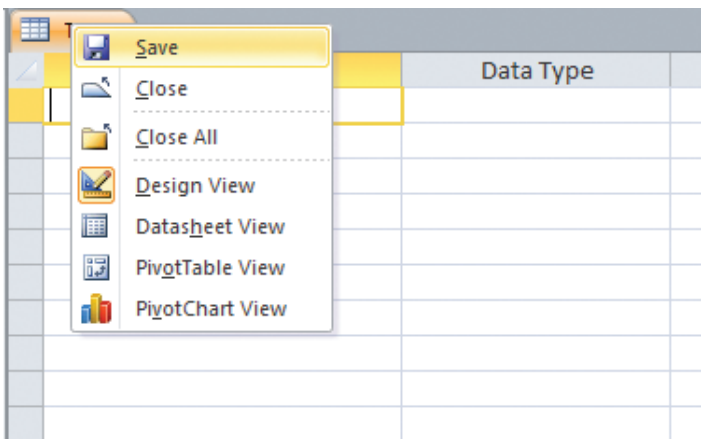
16.2.5

More on Data Types

A data type lets Access know what type of data you will store in a field. Setting specific data types from within *Design* view allows you to adjust the field properties to set not only the type of data but also the number of characters you will allow in a given field. In a small database, the number of characters might not make a difference, but as the database grows, you want all of your transactions to run optimally. It is important to plan out your design so that performance is optimal. Access has several different data types available; the more commonly used ones are the following:

- *Text*—Lets you enter numbers, letters, and symbols up to 255 characters.
- *Memo*—Similar to Text but lets you store much more unformatted text. This is a good data type for possibly long reports in a database.

▼ **FIGURE 16.12**
Saving a table from Design vew

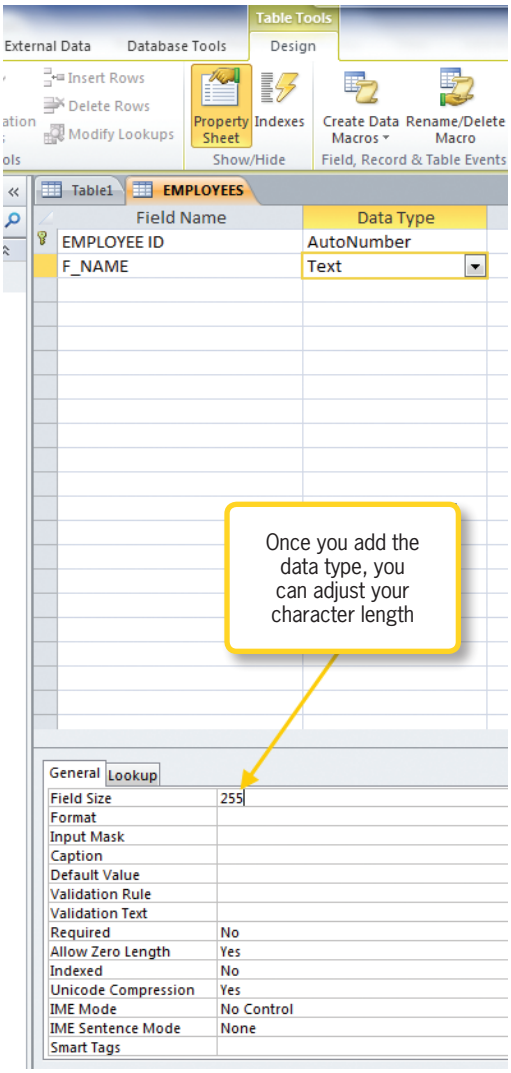


- *Number*—Used for all sorts of numbers.
- *Currency*—Similar to Number but used specifically for monetary values.
- *Date/Time*—Used specifically for calendar dates.
- *Yes/No*—These are similar to true and false values.
- *Hyperlinks*—Used for fields that store URLs.
- *Attachment*—Used to store a variety of files in the database.
- *AutoNumber*—Generates automatic unique identifier.
- *Calculated*—Generates values based on particular expressions the user supplies.

Some things you should remember about data types include the importance of choosing the correct data type when developing your database. If you must change a data type, you can do so from *Design* view. This is a risky step as sometimes problems can occur. If you have already populated your tables with data, making a change can sometimes result in data being lost during the conversion process. Thus, it is best to change a data type when the table is empty.

Once you have your new field and data type implemented, you must adjust the character length for your field. The default setting is 255 for the Text data type. When setting up the F_NAME field, you might want to reserve 255 characters so that you have enough space for longer names, as shown in Figure 16.13.

You can select a custom date and time format if you have to create a custom date



▲ FIGURE 16.13
Adjusting data type character length

field such as a date of birth (DOB) field, as shown in Figure 16.16. You might a situation where you have a table that tracks comments and times; this would require a General Date format (shown in the Field Properties window at the bottom of Figure 16.14). It is extremely important for both performance and ease of operation that you make sure all fields are given the exact name you need as well as the appropriate data type and character length to ensure you do not have any problems.

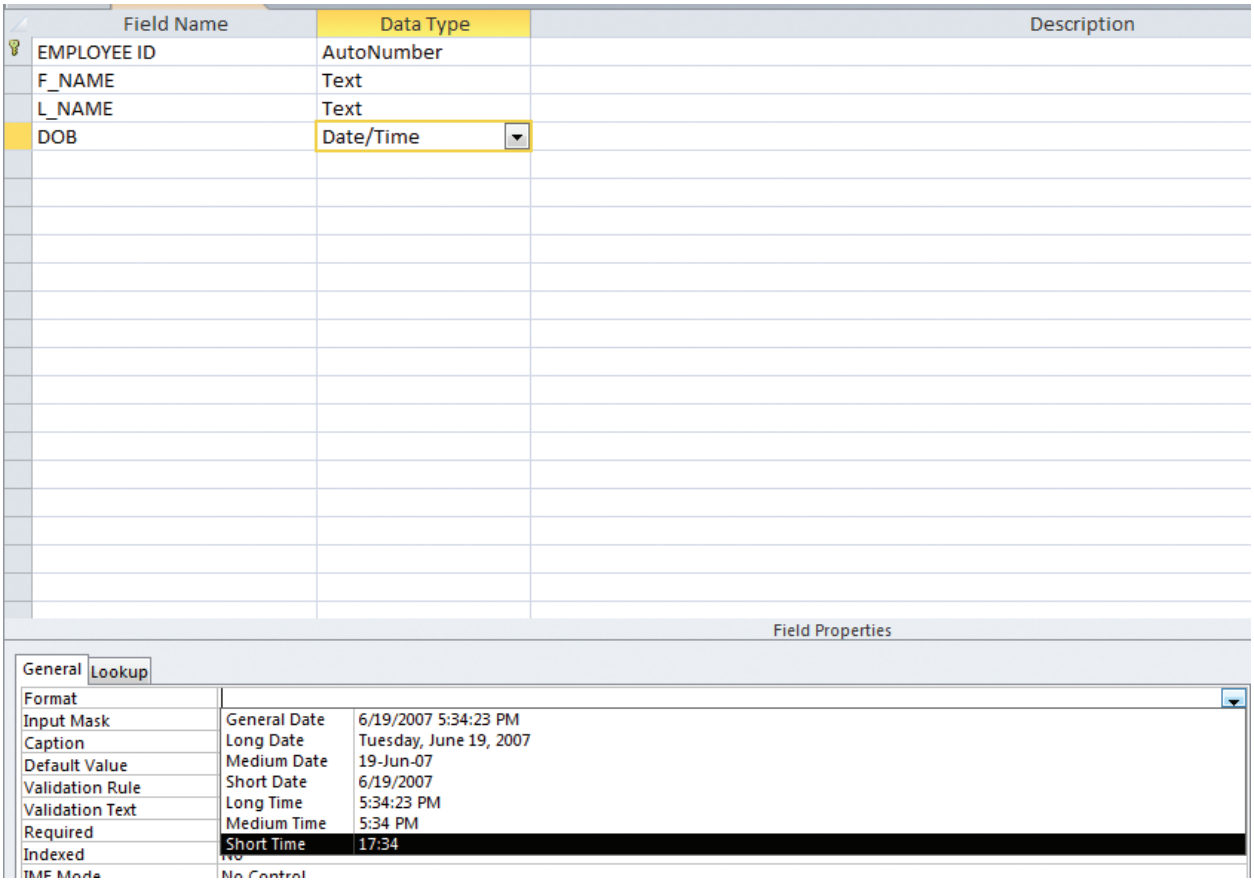


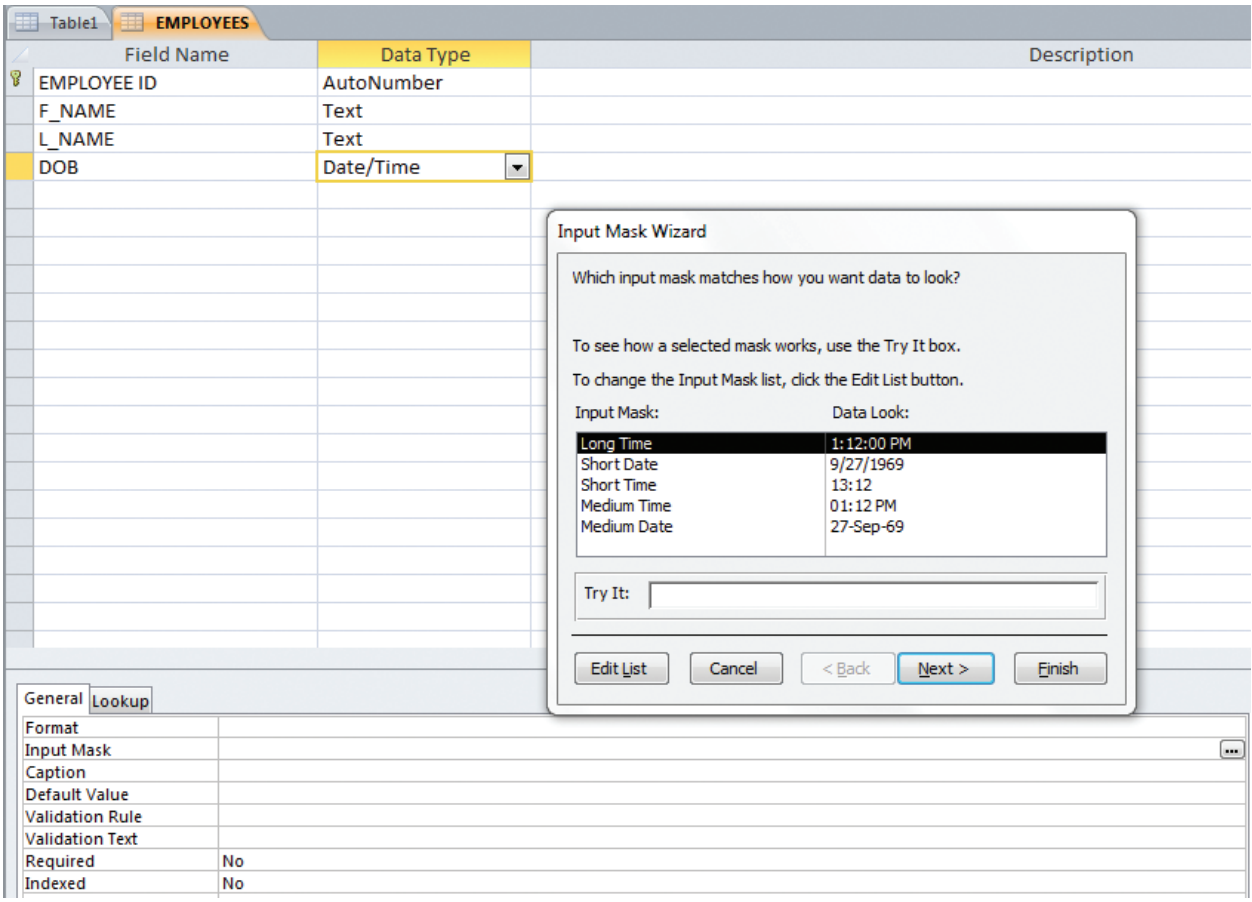
FIGURE 16.14
Custom date formats

16.3 DATA INTEGRITY, VALIDATION, AND GOOD DESIGN PRACTICES

Now that you are beginning to understand how to build tables using *Design* view, it is important that you understand that one of the benefits of developing a database is to assure data integrity. *Data integrity* is ensuring that the information in a database is correct and has not become corrupted; this is achieved in a variety of ways. The important point to remember to help assure your data is correct is to have a primary key with a unique number. If you develop an ID field in every table you create and use the AutoNumber data type and make it the primary key field, you have already started the process of assuring data integrity. Developing tables with primary keys and later establishing relationships will assure that every record in your database is unique. You will learn more about database relationships in the upcoming sections.

Validation in your database is important as well. Allowing all sorts of date and time formats in your fields gives your database a lack of consistency. Access makes it easy to implement field validation with the Input Mask Wizard, shown in Figure 16.16. In this case, the wizard is being applied to the field titled DOB. To store the date of birth of every active employee, you might select *Short Date*.

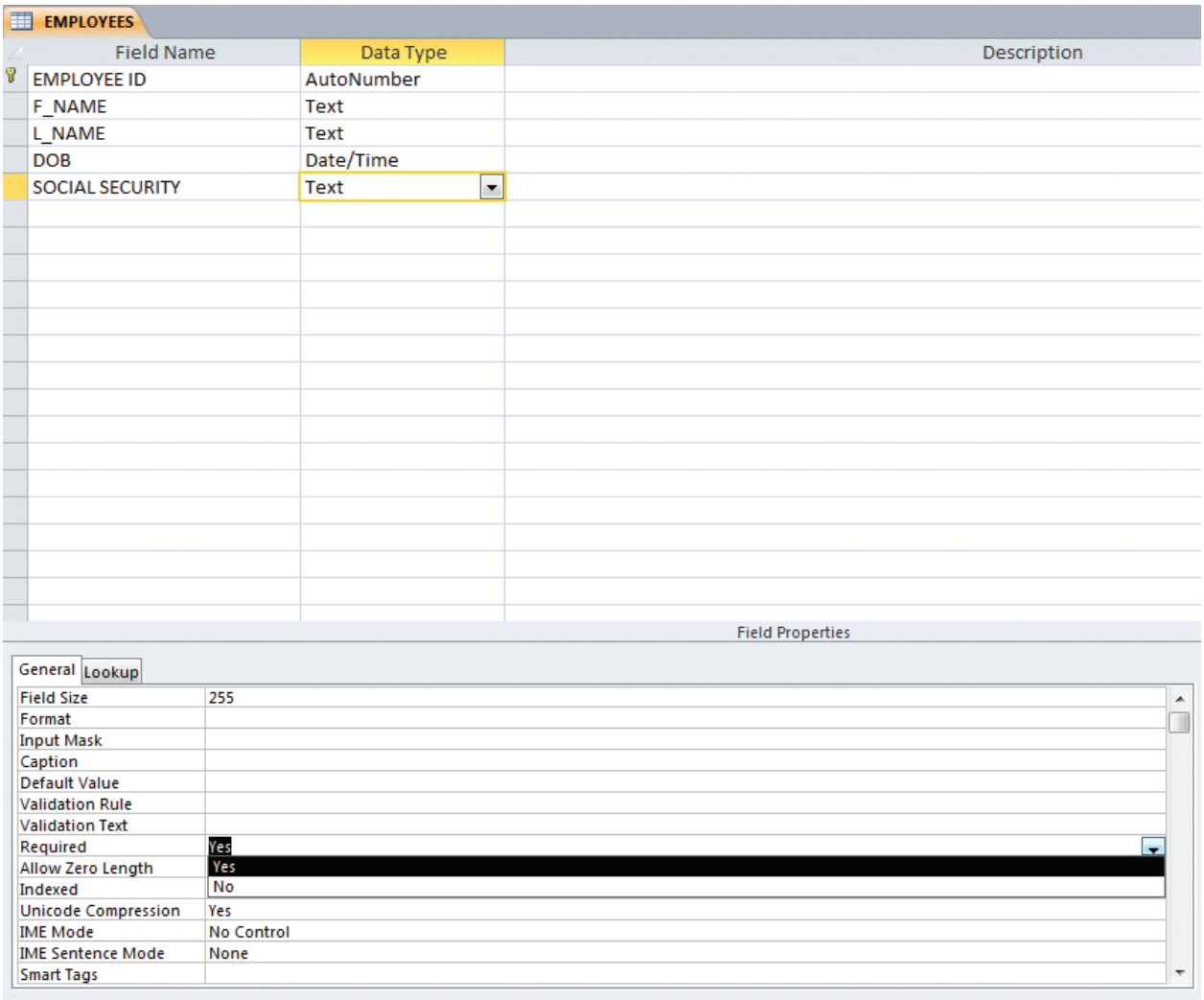
➤ **FIGURE 16.15**
Input Mask Wizard



Say you want to create a field to track the employee's social security number and you want this field to be a required field. In *Design* view, simply highlight the *SOCIAL SECURITY* field, select the drop-down menu to the right of the *Required* option in the *Field Properties* window, and select *Yes*, as shown in Figure 16.16. You should understand that Access has blank fields and empty text. A blank field or null value means there no information was entered. An empty field means a value was supplied, but it is an empty value. An example of an empty value would be pressing the spacebar a couple of times in the field; this is technically a value but an empty one. Both conditions can be prevented if you want to make sure a user enters data into the field.

In Figure 16.16, notice the Allow Zero Length value in the *Field Properties* window. To avoid empty values, simply select *No* for this value from the drop-down menu at the right side of the window. Selecting *Yes* to the Required field and selecting *No* to the Allow Zero Length field resolves the issue by requiring the user to enter a valid value into the field.

Indexing is another form of data integrity used in the database to prevent data duplication and speed up transactions. Without an index, Access must search an entire table for required data in a query,



▲ **FIGURE 16.16**
Selecting a required field

but with an index, you can quickly find the specific records you are looking for. Say you want to make the SOCIAL SECURITY field an indexed field. Notice there is a selection for *Indexed* in the *Field Properties* window of Figure 16.16. Select the drop-down menu to the right side of the window and select *Yes*. If you have already entered data into your table at the time you create an index and duplicate data exists, you will receive an error at the time of implementation.

All of these basic skills require good database design planning. The importance of conceptualizing your initial design cannot be emphasized enough. It will take time and practice for you to be able to develop a perfect database, but quality will come with testing and developing multiple databases over time. Keep the following in mind when designing a database:

- Gather your business rules—Your business rules are all the standards and practices that drive your organization. For example, every sales transaction must be logged by the salesperson. This would be a process you might want to see as part of a database.

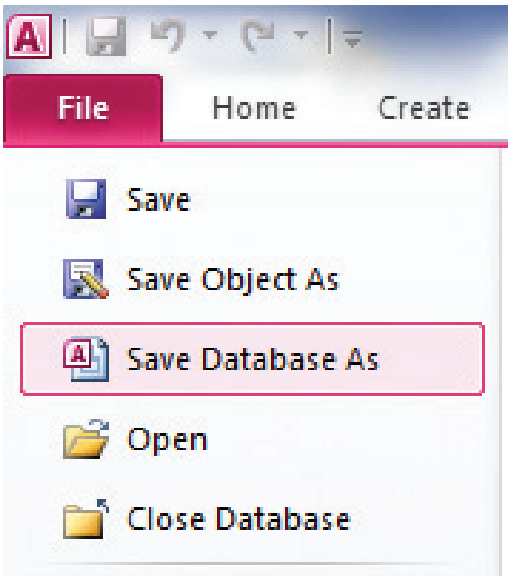
- Normalize your database—Normalizing a database is an advanced topic, but at this level you should focus on assuring you develop the data sets you will use in your database while avoiding the collection of duplicate data.
- Avoid redundancy—Redundant information that shows up in other tables. Be sure to break down your tables to ensure you are not acquiring redundant data in your database.
- Create a primary key—Every table must have a primary key, which provides the ability to connect your tables using relationships and offers a mode of data integrity.

16.3.1

Database Backups

You have already learned how to manually save your objects as you complete your work either from the *File* menu or from the table tab by right-clicking on it and selecting *Save*. Saving records actually occurs automatically in Access. Anytime you are working with your files and entering or modifying records, the database engine saves all of your work.

Notice in Figure 16.17 that the *File* menu offers two save options. The Save Object As option is used to save objects with which you are working; you have already used this option. The Save Database As option is used to save a copy of the database. Make sure you save a copy of your database frequently so you do not lose your data. It makes sense to keep a copy of your database at an alternate safe location if you are using the data for an organization and loss of data might cause work stoppages or slowdowns. A backup copy of your database will ensure you can quickly recover and resume database usage. To create a database backup, select *Save Database As*. Keep in mind that Access will close the database and save all objects. Once all objects and the database are closed, a copy is created in the location you chose to store the file.



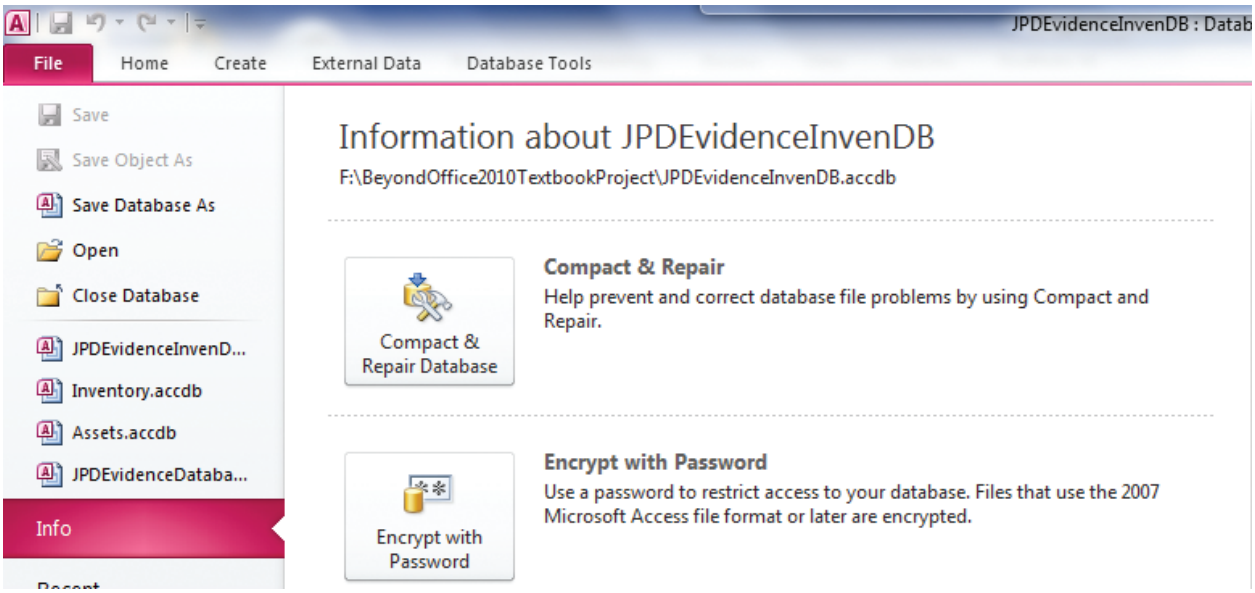
▲ **FIGURE 16.17** Saving the database

16.3.2

Compressing and Repairing the Database

The Compact & Repair Database feature available in Access helps you improve database performance. At some point after you have created your database and are using it, you may notice that it is slowing down.

To compress or repair a database, simply select the *File* menu, as shown in Figure 16.18. Select *Info* and then click the *Compact & Repair Database* button. In a new database with few records, the process to compact the database is rather quick. In a larger database, this will take more time; the benefits are well worth the wait, however, as the overall size of the database will decrease.



▲ **FIGURE 16.18** Compact & Repair Database option

16.4 WORKING WITH RELATIONSHIPS IN MICROSOFT ACCESS

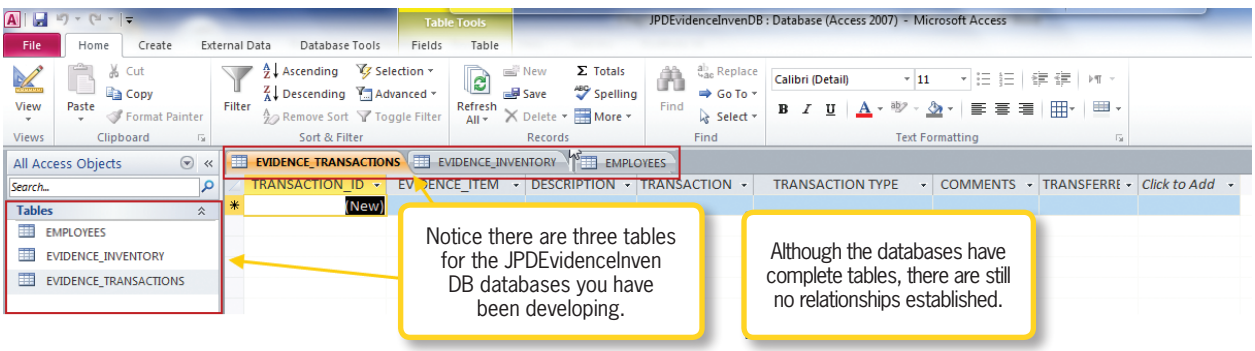
Recall that in the previous sections you developed single tables that had all of the elements needed to populate them with data. You created a table that contained a primary key, field names, and character lengths, along with required fields. You also learned that primary keys help develop relationships and that every primary key should have a unique identifier.

You will now begin to learn about the real power of an RDBMS. You will find out how to establish a relationship and determine which types of relationships to develop and how to develop them. An example of the database in which you will create these relationships is shown in Figure 16.19.

Notice that the *JPDEvidenceInvenDB* file that you created in the previous sections now has three tables. If you would like to follow along, you can use your own project from the last section or use the database file titled *JPDEvidenceInvenDB.accdb* available on the companion DVD.

The *Show Table* dialog box appears automatically the first time you open the *Relationships* window and can be

▼ **FIGURE 16.19** JPDEvidenceInven DB database tables



used to establish relationships between your database tables.

There are three tables for the database named EMPLOYEE, EVIDENCE_INVENTORY, and EVIDENCE_TRANSACTIONS. You will develop relationships between all three of these tables. There are three types of relationships that are available:

- One-to-one
- One-to-many
- Many-to-many

A one-to-one relationship is rarely used because all of the information in the relationship would be in one table. A unique circumstance where you have to divide a table with too many columns might be a circumstance in which you would use such a relationship. In any case, it is not considered good development practice to use this type of relationship.

The one-to-many relationship is the most common relationship. This relationship allows a row to be related to many rows in another table. For the example, you need to establish the relationships involved in the *JPDEvidenceInvenDB* file. You have three tables: EMPLOYEE, EVIDENCE_TRANSACTIONS, and EVIDENCE_INVENTORY. EMPLOYEE could contain the information for an evidence technician, a police officer, or another person authorized to check out evidence. An authorized person in the EMPLOYEES table could conduct many evidence transactions, but you could not have multiple employees involved in duplicate transactions concerning the same evidence item in question. Creating a one-to-many relationship here assures that tight controls are kept on evidence transactions. In legal matters, there is a term called "chain of custody." A person could easily make a mistake while keeping track of a chain of custody log in which every transaction is maintained manually. Using the database and establishing the correct relationships decrease the chances of losing chain of custody. Establishing this relationship will assure that only one person processes a single evidence transaction at a time but allows many items to be processed during the single transaction, as shown in Figure 16.20.

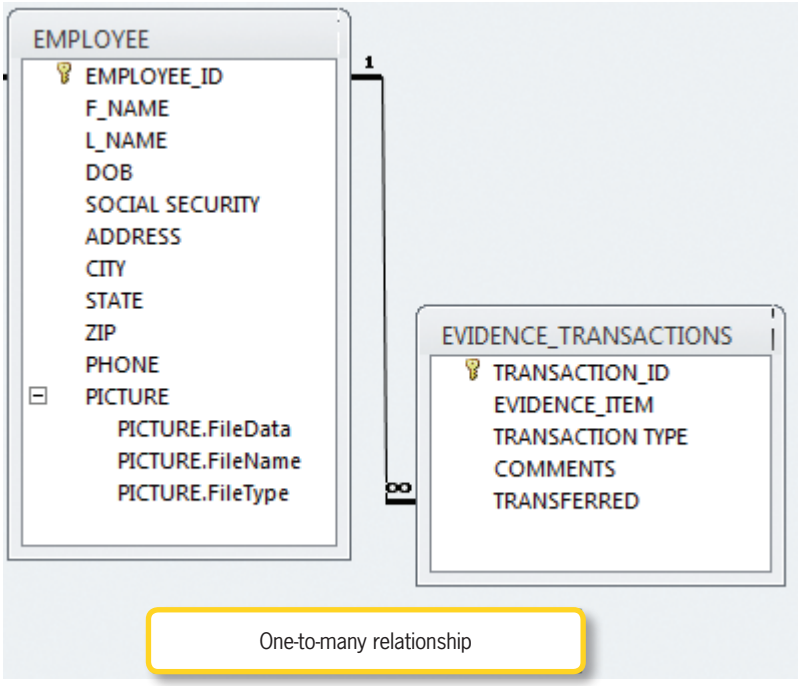


FIGURE 16.20 One-to-many relationship

The many-to-many relationship is the most complex relationship available in Access. New users sometimes struggle to develop these relationships, but this is important to understand because such a relationship must be developed so that the *JDPEvidenceInvenDB* database works as designed.

A many-to-many relationship occurs when many rows are related between any two tables A and B so that neither provides a unique record in the other table when associated. In the *JPDEvidenceInvenDB*, you have already established the one-to-many relationship between the EMPLOYEE and EVIDENCE_TRANSACTIONS tables. The issue to resolve, however, is the type of relationship that must exist between the EVIDENCE_INVENTORY and EMPLOYEE tables.

Recall that you started with three tables. In order to establish a many-to-many relationship in Access, you must use what Microsoft calls a junction table. A *junction table* is a table made up of a combination of the primary keys of both of the tables involved in the relationship. Figure 16.21 shows how the many-to-many relationship is established between the EVIDENCE_INVENTORY and EMPLOYEE tables. This is because many employees can handle many inventory items and vice versa. For example, you might have to pull a report that details how many employees handled an evidence item in inventory. The same inventory item might have been handled by several different employees. You might also have several employees handle several

CHAIN OF CUSTODY *is keeping tight control of who handles evidence collected at a crime scene each and every time it is handled without losing track of who had it last.*

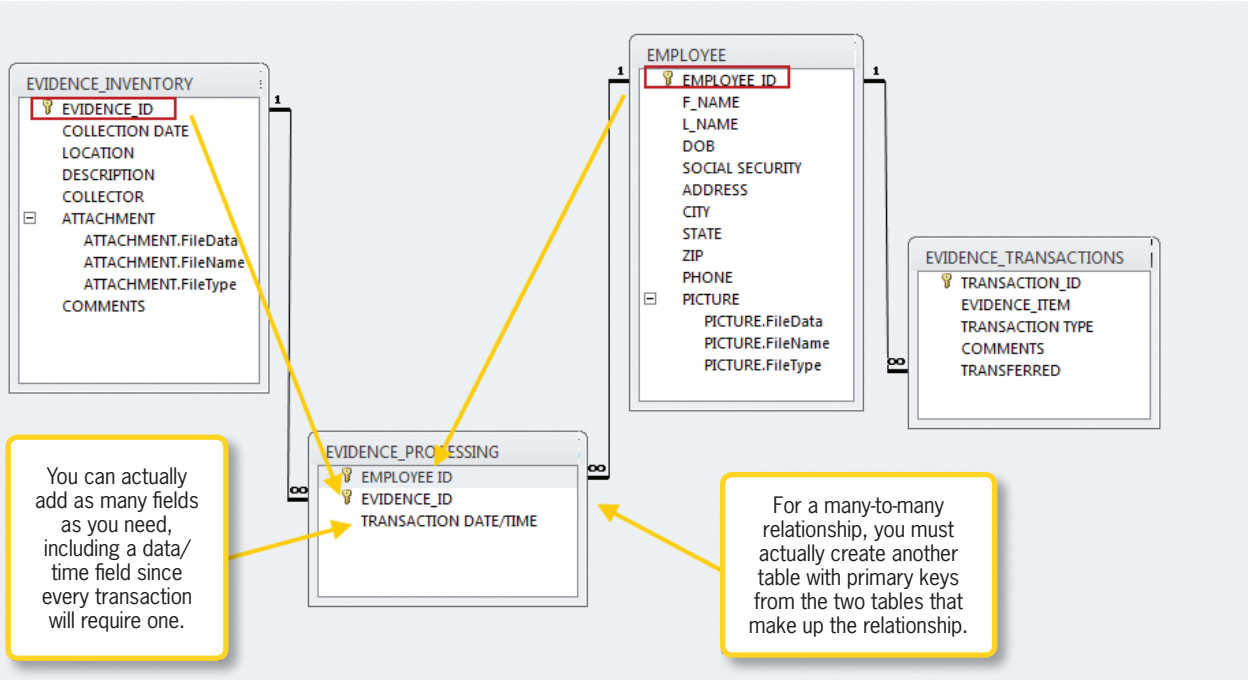


FIGURE 16.21 Creating a many-to-many relationship

different inventory items. This complex situation affects both tables, which is why a many-to-many relationship is needed.

Using the diagram in Figure 16.21, you can see that the junction table is called EVIDENCE_PROCESSING. This table will act as a junction point where a one-to-many relationship exists and uses the primary key from each table.

16.4.1 Defining Relationships

Now that you have learned about relationships and why they are used, you will learn how to build them in Access. To begin building your relationships for the *JPDEvidenceInvenDB* file, open the database file named *JPDEvidenceInvenDB* available on the companion DVD. This is the base database with the EMPLOYEE, EVIDENCE_INVENTORY, and EVIDENCE_TRANSACTIONS tables. As you learned in the previous section, you need to establish a one-to-many relationship and a many-to-many relationship. Begin with the many-to-many relationship because you will need to create a new table as the junction point for this relationship. To create the fourth table that will link the EMPLOYEE and EVIDENCE_INVENTORY tables, open *Design* view and create a table named *EVIDENCE_PROCESSING*. Use the primary keys from the two tables combined; these will act as the primary key for the new junction table. You can also simply create a field titled *ID* and identify it as the primary key, as shown in Figure 16.22.

You should develop two fields in the new table that have matching data types identical to the data types used in the primary key fields from the tables you are trying to link. The data types should be set to Number for the EVIDENCE_CASE# field since AutoNumber is already set in the

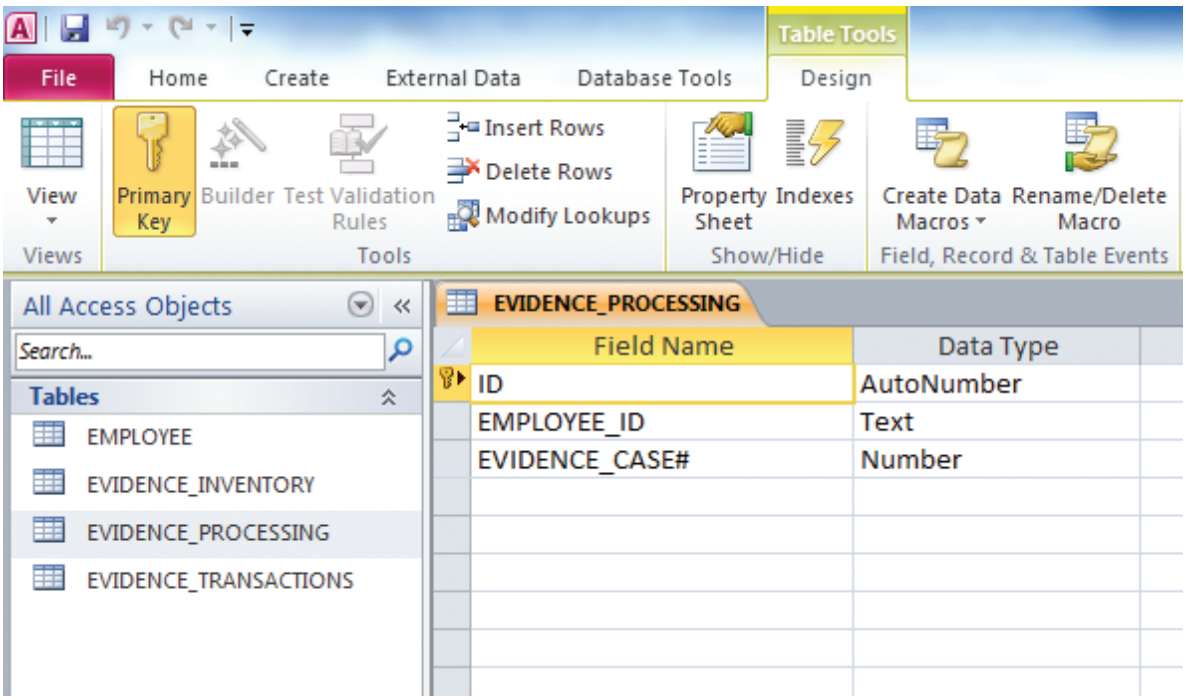
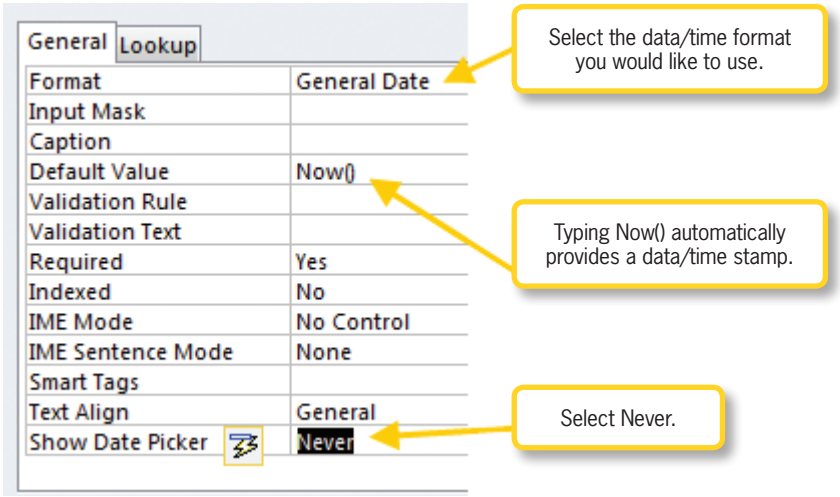


FIGURE 16.22 Junction table for many-to-many relationship

primary tables. The EMPLOYEE_ID field is manually generated, so you would just match this field to the one that already exists in the EMPLOYEE table. If you decide to create a combined primary key, make both of the fields a combined primary key. You convert these by holding down the *Control* key and clicking on the row selector for both fields. You can then leave the table as is or you can add as many fields as needed. In this case, this table will just be used as a junction table with no other fields. You can create a third field titled *TRANSACTION DATE/TIME* and select a data type of *DATE/TIME*; this will produce a timestamp every time you submit a new record into the database. It is important that you also apply appropriate settings to your field properties. The TRANSACTION DATE/TIME field should be a required field, as shown in Figure 16.23. This is actually a business rule because an evidence chain of custody log requires that dates and times be kept for every transaction. Although the database can work without the date/time settings for test purposes, you can adjust the field properties so that the database automatically produces a date/time stamp by taking the following steps:

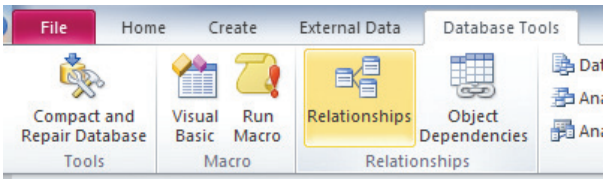


➤ **FIGURE 16.23** Setting field properties for TRANSACTION DATE/TIME

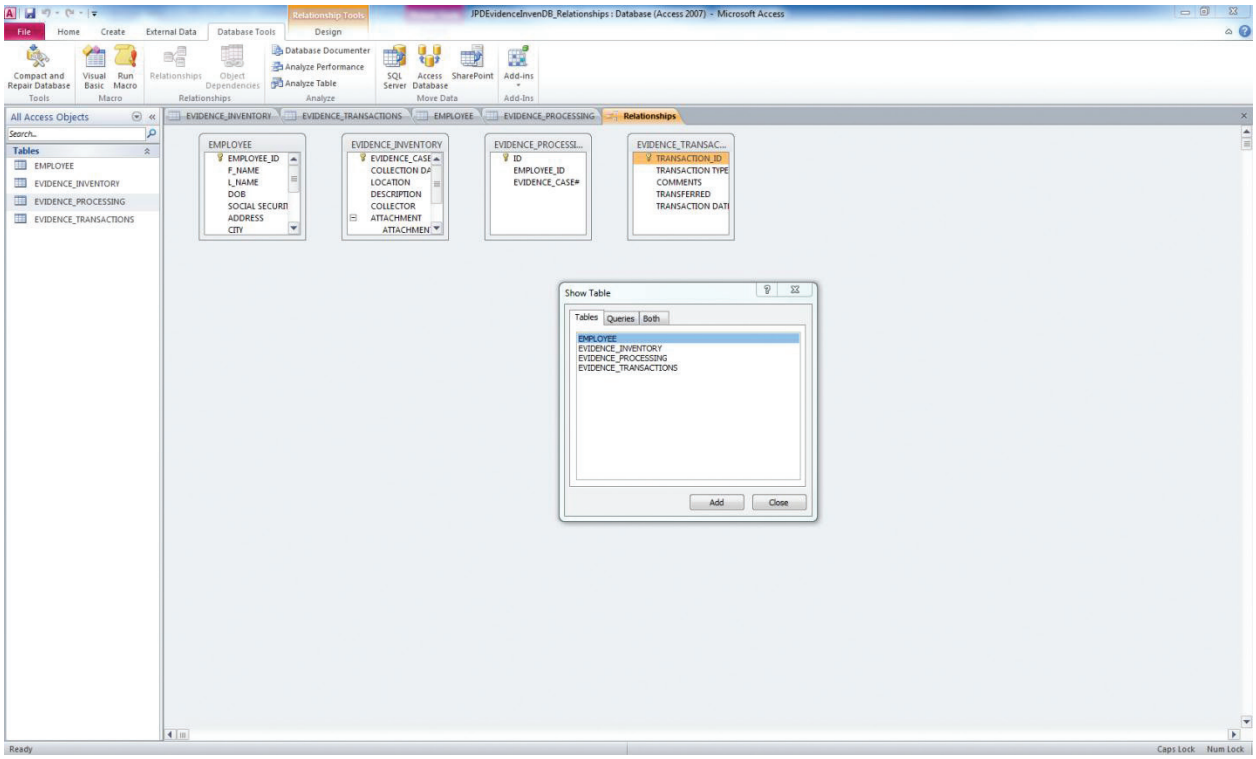
1. Select the time format from the *Format* settings.
2. Enter *NOW()* as the Default Value.
3. Select *Never* from the Show Date Picker.

The date/time stamp field has been inserted into the EVIDENCE_PROCESSING table. The next step is to open the *Relationships* tool, which is located in the *Database Tools* ribbon, by pressing the *Relationships* button, shown in Figure 16.24. This tool will open a new window that will help you lay out all of the tables and visually assist you in establishing all of the required relationships discussed so far in this chapter.

Once you have selected the *Relationships* tool, the *Show Table* dialog box appears over your Relationships window work area. Here you are able to add the tables you want to link with relationships, as shown in Figure 16.25. You want to add all four tables in this case because you will be linking all of them to establish the one-to-many relationships and many-to-many relationships discussed in this chapter.



◀ **FIGURE 16.24** Accessing the Relationships tool



▲ **FIGURE 16.25**
Show Table dialog box used to add tables

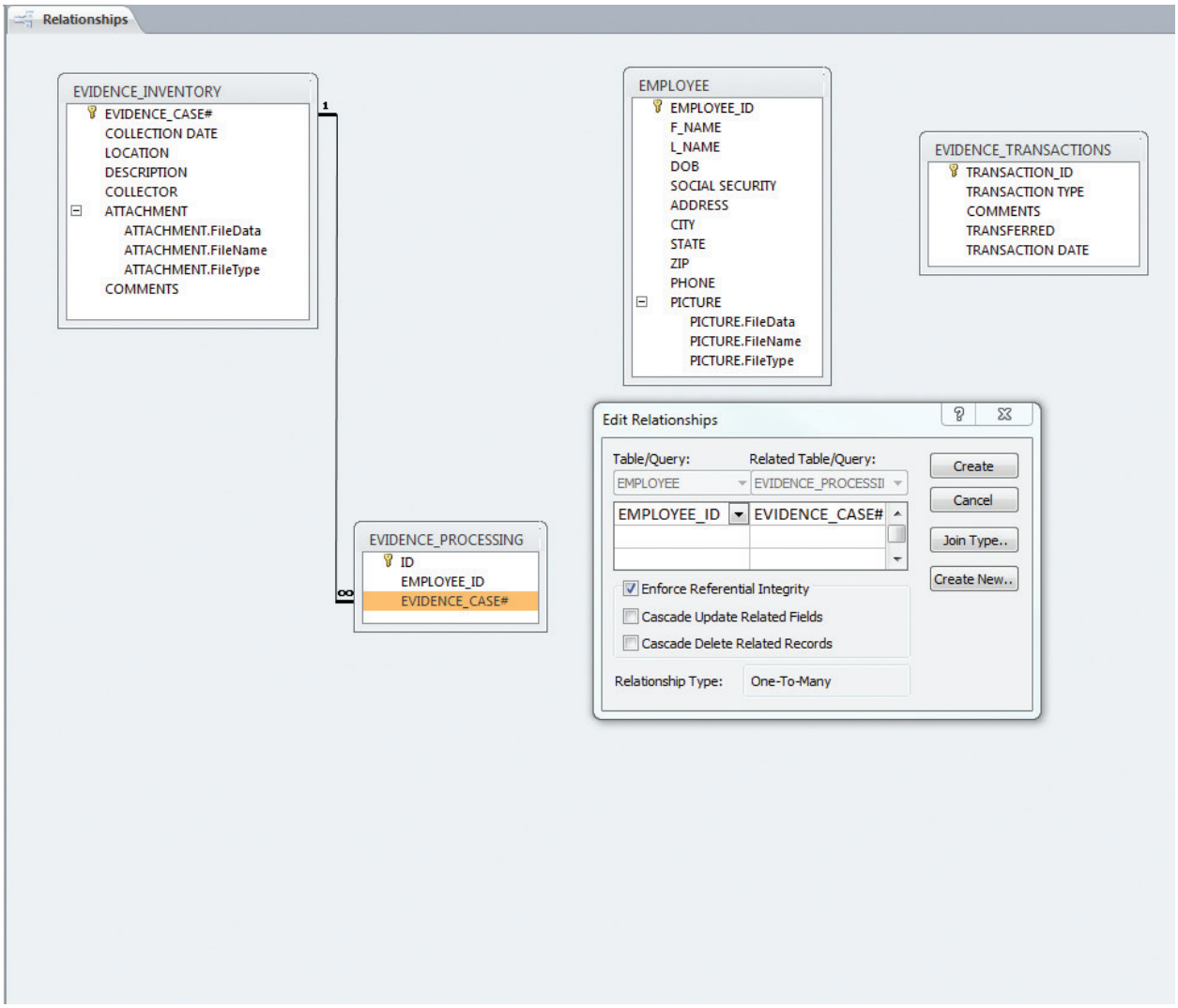
Once you have added the tables to your workspace, you can hold and drag the tables to arrange them in a way that will best depict the relationships you intend to build. You can also hold your pointer on the edge of the table windows to widen or enlarge them to show all of the fields that are within each table. Begin by establishing the many-to-many relationships between the EVIDENCE_INVENTORY and EMPLOYEE tables using the junction table called EVIDENCE_PROCESSING, as shown in Figure 16.26.

Remember that the many-to-many relationship will be developed by creating two one-to-many relationships between the primary keys in the EVIDENCE_INVENTORY and EMPLOYEE tables. You will notice the three tables have been arranged to make it easier for others to understand the relationships that are being prepared.

In the *Edit Relationships* dialog box, you can check the Cascade Update or Cascade Delete box to perform cascade updates or cascade deletes. If you were to use AutoNumber fields in the many-to-many relationship, you would not be able to use the Cascade Update setting because you cannot change AutoNumber fields.

The first thing to do is to drag the primary key field from EVIDENCE_INVENTORY to the EVIDENCE_PROCESSING/EVIDENCE_CASE# field. In essence, you are matching the same fields from both tables using a one-to-many relationship. When you do this, the *Edit Relationships* dialog box opens as seen in Figure 16.26.

Check the *Enforce Referential Integrity* box, but do not check either of the cascading options because some of the relationships use AutoNumber data types and you cannot

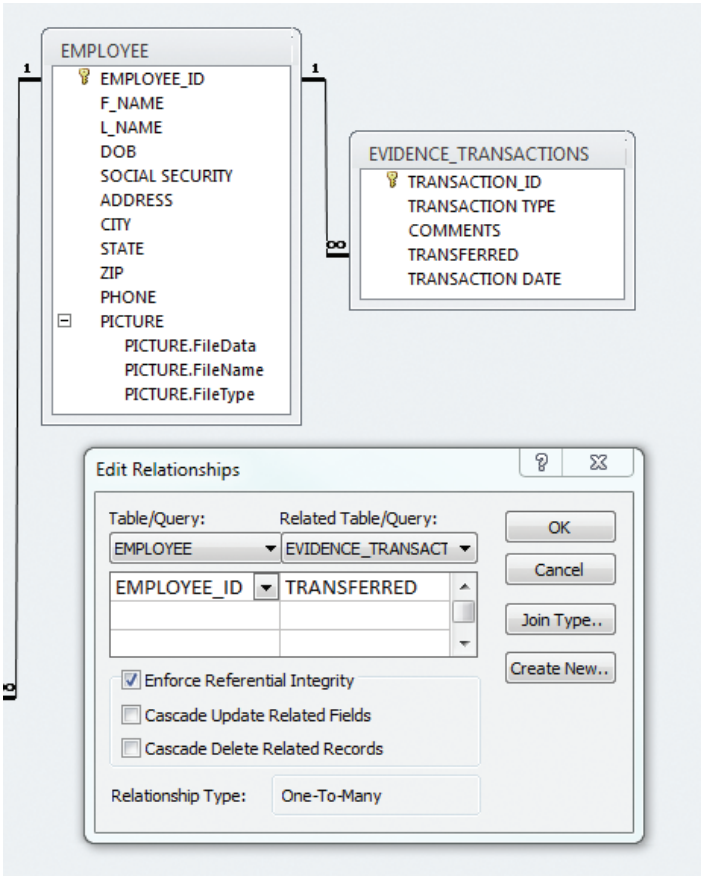


▲ **FIGURE 16.26**
Edit Relationships dialog box

REFERENTIAL INTEGRITY *is designed to validate data in your database and to assure you do not delete or modify data in records that are established in the relationship. Selecting Cascade Updates means that all related records are updated when changes are made. Choosing Cascade Deletes means that all related records are deleted when changes are made. These two options help maintain referential integrity.*

update or modify AutoNumber fields. Do the same thing for the EMPLOYEE and EVIDENCE_PROCESSING tables. Once you have taken these steps, you will notice you have one more relationship to establish since you are now finished with the many-to-many relationships.

The final step is to establish the one-to-many relationship using the EMPLOYEE_ID and TRANSFERRED fields from the EMPLOYEE and EVIDENCE_TRANSACTIONS tables, respectively, as shown in Figure 16.27. The TRANSFERRED field is related to EMPLOYEE_ID because this field tracks who made the transaction.

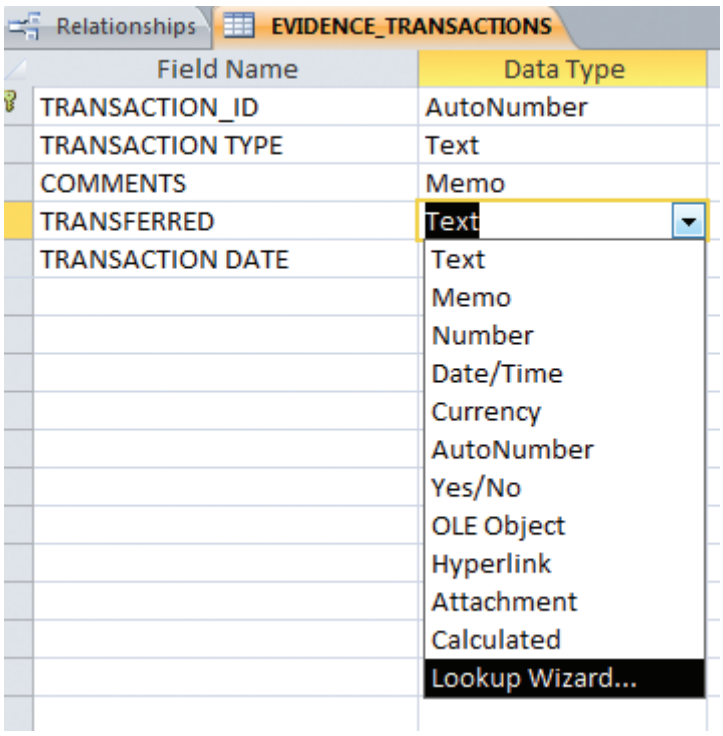


▲ **FIGURE 16.27**
Setting a one-to-many relationship

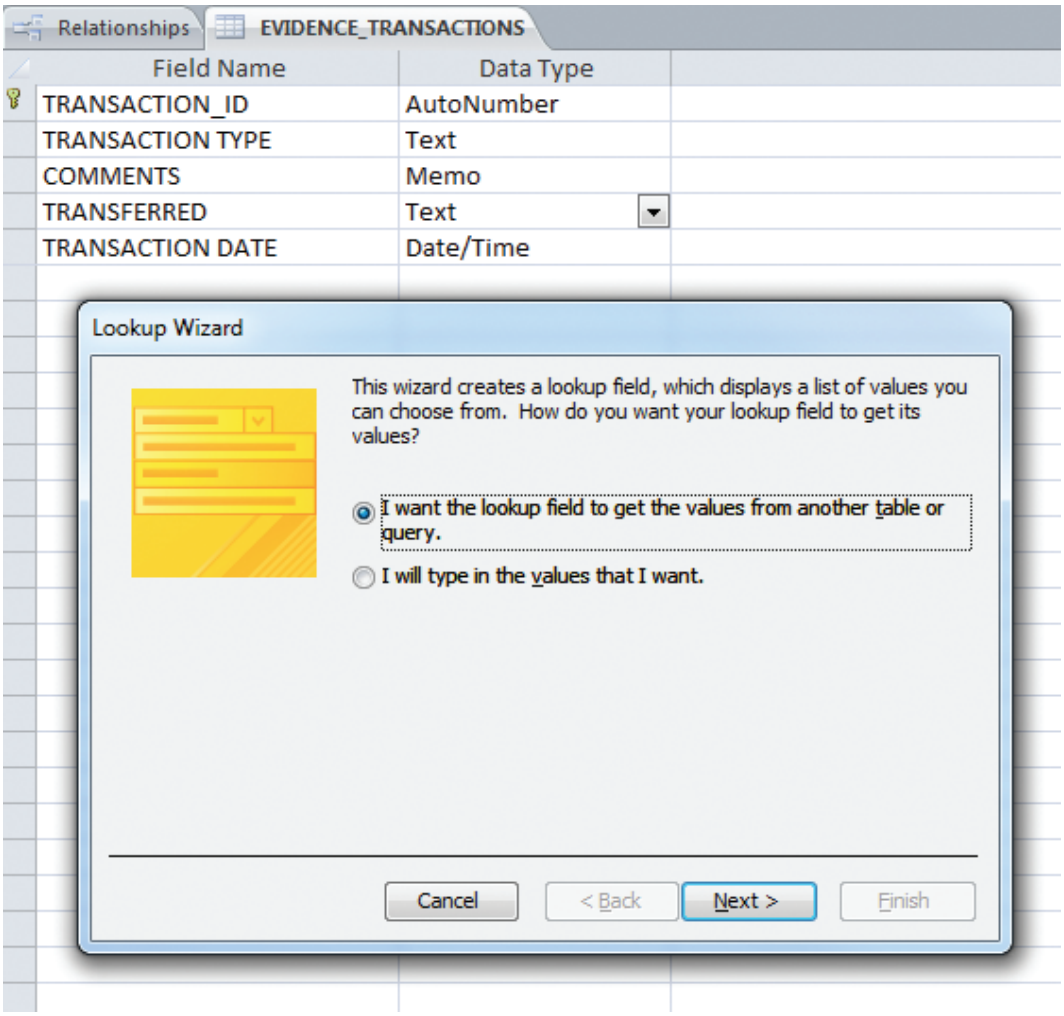
You will enforce referential integrity, but you will not use any of the cascading functions due to the data types used. Once you have established these relationships, the back end of your new evidence inventory database is ready to be populated with data that will be used for conducting queries and reports.

There are a few points to remember about a feature called the Lookup Wizard. For example, say you were looking to query data with a particular officer's name, but due to data entry errors you discovered it had been spelled several different ways in the database. It might be easy to discover this problem early on, but if a few years go by and there are several thousand transactions stored in the database, it would be really difficult to detect inconsistent data and thus your reports based on queries would ultimately be inaccurate. Notice in Figure 16.28 that the EVIDENCE_TRANSACTIONS table has a field named TRANSFERRED. This field's sole purpose is to keep track of employees who were named in a particular transaction.

You can use the Lookup Wizard, shown in Figure 16.29, to create a list from existing values in a table field. In this example, you would have a drop-down menu that allows you to pick an employee from a list of employees authorized to make transactions. Select *Lookup Wizard* as the data type for the Transferred field to create a lookup field. The



▼ **FIGURE 16.28**
Selecting the Lookup Wizard

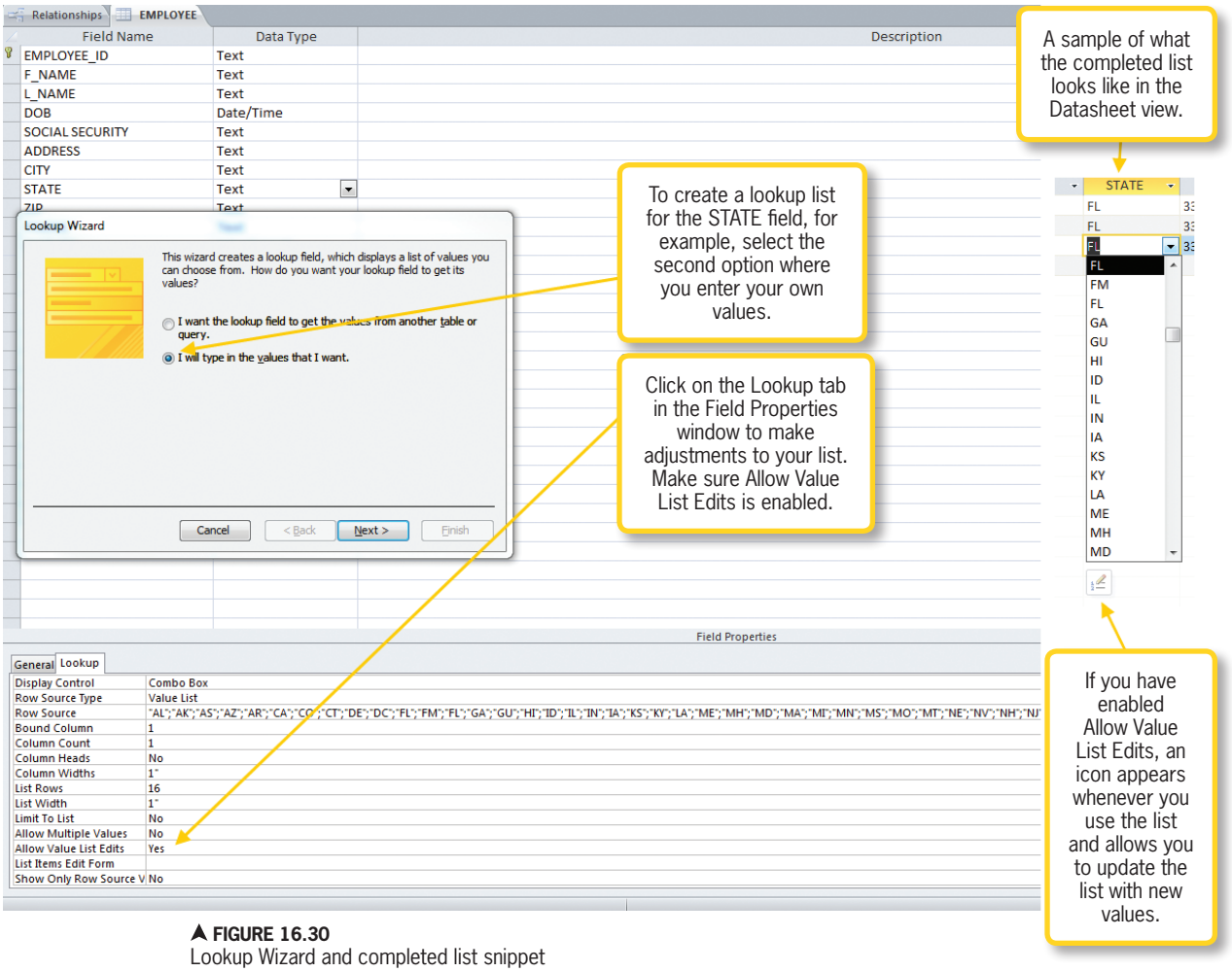


▲ FIGURE 16.29 Creating a lookup field based on values you create

lookup field can be either a list you create or a list extracted from another table or query. Remember that choosing a field from another table automatically creates a relationship.

If you develop your own list, you do not have to worry about any additional relationships between tables. You must make an adjustment to ensure you can add new values to your list. In Figure 16.30, you can see the Field Properties window with the Lookup tab properties visible. Set Allow Value List Edits to *Yes* so that you can modify any list you develop for any of your tables. A lookup list helps the database maintain consistent data.

Notice the cutaway section of what a lookup list will look like in the *Datasheet* view. The small icon below the list appears every time you activate the list to search for a value. This icon allows you to change or add values to your list, but keep in mind that you must have the Allow Value List Edits option in the Lookup field properties set to *Yes*.

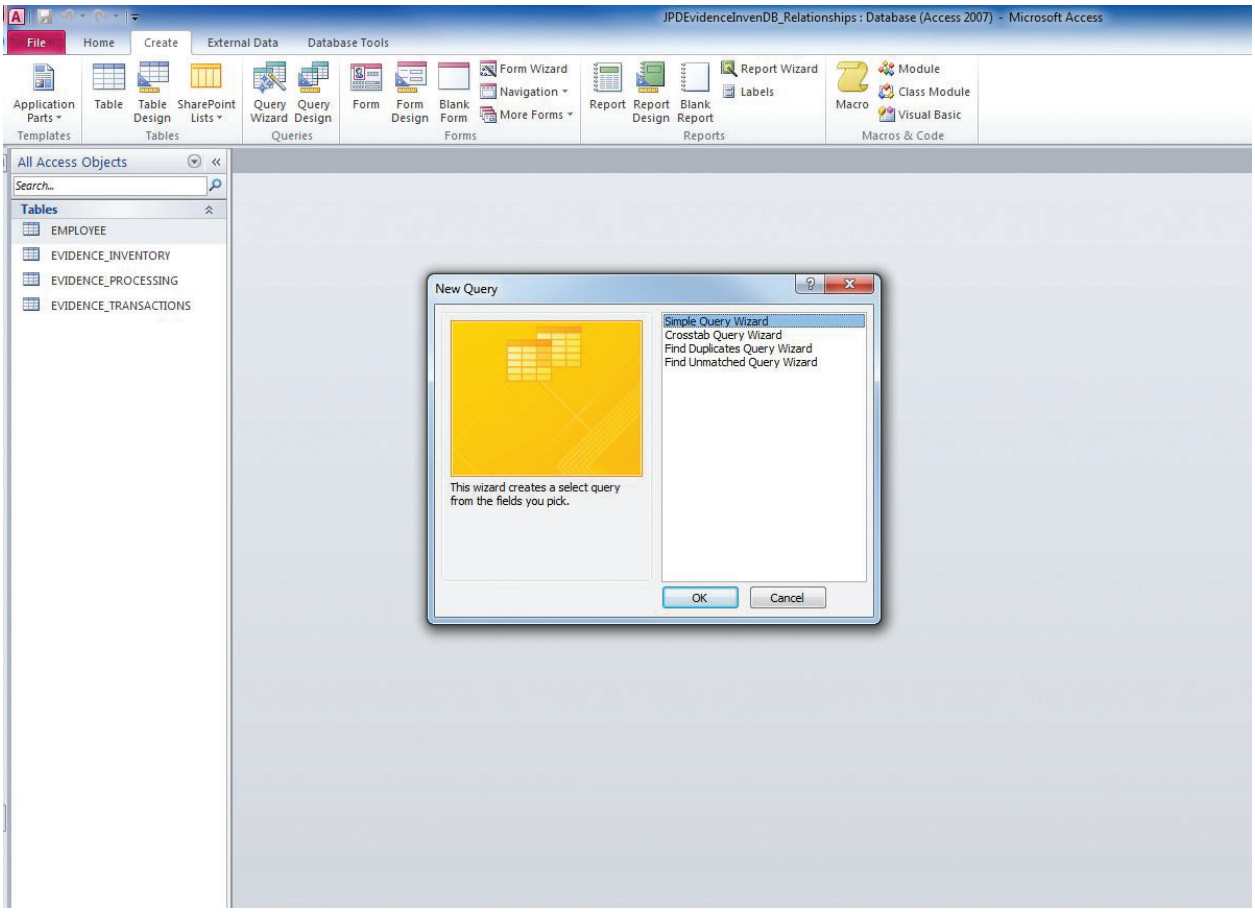


▲ **FIGURE 16.30**
Lookup Wizard and completed list snippet

16.5 DATA MANIPULATION USING QUERIES

The ability to conduct queries in an Access database provides a wonderful way to manipulate data to produce useful information. Take the *JPDEvidenceInvenDB* database you have been working with in this chapter; imagine being the officer that runs the evidence room and has to use a manual sign-out log or an Excel spreadsheet to keep track of inventory and location throughout the facility.

Using the database you have been working on, you can now conduct queries that will help you find specific items located in specified locations throughout your warehouse; better yet, you can have a date/time stamp with a record of every transaction made related to evidence. You can certainly develop attractive forms that provide a beautiful user interface at this point, only to find that you can only display information contained in the tables. In order to manipulate and display data from more than one table, you have to develop queries.



▲ **FIGURE 16.31**
Query Wizard

16.5.1

Basic Queries

The following three methods can be used to conduct queries in the Access database management system:

- Query Wizard—The easiest way to create a basic query, although it has some limitations.
- Design view—Allows you to graphically develop queries and gives you more control over the data than when using the Query Wizard.
- SQL view—Lets you create queries using the SQL language.

The basic query can be created using the Query Wizard, although it usually will need some tuning in *Query Design* view to arrive at the best outcome for successful data manipulation. To begin using the Query Wizard, which is shown in Figure 16.31, select the *Create* ribbon and click the *Query Wizard* button to begin building a very basic query. The wizard will guide you through a series of questions to arrive at a basic query. You can then use *Query Design* view to tune your end result.

16.5.2

Using Query Design to Develop Queries

The preferred way to begin building your queries is with the *Query Design* view rather than the wizard since you will be using this option anyway. Before running any queries, populate each of the tables in the *JPDEvidenceInvenDB* file with a few

records so that you actually have a return on your queries. You do not need to populate the junction table EVIDENCE_PROCESSING with any data. Once you have entered a few records, remember to save all of the tables even though the database automatically does this for you.

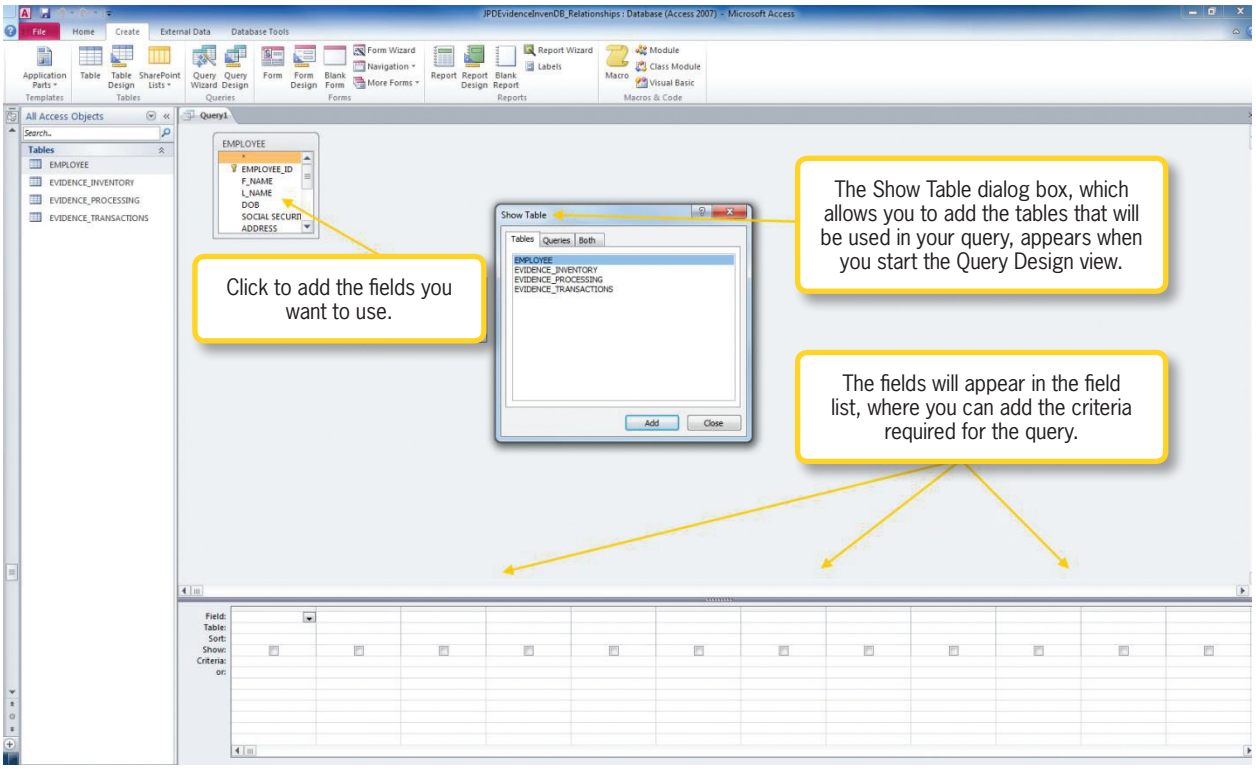
The next step is to start the *Query Design* view from the *Create* ribbon. Starting the *Query Design* view brings up the *Show Table* dialog box, which allows you to select the tables you want to produce data based on the fields you choose. Once you select the table that you need from the *Show Table* dialog box, you must select the fields that you want to appear in the results of the query. This process is shown in Figure 16.32.

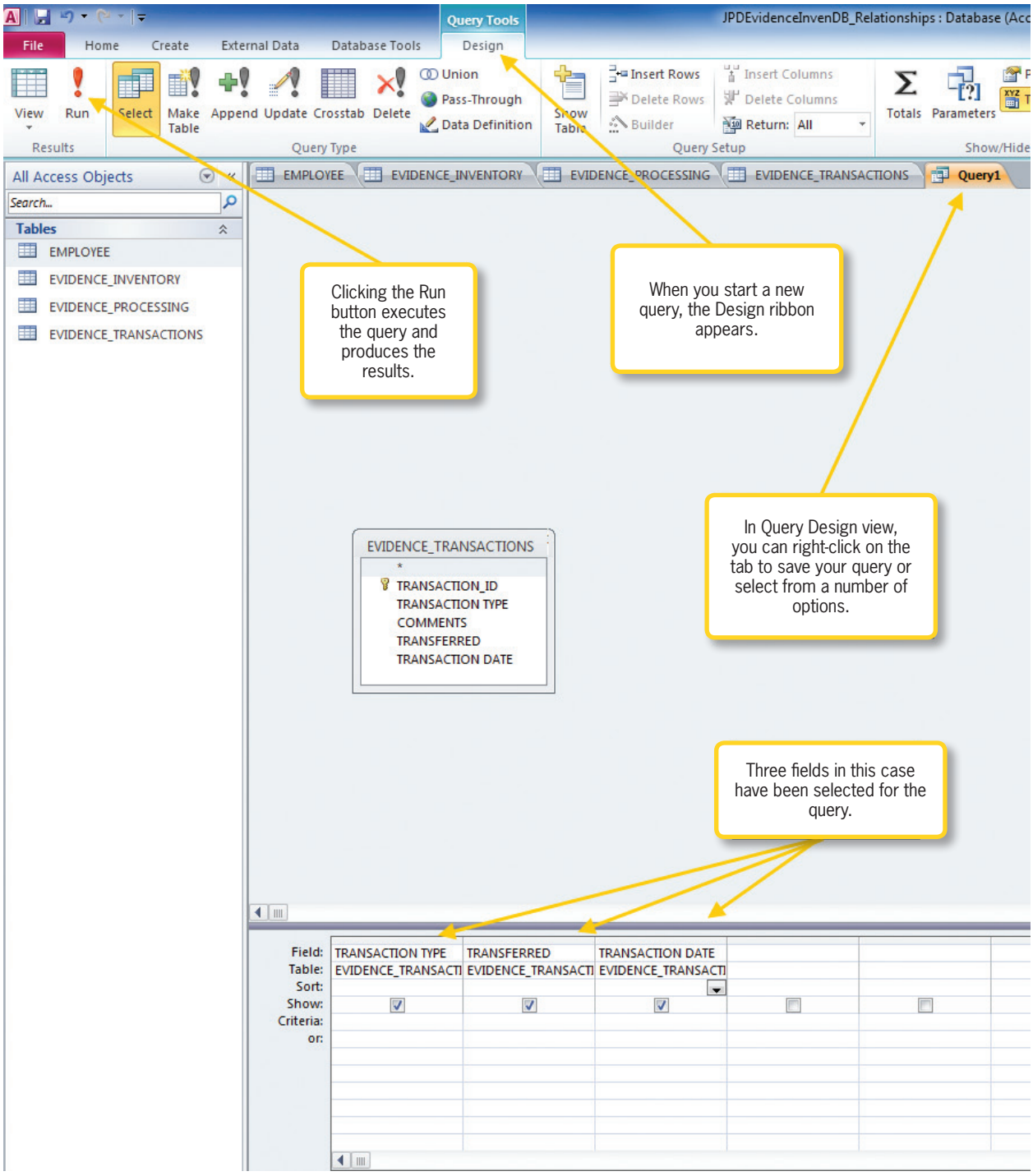
Once you have selected your fields, click the *Run* button to execute the query and view the results. If you are satisfied with the results, save your query by right-clicking on the *Query1* tab and selecting a name for your new query; saving the query adds it to the left pane of your database window. At the bottom of the interface in Figure 16.33, you will notice that there are additional options to refine your query results, including sorting in either an ascending or descending order. You can also hide one or more of the tables and add additional criteria.

Imagine you have 30 records in the database and you need to view just the records relating to transactions submitted by an employee with ID number 104. You might use the Expression Builder to request the records relating to 104, which would produce only the records from a specific employee.

By right-clicking on the criteria and selecting the *Build* option as shown in

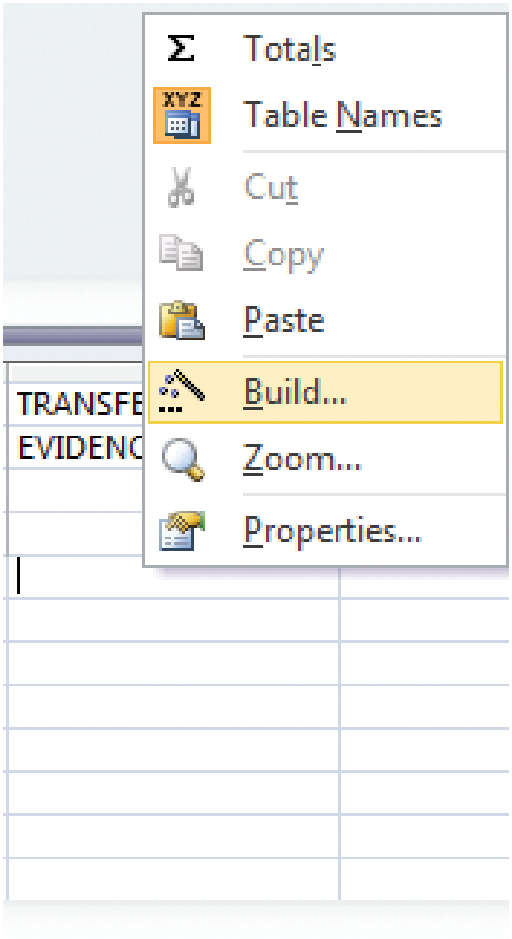
▼ FIGURE 16.32
Query Design view





▲ **FIGURE 16.33** Executing Completed Query

Figure 16.34, you can customize the query to give you specific results. If you wanted to find all records written by an employee with ID 104, you could simply enter *=104* in the criteria to produce just those records. The final step is to save your query by right-clicking the *Query1* tab, entering a name for your query, and then selecting *Save*.



➤ **FIGURE 16.34**
Accessing Expression Builder

16.5.3

Working with SQL View

If you are wondering what is happening in the background of your query, then SQL view is the place to look. Structured Query Language (SQL) runs in the background of every relational database management system. Every professional database administrator knows this language and uses it to build databases and develop queries of all kinds. Because this is an introductory text, SQL language is not discussed in detail, but you should understand what it does. You can access the SQL View anytime by simply right-clicking on the Query tab and selecting *SQL View* or by selecting *SQL View* from the *Views* panel of the *Home* ribbon.

16.5.4

Implementing Inner and Outer Joins

Conducting a query from a single table really is of little value to you or an organization. Developing inner and outer joins gives you the power to harness the true ability of using a relational database system. An *inner join* is a join in which there are two linked tables (an existing relationship) that are used to join specific fields within the two tables to produce the desired results. If you do not have a relationship established, Access automatically helps you develop this relationship.

Figure 16.35 shows two linked tables composed of the EMPLOYEE and EVIDENCE_TRANSACTION tables. The figure also provides a snippet of the results that appear after you press the *Run* button on the ribbon. You should note that only the fields needed to produce the desired results are selected.

If you want to link the unmatched records, you could actually do so using SQL, which is beyond the scope of an introductory text. You could use the EMPLOYEE parent table and create a larger child table that would be the EVIDENCE_INVENTORY table. This would take a small adjustment with your relationships and the eradication of one table, but it could be done this way. Once you have learned more about SQL, you could come back and use the same schema modifying the UNION statement to link the transactions to the EVIDENCE_INVENTORY table.

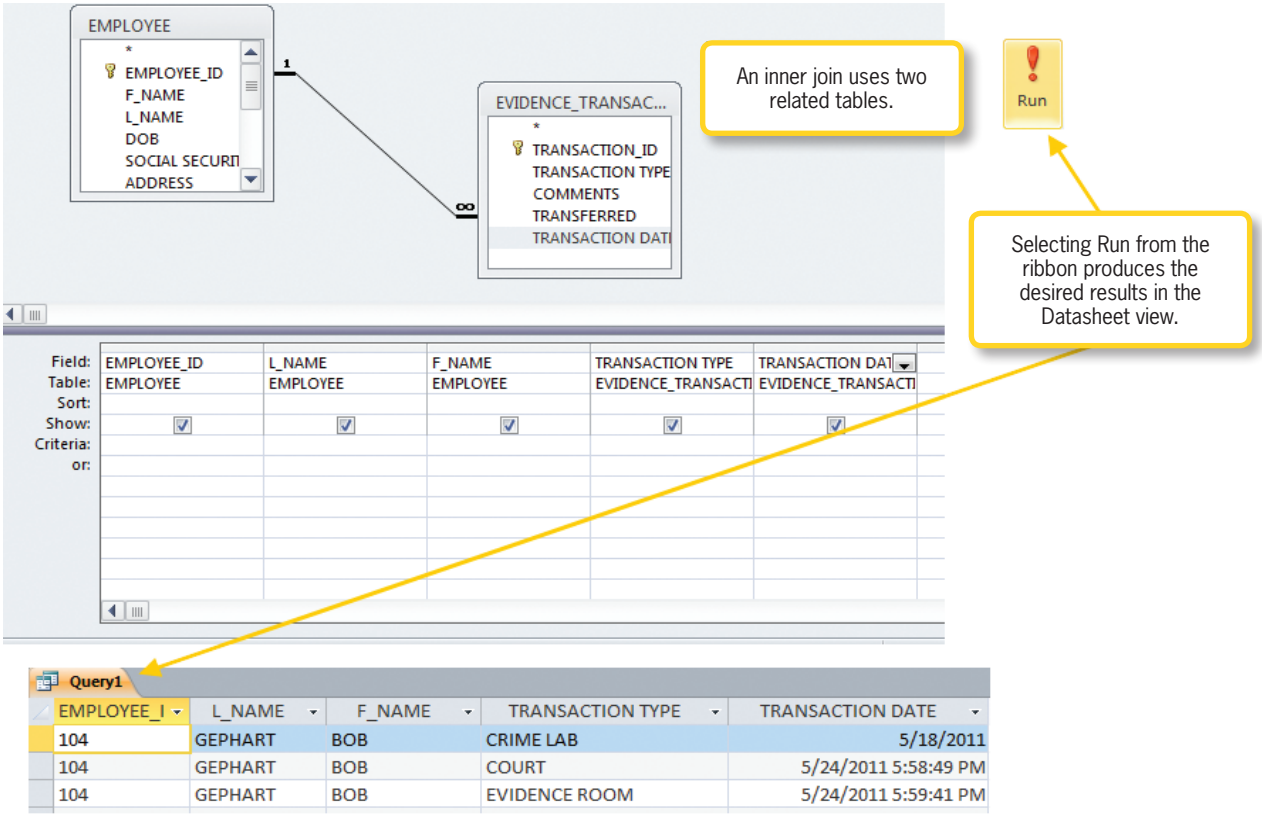


FIGURE 16.35
Inner join in Query Design view and results

An *outer join* is one in which you have two directly unrelated tables. You learned previously that an inner join basically joins related tables. The inner join shows only records that are contained in both linked tables.

The outer join can be configured to show everything you would pull from an inner join, along with any unlinked records. Outer joins can help you locate unmatched records. Figure 16.36 shows all of the unmatching records in the database. Notice that there is an important filter added

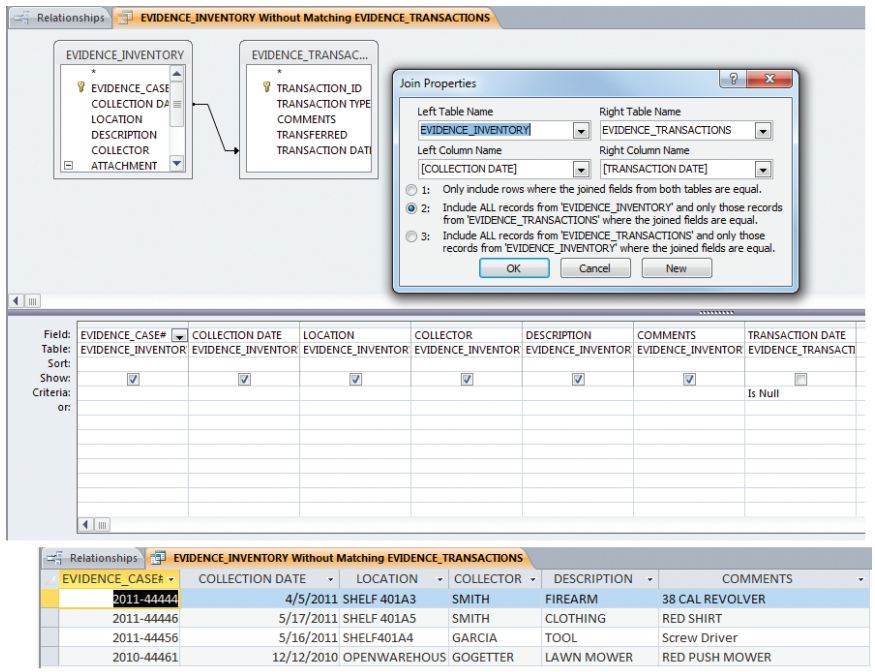
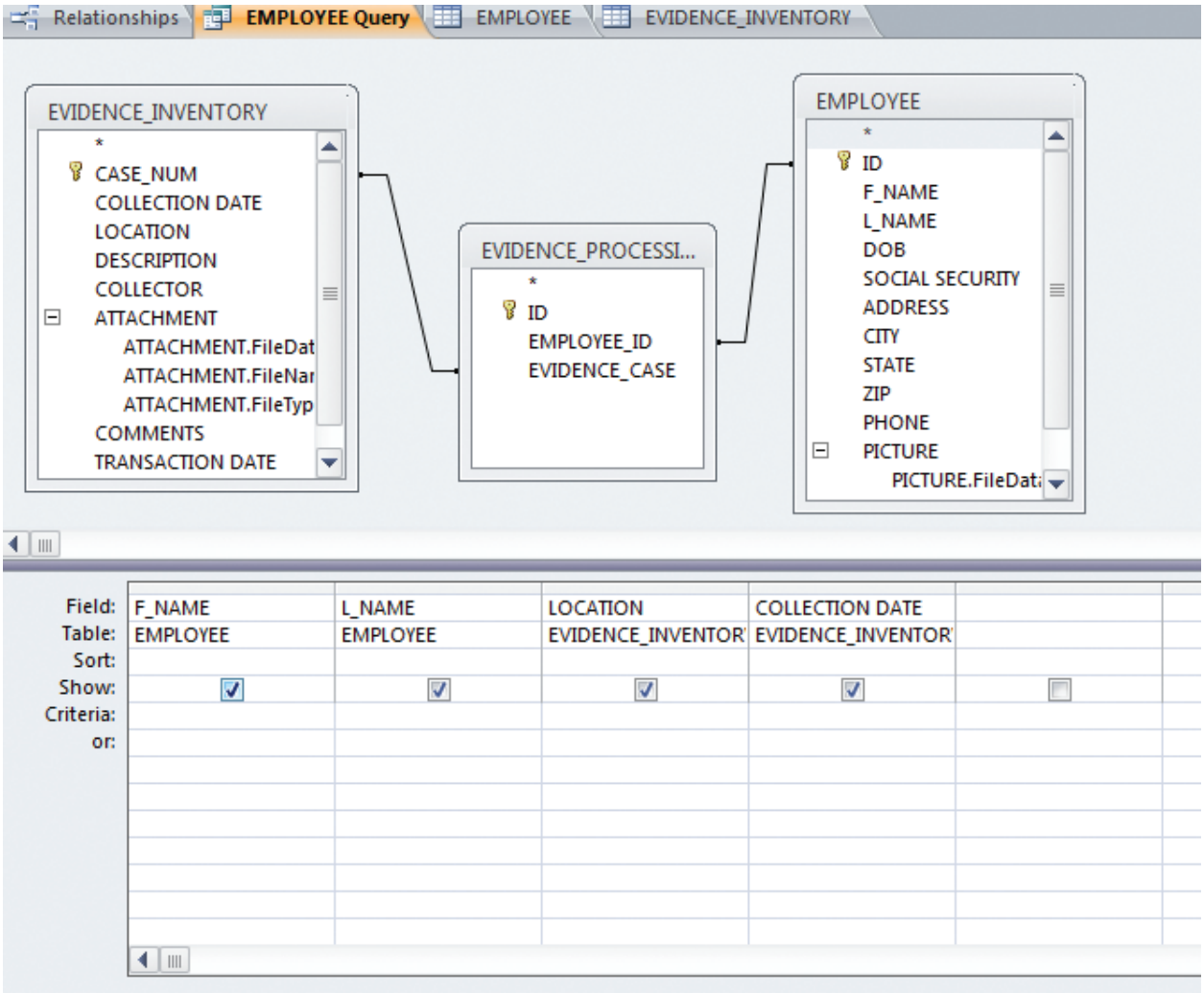


FIGURE 16.36
Outer join using Query Design view to show unmatched records



▲ FIGURE 16.37
Outer join using a many-to-many relationship

to the criteria as "Is Null," which forces the table to produce the transaction dates that are not linked.

There are also multiple joins that you can use when more than one table is involved. Remember the many-to-many relationships using a junction table. The database schema has been modified to show how you can conduct a multiple join. In Figure 16.37, the modified schema describes how you might conduct a multiple join when there is a many-to-many relationship.

LEARNING TO DEVELOP REPORTS

16.6

You have learned how to work with and develop tables, relationships, and queries. Simply looking at your information in *Datasheet* view is not very feasible for sharing. If you are planning on providing a copy of your data to the executive staff at your organization, you might want your data to look a little more presentable. You could print the data from your tables, but this does not look very professional. Developing a

simple report can be done easily using one of the wizards or the *Layout* view. If you are following along with the example, open the *JPDEvidenceDBFORMS* file.

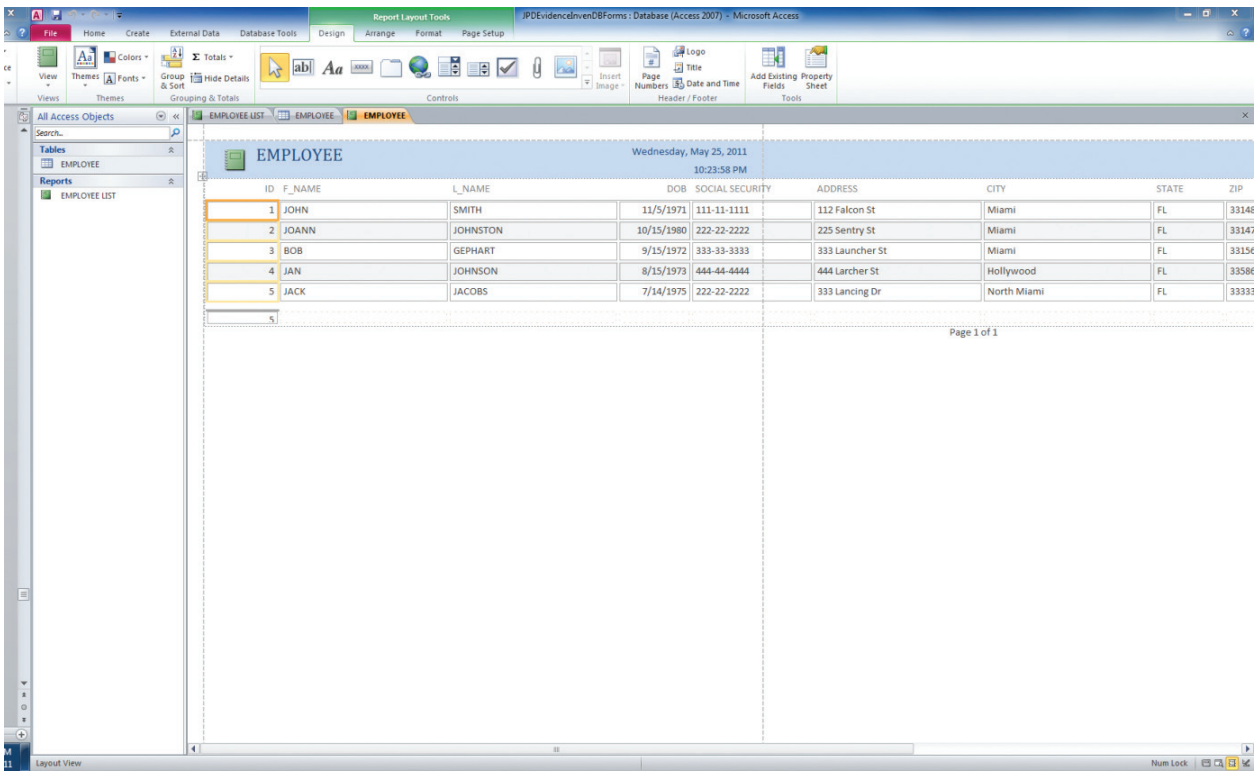
One of the easiest ways to create a report is from the *Create* tab within the *Access* ribbon. Simply select the *Create* tab and click the *Report* button. Figure 16.38 shows a very basic form that this action produces. Developing a report in this manner selects all the fields, and as you can see it does not provide an attractive report. Notice at the top of the figure you can see some options titled *Report Layout Tools*. These options let you change the layout to make it more aesthetically pleasing.

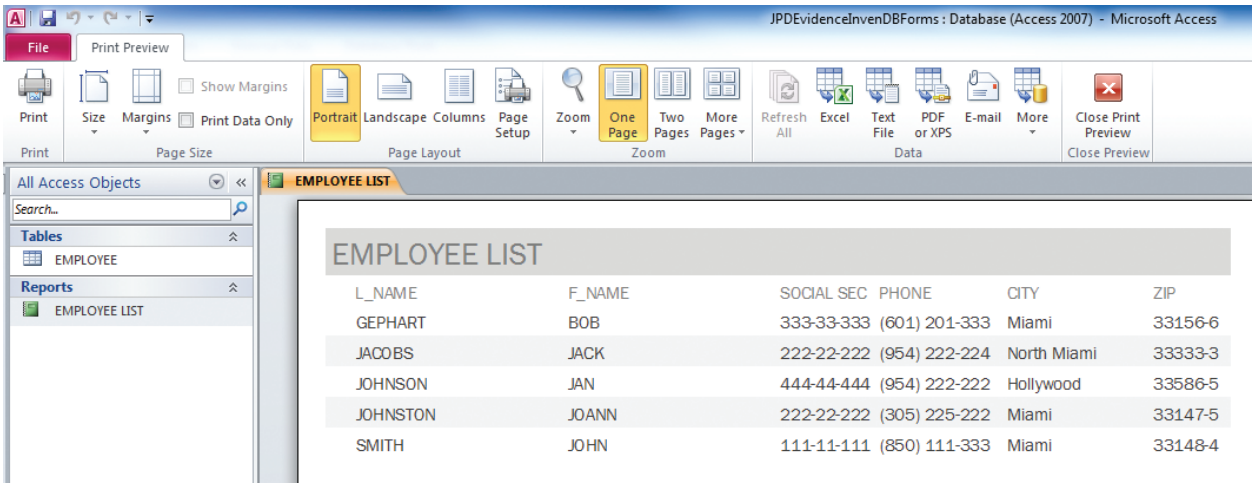
The Report Wizard is another easy way for beginners to create a simple report. The nice thing about the Report Wizard is that you simply answer the initial questions the application runs you through and it creates a basic report with just the fields that you require. Once the report is developed, you can modify and adjust the overall look in *Design* view.

Once your basic form is complete, you can see what the document will look like before printing to paper by selecting the *File* button, and selecting *Print*. A menu will appear that gives you the option to preview your form; select *Print Preview* to see your document, as shown in Figure 16.39. If you are satisfied, you can simply press the *Print* button on the far-left side of the ribbon.

This is just an introduction to Access reports; there are a significant amount of features available that allow the user and Access database developer to modify

FIGURE 16.38
Report Layout Tools





▲ FIGURE 16.39
Viewing a report in Print Preview

reports, include tables and fields from other tables, and change the overall appearance of the database.

16.7 DEVELOPING A SIMPLE FORM

Once you have completed your database, you will need to maintain, update, and occasionally modify data for a variety of reasons. Imagine having to open up the database backend each and every time to enter data into each individual datasheet. You can easily update and add records into one location using a custom form in an attractive user interface. Using forms also makes it easier for other users, such as employees or customers, to access the database in a format that is consistent with the organization's business rules.

A form has many advantages over working within the *Datasheet* view. Imagine having to update two or three tables in an inventory database. You can develop a single form that easily allows entering data into all three tables with total transparency to the user. If you were entering the data from *Datasheet* view, you would have to work with three different tables, which can become confusing and cumbersome for inexperienced users.

Access forms also support controls such as drop-down menu selections, customized buttons, lists, and checkboxes. Say an organization requires the ability to print out an employee's contact information and photograph. You can easily customize a control to bring up a custom form with the employee's data and photograph and quickly send the information to a printer. The form in Figure 16.40 was created using just one table; it displays text boxes, a checkbox, and record numbers and can be used to enter additional new records.

Creating a simple form is an easy process that can be accomplished using either the *Layout* view or the Form Wizard. You can use a table or a query to generate the desired results. Follow these steps to create a simple form in *Layout* view:

1. Highlight the table or query you would like to use for your form from the navigation pane on the left side of the Access window and select the *Create* ribbon.

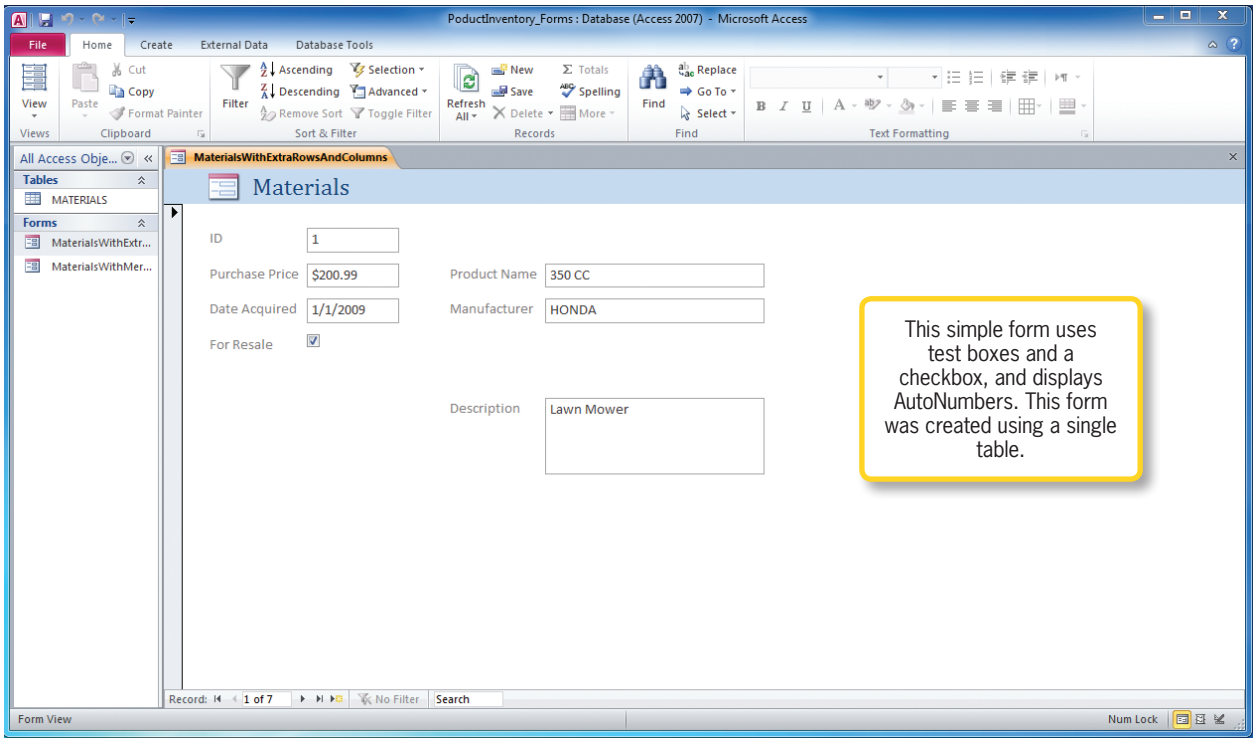


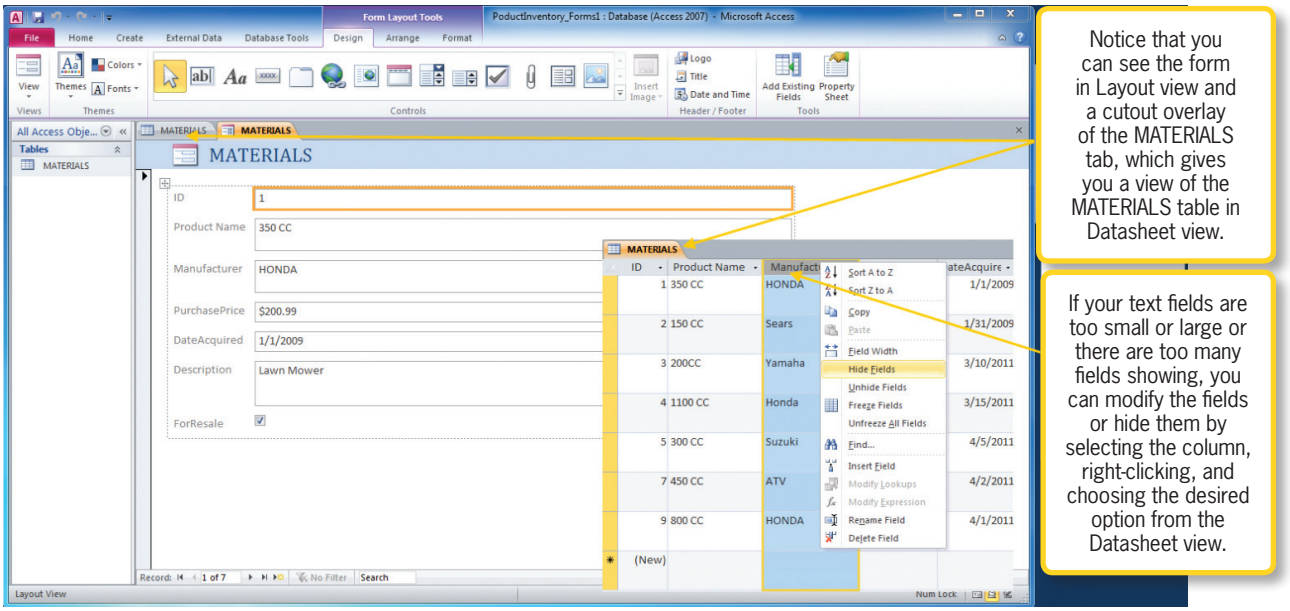
FIGURE 16.40
Example Form view

2. In the *Create* ribbon, select *Form*. A new form will appear in *Layout* view, as shown in Figure 16.40. Notice that all of the fields in the table you select appear on the new form in the same order in which you selected them. Your fields might also appear large or small, depending on the field size you established when you developed the table.

3. From the *Layout* view, you can rearrange your fields in any manner you desire. If you have too many fields showing, you can simply select the underlying table (MATERIALS in this case) from the *Datasheet* view tab as shown in Figure 16.41 and right-click on the unneeded column to choose the option to hide it.

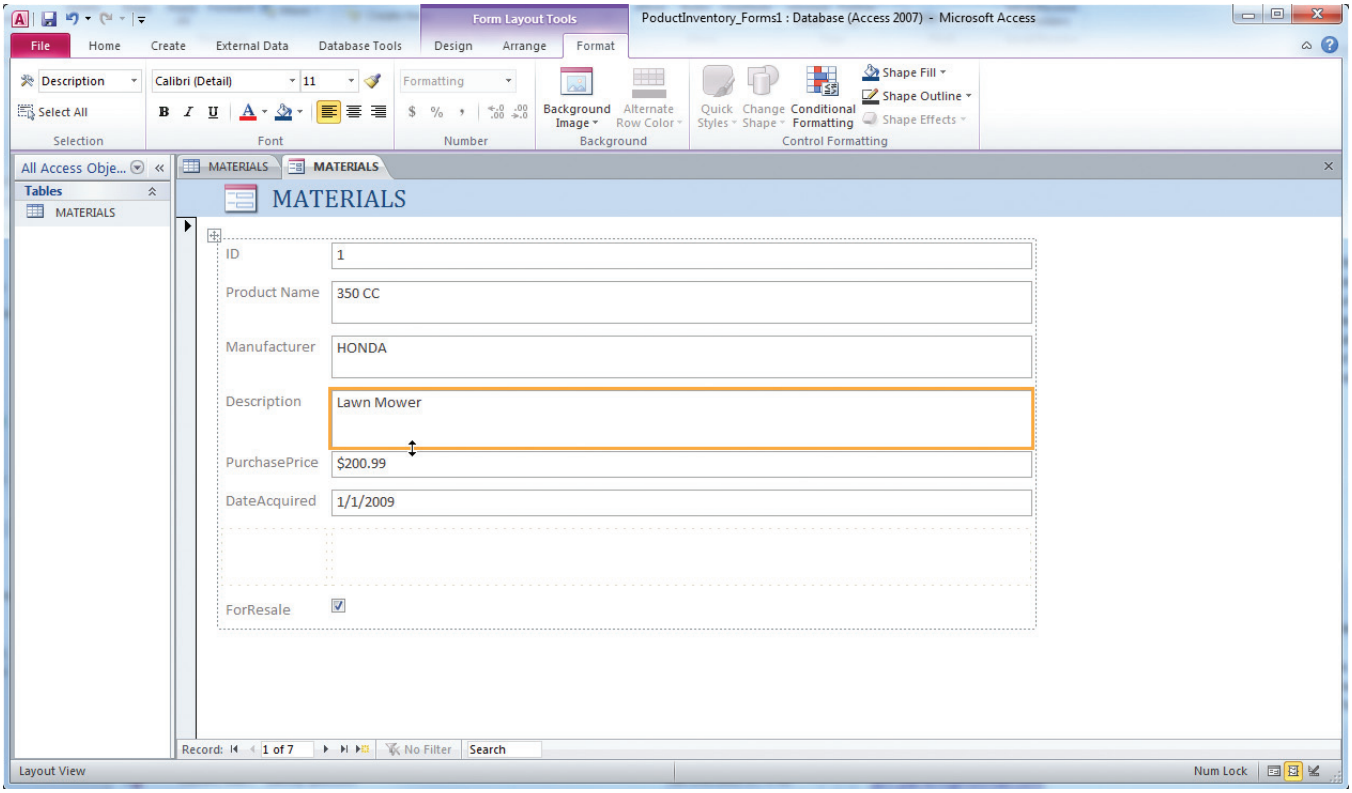
4. It is important to remember that there are two separate field size adjustments. You can modify your field size from the table's properties or you can manually adjust your field size within the form. Remember that you built tables and set properties that included data types and the number of characters allowed per field. When you build your forms using this method, your text boxes may appear too large. To correct this issue, you can adjust the width in *Layout* view by highlighting the text field you want to change and adjusting the width or height by grabbing the edge of the text box and pulling it in the needed direction, as shown in Figure 16.42.

5. Finally, you can adjust your field names on the form by double-clicking on them and changing the text to your desired title. You can also adjust colors by using the options available in the *Format* ribbon. Once you are satisfied with the overall look and feel of your form, save the form by selecting *File* and then *Save*. If you forget to do this, you can be assured that the application will ask you to save before closing.



▲ FIGURE 16.41
Using the MATERIALS table to develop a new form

▼ FIGURE 16.42
Adjusting width and height of textboxes



CHAPTER SUMMARY

Database software provides powerful tools for data manipulation and management. It is important to realize that modern organizations excel when they add value by successfully converting data into useful information. A database management system provides data integrity and, when developed properly, eradicates the possibility of data duplication. A spreadsheet is considered a flat file database system because there is no ability to query data or form any type of relationship between the data sets, except through sorting and filtering. A modern relational database management system uses relationships that allow a user to query the data to produce useful reports on trends and other market factors that can help an organization flourish.

This chapter was designed to give the new computer user a jump start on developing relationships, queries, and reports in Access. You have learned that you can complete each task related to queries and reports using different methods, depending on your level of training and how much time and effort you would like to contribute to a project. You should now be able to plan, design, and develop very basic database applications. Your next step to learn more might be to take an intermediate or advanced course on Access. Congratulations on completing this text! You should now have the skills you need to manage your productivity at home or at the office.

CHAPTER KNOWLEDGE CHECK

1 The Access database application is a Relational Database Management System (RDBMS) that is primarily designed to meet the data management needs of small to medium businesses.

- ○ **A.** True
- ○ **B.** False

2 A database is simply a _____ of data structures that are organized to serve the particular needs of an organization or person.

- ◯ **A.** Collection
- ◯ **B.** Menu
- ◯ **C.** Algorithm
- ◯ **D.** Flat file system

3 An organization's _____ are the rules that govern an organization and are engrained in daily processes.

- ◯ **A.** Theft problems
- ◯ **B.** Session rules
- ◯ **C.** Business rules
- ◯ **D.** None of the above

4 Every database table field must have what is known as a data type.

- ◯ **A.** True
- ◯ **B.** False

5 Indexing is another form of _____ used in the database to prevent data duplication and speed up transactions.

- ◯ **A.** Data cleansing
- ◯ **B.** Data scrubbing
- ◯ **C.** Data integrity
- ◯ **D.** None of the above

6 What are the three types of relationships used in database work?

- ◯ **A.** One-to-one, many-to-many, one-to-many
- ◯ **B.** One-to-one, many-to-one, one-to-three
- ◯ **C.** Many-to-one, one-to-one, three-to-one
- ◯ **D.** One-to-one, many-to-many, many-to-none

7 The _____ allows you to graphically develop queries and gives you more control over the data than when using the Query Wizard.

- ◯ **A.** Design View
- ◯ **B.** Simple view
- ◯ **C.** Query view
- ◯ **D.** None of the above

8 _____ is designed to validate data in your database and to assure you do not delete or modify data in records that are established in the relationship.

- ○ **A.** Table relationship
- ○ **B.** Data integrity
- ○ **C.** Referential integrity
- ○ **D.** None of the above

9 The Report Wizard is an easy way for beginners to create a simple report.

- ○ **A.** True
- ○ **B.** False

10 Developing a simple report can be done easily using one of the wizards or the Database Backup view.

- ○ **A.** True
- ○ **B.** False

CHAPTER REVIEW QUESTIONS

1 What is the importance of a primary key?

2 How do you implement field validation in Access?

3 What is a Database? What is its function within an organization?

4 What is the function of a data type?

5 Why might professionals prefer to develop their tables in Design view?

6 How are relationships defined in Access?

7 How is referential integrity different from validation? What is the importance of each?

8 What are queries and where are they developed?

9 How can you present data to those who do not readily understand Access and datasheets?

10 What is the purpose of manipulating data?

11 What is the function of a form?

12 What should you take into account when you are sharing your Access database with others?

13 What are some necessary steps for the maintenance of a database?

14 What advantage does Access have over Excel?

15 How is filtering in Excel different than in Access?

PRACTICE EXERCISES

1 Think of a fictional business and formulate the data needs for the organization. The business should be small enough that you are able to manage it properly. (If it gets too big, you might struggle to complete the assignment.) Develop the data requirements and reporting requirements for the business. Write out the business concept on paper and prepare to discuss.

2 Using the database platform of your choice, develop one complete table that includes a primary key, data types, field names, and all validation requirements such as required fields and input masks. Use Design view to complete the assignment.

3 Using Access, develop three queries based on the tables in the *JPDEvidenceInvenDB* file that you feel would meet the needs of the organization. One of your queries should involve an outer join used to locate unmatched fields. Remember to populate your database with a few files to help you see the results of your database system.

CHALLENGE EXERCISES

1 Open the Access database file that already has the relationships built using the Design view and develop basic reports to meet what you feel are the needs of the organization.

2 Conduct basic research on Microsoft Access. Find three to five local companies that use Access to manage their business. You may need to do some field research for this exercise. Discuss how these companies use Access to meet their needs. Interview different employees to uncover a user's understanding of Access' functionality. Write up a one-page report on your findings.

3 Below are descriptions of query methods and relationships in Access. Correctly identify each of the following:

- ◯ **A.** The easiest way to create a basic query.
- ◯ **B.** Allows you to create queries using the SQL language.
- ◯ **C.** The most common type of relationship between tables.
- ◯ **D.** Allows you to graphically develop queries.
- ◯ **E.** The most complex relationship available in Access.
- ◯ **F.** Considered poor development practice to use this type of relationship.

APPENDIX

A

Additional Productivity Software

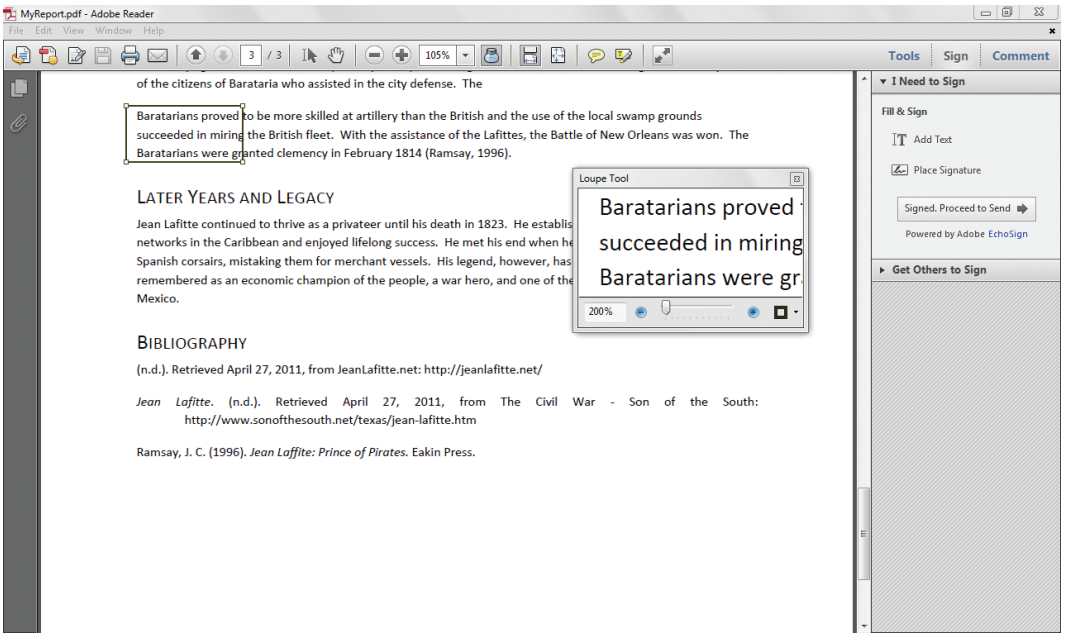
IN THIS CHAPTER

A.1 ADOBE READER

While a number of common productivity tools have been covered in this text, there are a few additional resources that are helpful to office and personal productivity. Adobe Reader is a free application available for both Windows and Macintosh that reads Portable Document Format (PDF) files; in fact, it was Adobe that invented the format. There are a number of other utilities that can perform this task, such as the native Preview application which comes preinstalled for a Macintosh computer. However, Adobe Reader has a number of useful tools that make it worthwhile to have installed even if you primarily use another application to read PDF documents.

You can download the latest version of Adobe Reader from *www.adobe.com/downloads* regardless of the operating system you have. Once you have the program installed, you can open it to see the different tools and utilities available. Of note are the Snapshot Tool and the Loupe Tool. You can see an example of the Adobe Reader interface for Windows in Figure A.1.

There are additional services and tasks that can be performed with the paid versions of Adobe Acrobat. The commercial version of Adobe Acrobat installs plug-ins for the Microsoft Office applications to create customized PDF files in addition to the standard PDF export that is included with the Office software. You can also use Adobe PDF as a print option for any application when you have the commercial Adobe Acrobat installed; this works similarly to printing to Microsoft Office OneNote which will be covered in the following section of this appendix. You can also subscribe to paid services at *www.acrobat.com* to create and share PDF files online. These online services are accessible from within Adobe Reader if you have an account. The account creation process for the Adobe Website (*www.adobe.com*) and Adobe Acrobat (*www.acrobat.com*) is free.



➤ FIGURE A.1
Adobe Reader X for Windows

A.1.1 Portable Document Format (PDF)

The Portable Document Format was invented by Adobe Systems in 1993; it is an open standard (ISO32000) for use in capturing rich media in an application-independent, exchangeable file format. This allows it to be used on any operating system and version without altering its appearance. The standard now also incorporates support for live hyperlinks within the document, so it has become one of the preferred formats for distributing documents on the Web. Control over the final layout and format of the media in the production of a PDF has been one of the factors influencing its adoption.

If you are going to use the Internet to gather information or research, you are likely to encounter PDF files. They are also a good format for transmitting files to recipients with unknown software and operating systems, such as resume submission when the potential employer does not specify a document type for submission. PDF is common enough that you can send the document with relative assurance that anyone can read it. You should make sure that you have some means of reading this document type as well, whether you use the official reader from Adobe or not.

PDF files can also be used as forms with predefined areas that are editable. Creating these forms requires the commercial version of the software, but you may encounter PDF forms for work or personal use. To complete a PDF form, simply click into the editable area and type as you normally would on the keyboard; the text will appear in a predetermined font and size and it will appear only in the areas that are specified for completion. When you are done, you can use the *Save As* (or *Save a Copy*) function and select PDF as the file type. You cannot save certain modifications or enhancements without the commercial version of the software.

A.1.2 Adobe Reader Tools

In addition to linking to the services of *www.acrobat.com*, the current versions of Adobe Reader have a number of useful tools for viewing PDF documents. You can easily set your zoom percentage to display the document at the size you want. Jumping from page to page is also an easy task using the standard toolbar at the top of the interface. The two versions available have some differences in functionality, so you should select the section that is applicable to you.

A.1.2.1 Adobe Reader X for Windows

The Windows version of Adobe Reader allows you to add highlights and comments to the document. The benefit of marking up a PDF file is that the markup does not affect the original document, so it can be added to and removed from the file easily without concern for formatting or damage. It should be noted that these marks are typically not suitable for printing, so they would just be for the sake of document review, personal notes, and collaboration. You can also save your document as unformatted text using the *File* menu and choosing *Save As* and then *Text*.

In Adobe Reader X for Windows, the *Highlight* tool for marking text is located in the standard toolbar across the top of the interface. The *Comment* tool is located there as well. If you want to make a comment, you can click where you want it within the document and a smaller window will appear for you to add your text. You can close this window when you are finished and open it again by double-clicking the icon for the comment within the document. You can move the comment by clicking on the icon once and dragging it. You can select the *Edit* menu and choose *Find* to perform a standard keyword search on the document. You can also select the *View* menu then *Read Out Loud* and *Activate Read Out Loud* to have an automated reader speak the line of text on which you click. This requires the default selection tool to be active. To deactivate the service, select the *View* menu, choose *Read Out Loud*, and then choose *Deactivate Read Out Loud*.

Adobe Reader X has a few other tools that are of use. Under the *Edit* menu, you can select *Copy File to Clipboard*; this will copy the entire file contents to the system clipboard. You can also select *Take a Snapshot* from the *Edit* menu; this allows you to click and drag across an area of the document that you want to copy to the system clipboard as an image. If you simply click in the document, any area that is visible will be copied to the clipboard as an image. You must select another tool to disable the Snapshot tool once it is active.

You can add additional tools to the standard toolbar by choosing the *View* menu and then selecting *Show/Hide* and then *Toolbar Items*. The submenu here has several options for tools that you may find useful. The default tool that is active is the *Select Tool*; this is available under the *Select & Zoom* submenu. This tool allows you to select text and copy it to the system clipboard. Under the *Rotate View* submenu, you will find the *Clockwise* and *Counterclockwise* commands

which can be used to rotate a page that is not oriented properly on your screen. Under the *Select & Zoom* submenu, the *Hand Tool* is useful for scrolling the document quickly on the visible window; clicking selects the document and moving the mouse repositions the document within the window. Also under the *Select & Zoom* submenu is the *Loupe Tool*; this tool creates a new window that enhances the magnification of a small selection of the document wherever the mouse is clicked, allowing you to magnify a portion of the text for closer examination. This is shown in Figure A.1. This is particularly useful for examining images.

Another important feature of Adobe Reader X for Windows is the ability to complete forms and sign documents. With the professional version of Adobe Acrobat, you can create PDF forms that only allow another user to edit specified fields. These forms can be completed using Adobe Reader and you can sign any PDF with the tools available under the *Sign* menu on the right side of the main interface. This is also shown in Figure A.1.

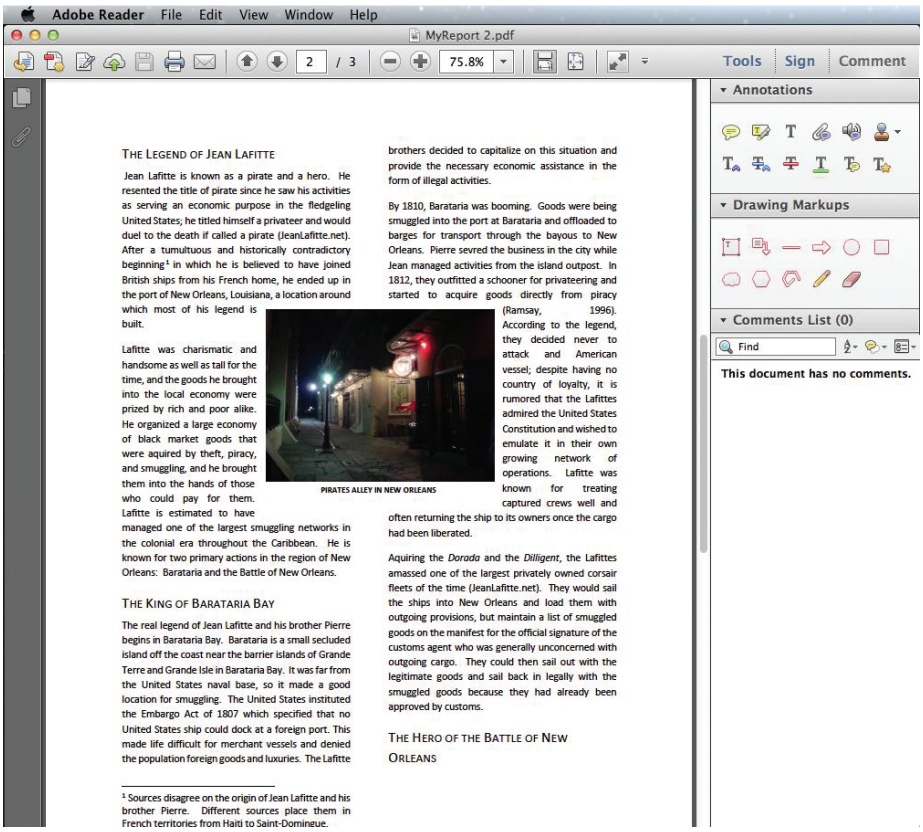
Adobe Reader XI for Macintosh

A.1.2.2

The functionality and tools available for Adobe Reader on the Macintosh are very similar to those found on the Windows equivalent. You can see an example of the interface of Adobe Reader XI for Macintosh in Figure A.2. Like its counterpart in Windows, Adobe Reader XI allows you to add comments or highlights to the text. You can also take advantage of several of the unique tools that Adobe Reader has to offer. You can also use Adobe Reader to export the text of your document (without any formatting) by selecting the *File* menu and choosing *Save as Other…* and then choosing *Text….* You can also export your PDF contents to Word of Excel.

Under the *View* menu, you can select *Read Out Loud* and then choose *Activate Read Out Loud* to enable the automated reader to speak

▼ FIGURE A.2
Adobe Reader XI for Macintosh



the selected line of text. You must have the default Selection tool active for the cursor for this to work correctly. You can turn off the automated reader by selecting the *View* menu, *Read Out Loud*, and then *Deactivate Read Out Loud*.

The main menu across the top of the interface contains several tools of interest. The *Sign* tool allows you to digitally sign a document, which is becoming an acceptable substitution for a physical signature. You must setup a signature and password in order to use this functionality. You can also print, share, and resize your document from this menu. The right side of the interface contains the *Comment* menu, which allows you to add markup to the document, including highlights, comments, and stamps.

A.2 MICROSOFT ONENOTE FOR WINDOWS

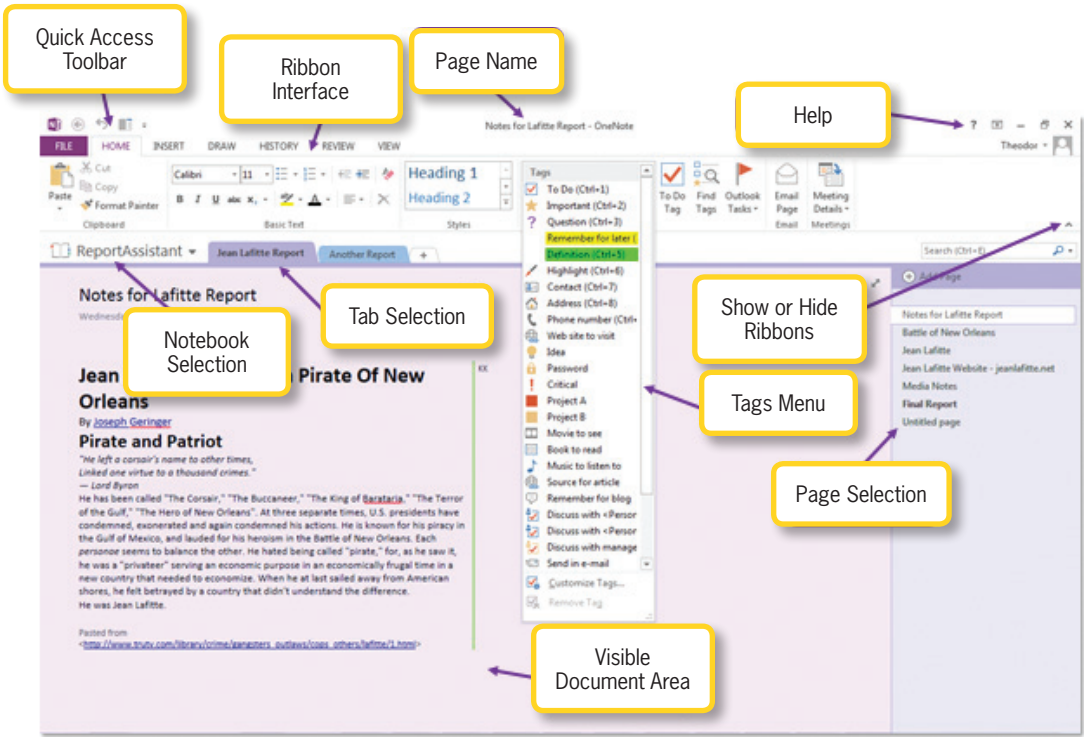
Microsoft OneNote is a Windows exclusive program that acts like a digital notebook. It is part of the Office 2013 productivity suite. It can be used to manage personal and work files in separate notebooks. You can use it to take notes with ease and link notes to other documents. You can also use it as a printer to store any printed information you want to keep and you can store each file on its own page for easy organization. The drag-and-drop functionality and the ability to dock the program beside another Microsoft Office application make it a useful note-taking and organization application.

Anatomy of Microsoft OneNote 2013 A.2.1

You can see an example of the interface for Microsoft OneNote 2013 in Figure A.3. This displays the Quick Access Toolbar, the ribbon interface, and the different levels of organization available in OneNote. You should notice that the Quick Access Toolbar contains an icon called *Dock to Desktop*. This allows you to switch between the two primary operating modes on OneNote. Dock to Desktop fixes OneNote to the side of your screen and allows you to take Linked Notes, which are described in Section A.2.3. The standard icon to maximize the application on the screen is used to return to the standard mode of operation. You do not have a traditional *Save* icon in either the Quick Access Toolbar or in the *File* menu in OneNote because it will automatically save changes to your document.

The *Home* ribbon (also shown in Figure A.3) contains the formatting commands and styles that can be applied to the text of your notes page. This ribbon also contains the available tags for notes; these are annotations to the content of your document that identify different characteristics for the individual note such as Question, Contact, and Critical. You can see the expanded list of available tags in Figure A.3; these tags appear as small icons next to the text or as a highlight color over the text. You can use *Find Tags* to locate all of the tags in the current page of notes. The *Home* ribbon also contains the links to the functionality integration with Microsoft Outlook; you can email a page from your notebook,

➤ **FIGURE A.3**
Anatomy of Microsoft OneNote 2013



set an outlook task, or interface with your meetings.

The *Insert* ribbon shown in Figure A.4 can be used to add additional media content to your notes page, such as images and external files. This is also where you can initiate the process to add an audio or video note to your page using the *Record Audio* and *Record Video* icons respectively. You can also add screen clippings and file printouts to your document from the *Insert* ribbon.

The *Draw* ribbon, shown in Figure A.5, contains the functionality for using your mouse as a pen on the document. This is particularly helpful with a tablet PC which uses a stylus. You can also use the automated functions to convert your ink markup to text or equations.

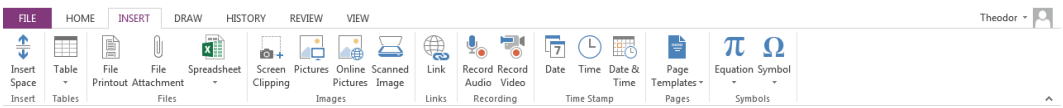
The *Review* ribbon contains the spelling and grammar checks as well as the research and translation options. The *View* ribbon, shown in Figure A.6, allows you to change the modality of operation from Dock to Desktop to Full Page View or Normal View. You can also customize the appearance of your notebook from this ribbon.

Adding and Organizing Media and Notes

A.2.2

Microsoft OneNote supports a variety of note-taking options. You can click anywhere on the page and start typing to create a new note. You can also add any form of media from images to video to audio; in fact, you can

➤ **FIGURE A.4**
Insert Ribbon in Microsoft OneNote 2013



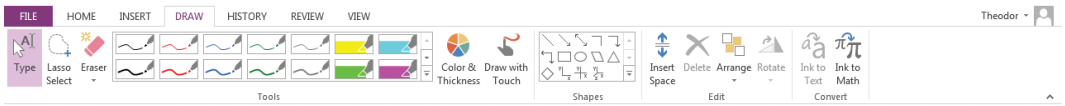


FIGURE A.5
Draw Ribbon in Microsoft OneNote 2013

FIGURE A.6
View Ribbon in Microsoft OneNote 2010

easily record audio and video notes if your computer is equipped with a microphone or Webcam. You can select the *Draw* ribbon to turn your mouse cursor into a pen tip or highlighter to write text into your notebook; you can even use automated text recognition inside OneNote to convert your written notes into typed text or equations. OneNote has a number of context-sensitive ribbons to support modification of the media elements within the document, including the *Playback* ribbon for Audio & Video from which you can review your recordings or media elements and record new audio and video notes.

You can have multiple individual notebooks within the OneNote file. Each of these notebooks is divided into sections located in the tab names across the top of the document window for the open notebook. Each of the sections has associated pages located on the right side of the open document; you can add a new page by selecting the + icon in the page list. You can click and drag to rearrange the order of any of these elements, including the notebooks. This level of organization allows you to manage your notes effectively.

A.2.3 Linked Notes

OneNote can also be used to take what are called Linked Notes. These are context-sensitive notes that include a link to the active document in any other Microsoft Office product beside which OneNote is docked. These Linked Notes are standard text notes or snippets of content that include a link to the document on which you were working when the note was created. For instance, if you copy or cut content from a document in any other Microsoft Office product, you can paste it into OneNote to retain it and OneNote will automatically create a link to the original document. You can also click in the open docked notebook for OneNote and start typing a note; this will also activate a document link which will appear beside the content. If you want to access the source of the clipping or open the document to which the note applies, you can do so by double-clicking the icon representing the linked program.

If you copy content or notes from a Website, OneNote will automatically add the source to the end of the clipping. This allows you to better maintain any citations you need to add for an article or paper and it also allows you to revisit the source of the information later. You cannot copy images directly to OneNote from a Website source; if you try to drag an image into OneNote, you will only get a citation of the source. Images can be added to OneNote from other sources such as other Office documents or through the use of the *Send to OneNote*

2013 functionality which acts like a standard document printer.

To dock OneNote to the Desktop to allow you to take Linked Notes for your other applications, you can select the *Dock to Desktop* icon. This will move your application to the right side of the screen and open Page View which hides most of the interface while you work. Linked Notes will be active by default. You can turn the linking on and off using the icon menu that looks like a chain link. To return to the Normal View, you can use the standard maximize icon in the right side of the interface when it is shown, press the *F11* key, or click *Normal View* in the *View* ribbon. You can see an example of the docking and Linked Notes in Figure A.7.

A.2.4

Printing to OneNote

When you install Microsoft OneNote on your machine, you will have the ability to use a special printer called *Send to OneNote 2013* from any other program on your machine. This works like any other print dialog. You can see an example of the process in Figure A.8.

Once you have chosen OneNote as the destination, you will be prompted to select a location for your printout within your existing notebooks for OneNote. When you select a destination, it will create a new page in that section with the print results; it will initially be called *Untitled Page* and you can enter a title in the area noted by the dotted line. This will give a title to the page on the right navigation as well as display it in the title section.

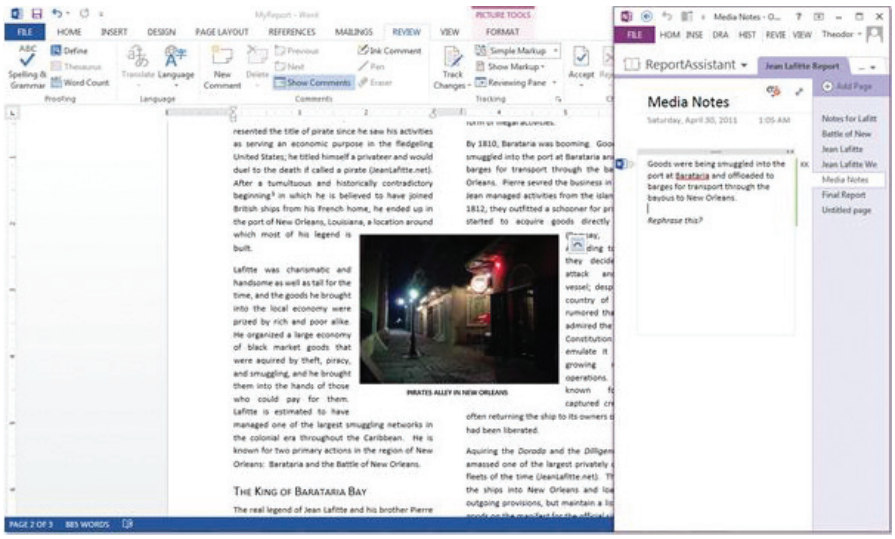
A.2.5

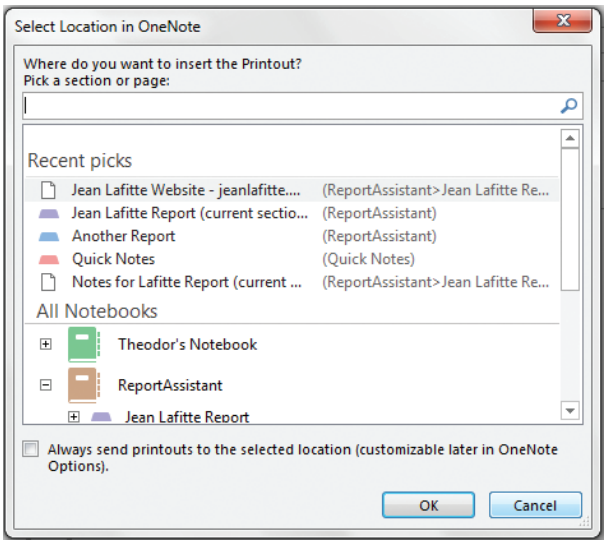
Saving and Sharing Notebooks

You can save OneNote notebooks to your SkyDrive using your Windows Live ID, which serves as an online storage location that is free to use. Details of constructing a Windows Live ID (whether you use a Windows machine or a Macintosh) are found in Chapter 5. To share one of your OneNote notebooks, you can select the *File* menu and choose *Share*.

You should make sure that you are placing the notebook in a location that is secure enough for the information contained within it. If you have any personal information in the notebook, you should be cautious of saving it to any network resource that can be accessed by others. The SkyDrive is at least password protected and allows

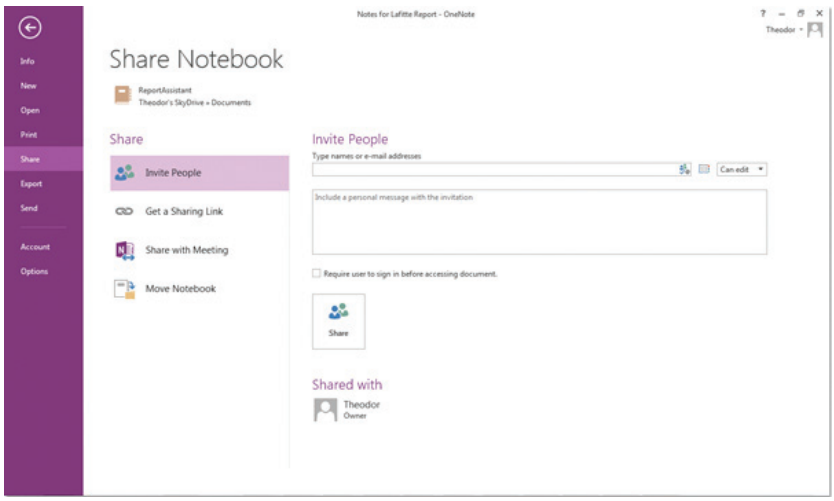
▼ FIGURE A.7
Docked View and Linked Notes in Microsoft OneNote 2013





▲ FIGURE A.8
Print Dialog for Send to OneNote 2013

▼ FIGURE A.9
Steps to Share a Notebook in OneNote 2013



you to select the persons with whom you want to share the document. If you are not already connected to your Windows Live account, you must provide your credentials for either your SkyDrive or the network location.

Once the upload is successful to the SkyDrive, you can also get a link to share the notebook via email. Only people to whom you give permission on your SkyDrive account can access the file via the online link.

MICROSOFT WORD NOTEBOOK LAYOUT VIEW FOR MACINTOSH

A.3

While the Macintosh version of Microsoft Office does not have Microsoft OneNote included in the 2011 suite, Microsoft Word 2011 comes with a special view called Notebook View which allows some of the functionality of OneNote on the Macintosh. This is a tool for taking notes and organizing them into pages and sections. The note-taking functionality is not as extensive as OneNote, but it does allow for the addition of text notes, using the mouse as a pen on the document, and adding audio notes to your text.

Notebook Layout View

A.3.1

When you click on Notebook Layout View in Word 2011, you will be prompted to create a new document or convert your existing document. This is a special version of a Word document with its own unique properties and interface. The purpose of this interface is to allow you to manage notes and add quick audio notes. You can see the

interface for the Notebook Layout View for Word 2011 in Figure A.10.

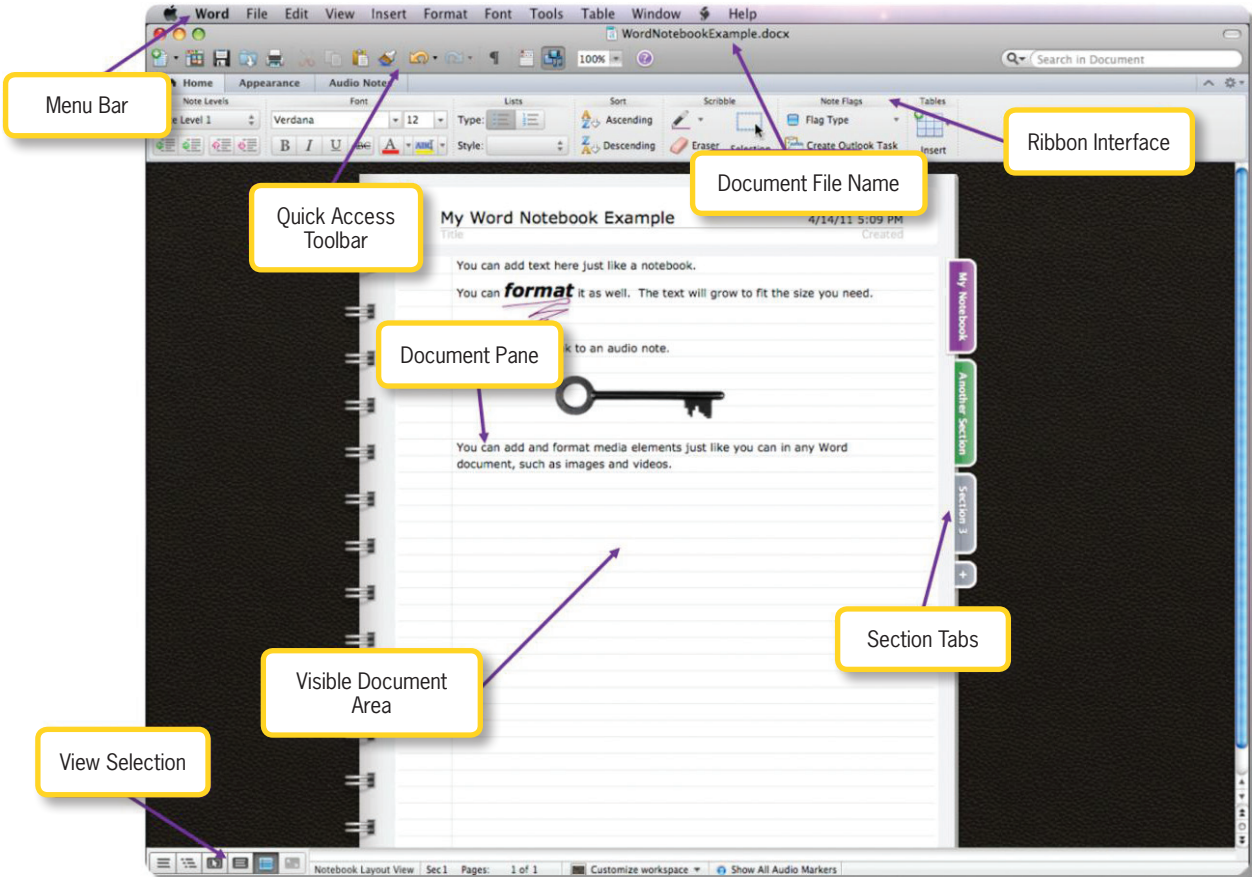
The *Home* ribbon contains the formatting commands for the notes. You can use the note levels to organize your document into an outline and rearrange elements within it. You can also change the list formatting and list styles. There is a Scribble Panel that allows you to use your mouse as a pen tool on the document to add written notes; this is most beneficial when using a tablet computer with a stylus interface. The Note Flags Panel can be used to add annotations to your notes, such as *High Priority* or a colored checkbox that can be used to create tasks in your document. You can also create an Outlook task from the *Home* ribbon or insert a table.

The *Appearance* ribbon shown in Figure A.11 allows you to customize the design of your notebook. You can change the background pattern, style of the tabs, and change the spacing on the rule lines (or get rid of them). You can also rename the tabs of your notebook, change the tab colors, or remove them using this ribbon.

Adding and Organizing Media and Notes

A.3.2

You can enter notes in your document just as you would in any other Word document. The page is divided into individual



▼ FIGURE A.10 Anatomy of Notebook Layout View in Microsoft Word 2011

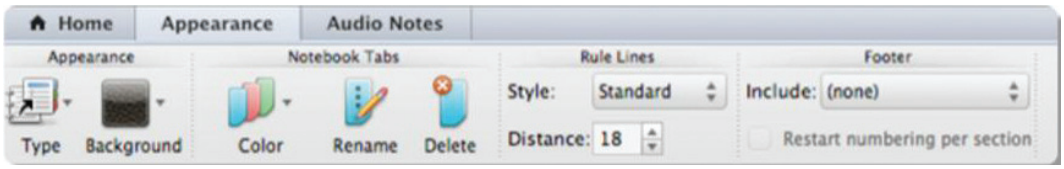


FIGURE A.11
Appearance ribbon in Microsoft Word 2011 Notebook Layout View

lines and you can skip to whatever line you want to use just by clicking inside of it. You will recognize the active line by the small dot in the margin. This is also where the annotations appear for any flags that you have added. You can add any media to your notes that is available from the Media Browser or any other source that works for other Word documents. These will all have the usual context-sensitive ribbons to handle the media as necessary. Images and other objects will have the settings for text wrapping that are available in standard word processing documents.

One additional feature of the Notebook Layout View is the ability to add audio notes to your document. These will appear as an audio icon in the margin of the page. The *Audio Notes* ribbon shown in Figure A.12 allows you to record and playback the audio notes. Adding new notes will continue recording where the last note ended if you add them to the same line. You can also export these notes to the MP4 file format.

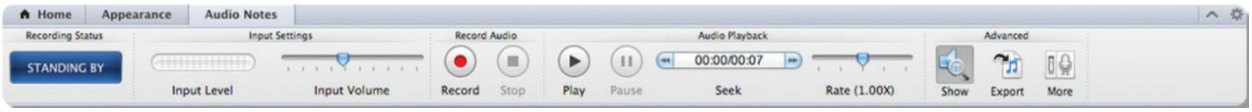


FIGURE A.12
Audio Notes ribbon in Microsoft Word 2011 Notebook Layout View

APPENDIX

B

Alternate Productivity Software

IN THIS CHAPTER

B.1 APACHE OPENOFFICE SOFTWARE

There is a free alternative to Office that was developed as part of the open source software initiative. Apache OpenOffice has counterpart programs for most of the Office suite, including word processing software, presentation software, spreadsheet software, and database software. These alternatives will be introduced in the following sections; you will be given the instructions to complete most of the tasks with OpenOffice wherever it is possible to do so. If you are using OpenOffice to complete the exercises in the book, you will still benefit greatly from reading the text outlining the tasks and operations given for the Office program. In most cases, the difference in functionality may be a simple placement issue. The OpenOffice equivalent to Word is OpenOffice Writer.

You can download the full version of Apache OpenOffice from *www.openoffice.org*. This site services all operating systems for which the software is available.

B.1.1 OpenOffice Writer

If you are using OpenOffice as an alternative productivity software suite, Writer is the program that is used for word processing. Once you have downloaded and installed OpenOffice, it will be available in the *Start* menu on a Windows machine (or within the apps listing in Windows 8) or from the Applications folder on a Macintosh. Unlike the new versions of Word, Writer uses the more traditional menu and toolbar interface. The approach taken in this text is to include the major content and the description of the project in the section detailing the OpenOffice product that is equivalent to the Microsoft Office product.

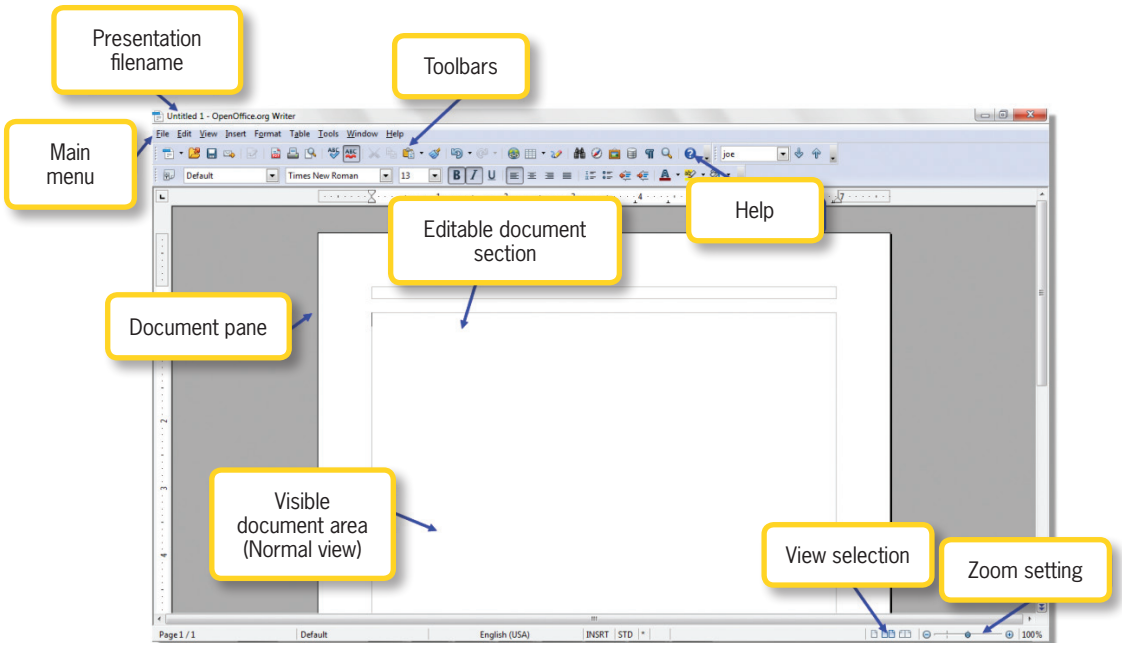
B.1.1.1 *Anatomy of Writer*

Go ahead and open a new document in Writer if you have not already done so. You should see the blank document interface shown in Figure B.1. There is a list of menus across the top of the interface, along with toolbars that provide a shortcut to some of the more common commands available in the menus. Open the *File* menu as a first stop.

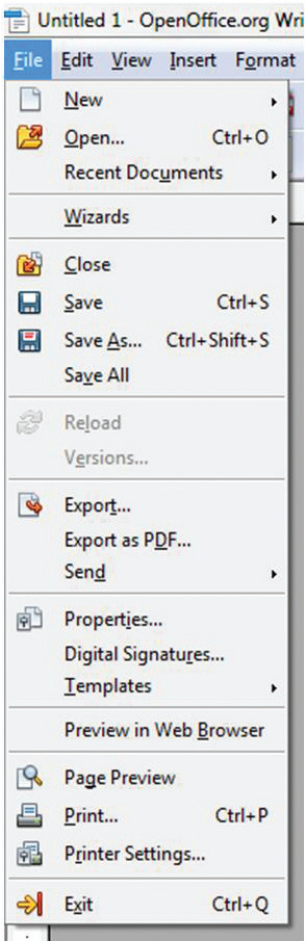
The *File* menu is shown in Figure B.2. As with most *File* menus for software applications, this is where you can access commands to manage your files, including New, Save, Save As, Open, and Print. You should note that unlike Office, you can open a new file from any of the applications in the OpenOffice suite by selecting the *File* menu and *New*. The *Help* menu gives you access to the OpenOffice help interface. On a Windows machine, you can press the *F1* key to access the help interface for OpenOffice if it is the currently active application.

There are a number of toolbars available that will provide shortcuts to common commands. By default, the Standard toolbar, Find toolbar, and Format toolbar are enabled. The Standard toolbar gives you access to file commands (like New, Open, Save, and Print), along with Cut, Copy, Paste, Undo, Redo, and Help. This toolbar also contains several commands that you will use for the projects like the Format Paintbrush, the Spelling and Grammar check, and the Navigator.

The Find toolbar allows you to perform a keyword search and move through the results that are found. The Format toolbar is where you will find shortcuts for formatting commands like Bold, Italic, and Underline; this is also where you can change the text size and font selection. The bottom of the interface beneath the document



➤ **FIGURE B.1**
Anatomy of Writer



◀ FIGURE B.2
File menu in Writer

contains the current page number out of the total number of pages, the language in use, the page layout (which can be changed by selecting the icon you want to use), and the current Zoom setting (remember that 100% is the actual size of the document).

The native file type for a word processing document in Writer is ODF Text Document (.odt). It is possible to save the word processing document in the native Office format but only up to the Word format used in the 1997 to 2003 editions of the software using the .doc extension. This document will still open in newer versions of Word without any difficulty. There is an icon in the Standard toolbar labeled *Export Directly to PDF*, which will allow you to save your document in the platform- and software-independent Portable Document Format (.pdf).

B.1.1.2 Completing the Cover Letter in Writer

You should first save your open blank document as *MyCoverLetter*. Enter the text you want to include as described in the example project in Chapter 7. To change the font in Writer, select all of the text (using the *Ctrl-A* shortcut on Windows or the *Command-A* shortcut on Mac) and choose the *Font Name* drop-down menu; select *Times New Roman* if it is not already selected. Beside the Font Name drop-down menu, you will see the *Font Size* drop-down menu; use the drop-down box to choose a common size or enter a numeric value in this box. Set your text size to *12*. Beside this menu box, you will see the icons for *Bold*, *Italic*, and *Underline*; these commands can also be activated by the shortcut keys for each command that were described for Word. You can also select the *Format* menu and choose *Character* to set font effects in a single dialog box. For a cover letter, however, you should keep the plain formatting for your text.

To set the line spacing for your document, select the *Format* menu and choose *Paragraph*. The Indents and Spacing tab should be active by default. This is where you will find the Line Spacing values. Select *At Least* for the Line Spacing selection from the menu and type *16pt* as the value in the number entry box. If you click in another box, you will see that the *16pt* value converts to *0.22"* for the final spacing value. Click *OK* when you are finished.

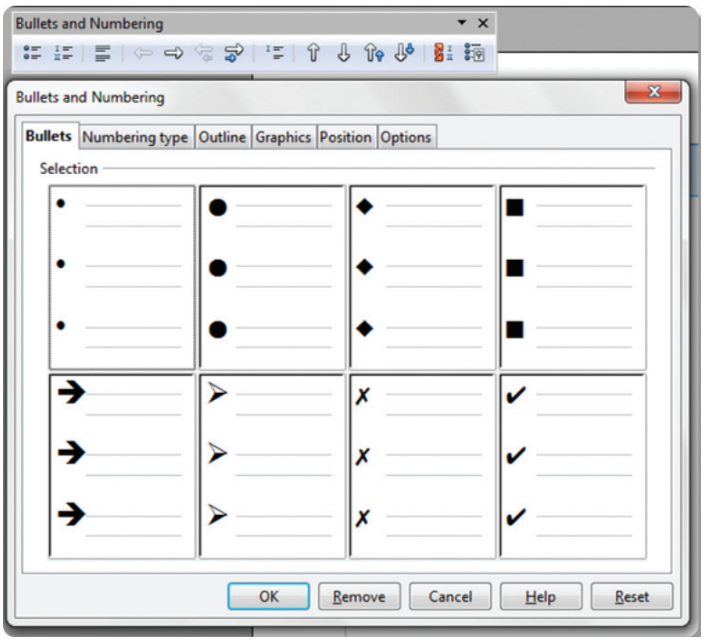
To apply bullet points to the accomplishments you want to highlight in your cover letter, select the text you want to convert to bullet points and then click the *Bullets On/Off* icon on the Format toolbar.

You will also find the icon to highlight text in the Format toolbar; you can use the drop-down arrow beside the icon to select the highlight color.

This will open the context-sensitive Bullets and Numbering toolbar shown at the top of Figure B.3.

To select the bullet style you want to use, click the *Bullets and Numbering* icon at the far right of the toolbar to open the Bullets and Numbering dialog box (also shown in Figure B.3). This toolbar is also used for numbered lists, and you can use the icons on the toolbar to switch between bullets and numbers. From here, you can promote and demote items in the list to create a more complex outline; for the cover letter, you just want a single level of bullets.

When you have finished entering and formatting text for your document, you should use the automated spelling and grammar check within Writer to detect any errors that the system recognizes as common. Again, this is no substitute for having someone else check your document before you submit it to a potential employer. The *Spelling & Grammar* icon used to initiate the scan of your document is located in the Standard toolbar.



▼ FIGURE B.3
Bullets and Numbering toolbar and dialog box in Writer

> Pressing the Enter key inside a list adds a new item to the list at the same outline level. Pressing the Enter key a second time within the blank list item will move to the next layer up (to the left) in the outline; if there are no layers up, it will exit the list formatting and return to the standard text.

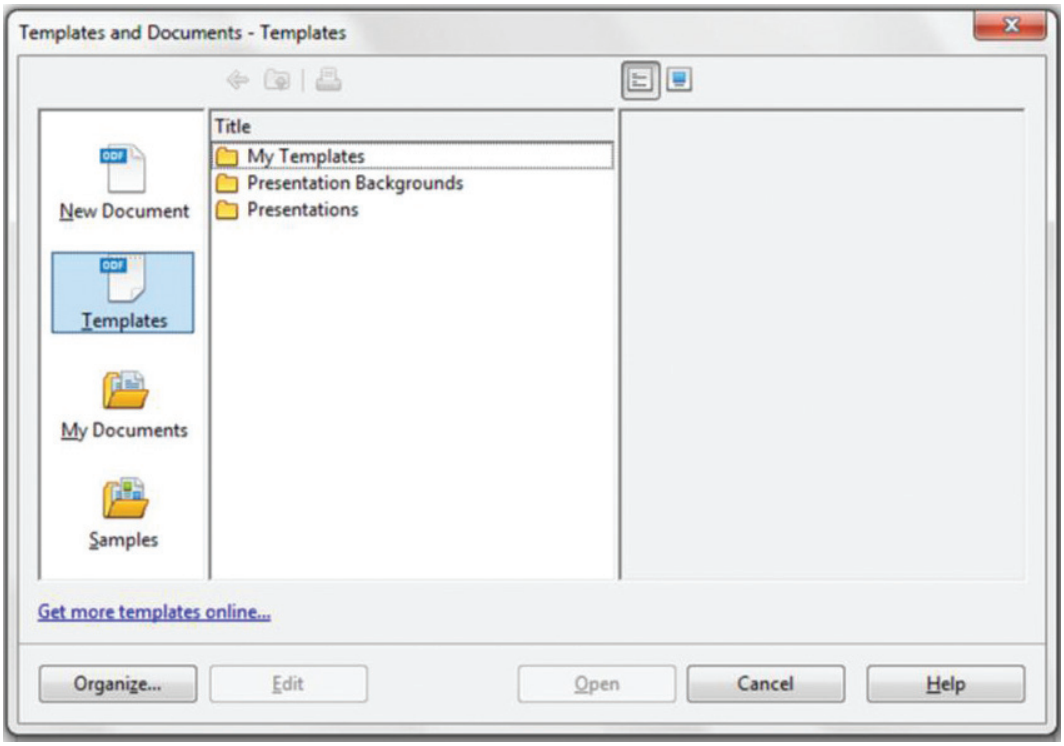
The icon beside it is the *AutoSpellcheck* icon; this is a toggle that turns the automatic corrections on or off. To change any of the AutoCorrect rules in the OpenOffice suite, choose the *Tools* menu and select *AutoCorrect Options*. This will open the AutoCorrect dialog box where you can remove existing rules or add new ones by completing the *Replace* and *With* fields and selecting the *New* button.

You can also use the Thesaurus by highlighting the word you want to replace, choosing the *Tools* menu, selecting *Language*, and then choosing *Thesaurus*. To perform a search on a keyword from the Find toolbar, enter the keyword in the *Find Text* field, press *Enter*, and use the arrows to move through the results in your document. To perform a find and replace operation on the document, click the icon that looks like a pair of binoculars in the Standard toolbar; this will open the Find & Replace dialog box. From here you can set the keyword you want to find and the text with which you want to replace it; you can select the appropriate buttons to find the next instance, replace the current instance, or replace all instances in the current document.

B.1.1.3 *Completing the Resume in Writer*

The next document you will create is a resume; you can review the instructions for creating a resume in Chapter 7. Writer does not come preloaded with a large amount of templates; however, there are a significant number of them available online. To create a document from a template in Writer, select the *File* menu, select *New*, and choose *Templates and Documents*. This will open a dialog box that allows you to navigate to the template you wish to use. The Templates and Documents dialog box is shown in Figure B.4. If you cannot find a template you want, click on the *Get more templates online* link. This will open a new browser window (for whichever browser you have set as the default) and bring up the template browser online. You can search for a resume template using the keyword search; when you find the one you want to use, click the *Use It* icon to open an instance of that document locally. Save your file as *MyResumeTemplate*.

To add a header or footer to your document, select *Header* or *Footer* from the *Insert* menu. *Default* is the only available choice from the pop-up menu on these selections. You can also insert these elements from the Navigator (which you can open from the Standard toolbar). If you choose a header a new document section will be added to your file at the top of the page; this allows you to enter your own text, and the size will expand to fit the contents. You can adjust properties for the header (or the footer) by selecting the *Format* menu and choosing *Page*. You can then select the tab for *Header* to get additional formatting options; the footer works the same way. Review your document just



◀ FIGURE B.4
Templates and Documents dialog box in Writer

as you did with the cover letter; you can use the same formatting tools and commands to add more emphasis to your resume than you had for the cover letter.

The *Format Paintbrush* icon in Writer works just like its counterpart in Word. To apply the formatting, highlight the text with the formatting you want to copy, click the icon, and highlight the text you want to be formatted. When the Format Paintbrush is active, your cursor will look like a paint bucket.

OPEN OFFICE These notes will be used throughout the text to highlight how to perform the same activities described in Office using the OpenOffice equivalent. In this case, you will learn how to apply and manage styles in Writer. The predefined styles are available to apply to selected text from the Formatting toolbar using the *Apply Style* menu. Select the icon to the left of the style selection called *Styles and Formatting* to open the *Styles and Formatting* pane, which lists the available styles; you can also open this pane by pressing the *F11* key.

The *Styles and Formatting* pane is used to apply styles; right-clicking on a style and selecting *Modify* allows you to make adjustments to it. You can also add new styles to the list by using the right-click menu and choosing *New*. The *New Style from Selection* option in the upper-right corner of the pane allows you to create a new style from the formatting of the selected text in the document. The heading options will be used to construct the table of contents for the document just as it is in Word.

B.1.1.4 *Mail Merge in OpenOffice Writer*

There are eight steps in the Mail Merge Wizard for Writer. Begin with the *MyMergeDocument* file open, and then select the *Tools* menu and choose *Mail Merge Wizard*. In the first step, select the current document in order to proceed. You can also use an existing document or a document template to complete the Mail Merge. Press the *Next* button to continue. Notice that you have the option to go back to previous steps before completing the final merge, so you can make changes if you wish.

OPEN OFFICE In Writer, you access the Navigator pane by pressing the *F5* key on the keyboard or by selecting the *View* menu and choosing *Navigator*. The headings of the document will display in the pane just as they do in Word. You can click on any of the headings to jump to that section of the text. To select the deepest level of heading to display, click on the *Heading Levels Shown* icon and choose a numeric value. Using the *Promote Level* and *Demote Level* icons increases or decreases the heading level of the selected item.

OPEN OFFICE In Writer, you can format the page size, orientation, and document margins by selecting the *Format* menu and choosing *Page*; this opens the *Page Style* dialog box from which you should select the *Page* tab to access and change these settings. To activate or deactivate the rulers, click the *View* menu and choose *Ruler* to toggle the setting.

OPEN OFFICE To change the column formatting in Writer, select the text you want to adjust, choose the *Format* menu, and select *Columns*. In the dialog box that opens, select the number of columns you want to apply to the text selection. For the example, use two columns for the first page.

OPEN OFFICE To insert an image in Writer, select the *Insert* menu, choose *Picture*, and then select *From File*. This opens a dialog box from which you can select your image file. You can add a caption to the image either by right-clicking the image and choosing *Caption* or by selecting the image, choosing the *Insert* menu, and then choosing *Caption*. The dialog box that opens lets you adjust the caption properties, including the text. To adjust the text wrap properties, right-click on the image, choose *Wrap*, and select one of the options from the menu that appears.

OPEN OFFICE In Writer, you can apply a watermark as a background graphic. To do this, select the *Format* menu and choose *Page*. In the *Page Style* dialog box that appears, select the *Background* tab and choose *Graphic* as the type (beside the *As* text); you can then browse for the image you want to use. Similarly, the *Border* tab in the *Page Style* dialog box can be used to add and customize the page border. To insert a page break in the text, choose the *Insert* menu, select *Manual Break*, and then choose *Page Break* in the dialog box that opens. You can use a page break on an empty page with a single line to create a blank page in your document.

OPEN OFFICE There is no automatic cover page creation in Writer. You can create a cover page, but you have to format it yourself and arrange the text as you want it to display. You can still use images and borders to establish the same effect as the automatic cover pages in Word.

OPEN OFFICE To insert a table of contents in a Writer document, select the *Insert* menu, choose *Indexes and Tables*, and then choose *Indexes and Tables* on the submenu that appears. This will open the *Insert Index/Table* dialog box. On the *Index/Table* tab, select *Table of Contents* in the Type category. You can use the remaining tabs to establish the format for the inserted text. This process can also be used to add an alphabetical index of key terms or an illustration index based on the captions inserted in the document; you can rename these as needed in the *Title* field. To update the automated tables or indexes, select the *Tools* menu, choose *Update*, and then choose *Update All*.

OPEN OFFICE References and sources in OpenOffice are all maintained in a global Bibliography Database. You can access this from Writer by selecting the *Tools* menu and choosing *Bibliography Database*; this will open in a new window. To add a source, click on the *Insert* menu and choose *Record*. To add a citation to your text, place the cursor in your document where you want the citation and select the *Insert* menu, choose *Indexes and Tables*, and then choose *Bibliography Entry*.

OPEN OFFICE To add a footnote or endnote in Writer, select the location in the text where you want the reference mark to be placed and then choose the *Insert* menu and select *Footnote/Endnote*. This will open a dialog box where you can choose whether you want the entry to be a footnote or endnote and whether you want to continue the automatic numbering or select a unique reference mark from the available symbols.

In the second step, you will choose whether to create email messages or letters. For the example, choose *Letter* and click the *Next* button. Step 3 is to choose the recipient

OPEN OFFICE To add a bibliography to your document in Writer, select the *Insert* menu, choose *Indexes and Tables*, and then choose *Indexes and Tables* again. In the *Insert Index/Table* dialog box that opens, select the *Index/Table* tab and choose *Bibliography* for the Type. You can change the Title to Bibliography or Works Cited as needed. You can also set the bracket type for your citations from this dialog box.

list and format the address block. Click the button to select an address list. In the dialog box that opens, click the *Add* button and select the *MyMergeList* document as your source. Click *OK* to return to the wizard. If you want to include an address block in your document (which you do for this example), keep the checkbox activated. The next step is to click the *Match Fields* button. This will open the dialog box shown in Figure B.5.

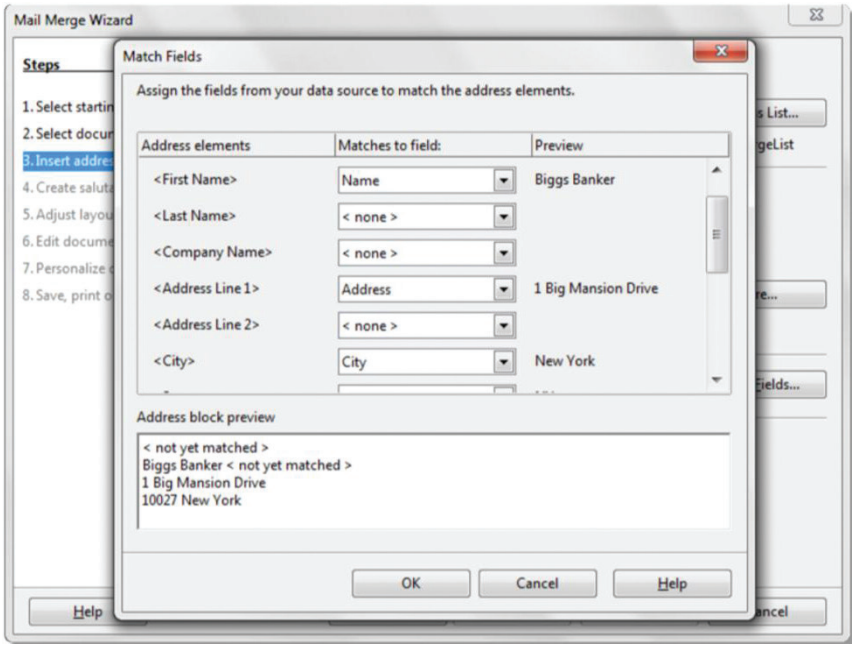
To complete the example Mail Merge, you should equate the following fields: *First Name* in the merge fields should match *Name* in your recipient list, *Address Line 1* should match *Address*, *City* should match *City*, *State* should match *State_or_Country*, and *ZIP* should match *Postal Code*. You can match the values for the phone number and email address as practice, but these are not needed for the example. Click *OK* when you are finished. You cannot proceed to the next step if there are unmatched fields.

To complete the example, you will need to use the *More* button next to the entry for the address block format. In the dialog box that opens, add *First Name*, *Address Line 1*, *City*, *State*, and *ZIP*. You should arrange *First Name* and *Address Line 1* on their own lines and the last three fields in sequence on the third line. When you have finished this, click the *OK* button. You can now select *Next* to proceed to the next step in the wizard.

The next step is to add a salutation. You will once again need to match fields for this to work correctly. You can equate *Last Name* with the *Name* value in your recipient list since you customized your own address block. This would ordinarily be a bad idea, though, as ideally you would open the list in a spreadsheet program and separate the names into First Name and Last Name fields; once you master that type of software later in the text, this would be a worthwhile exercise. When you see the preview panel working correctly for the recipients, select the *Next* button.

The fifth step allows you to adjust the placement of the

▼ FIGURE B.5
Match Fields dialog box in Writer



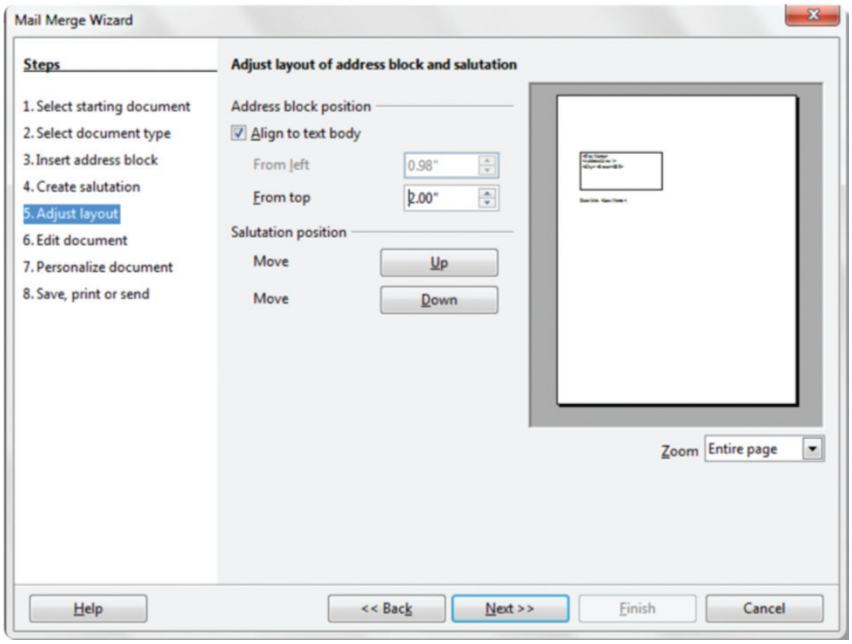


FIGURE B.6
Address block and salutation placement in Writer

address block and the salutation line. This placement is based on your margins, but the salutation line should be directly beneath the address block as shown in Figure B.6. The next step allows you to preview or edit the document. Ideally, you would already have done this, but you can select a record at random and choose *Edit Document*; this will allow you to make any corrections to the document to accommodate the merged fields. When you are ready to return to the wizard to complete the process, select *Return to Mail Merge Wizard* from the floating toolbar that appears.

Step 7 allows you to select and personalize individual documents within the recipient list. You can use the Find functionality to perform a search on your recipients in case you want to add individual customization to a particular letter. The final step in the process, Step 8, allows you to save the original document, save the merged document, send the merged document to the printer, or send the merged document as an email. When you select the print option, you can also select the set of records you want to print (if you want to break up a print job into multiple smaller print jobs). If you choose email as your option, you will need a field that matches the email address of the recipients.

Advanced Features of Writer B.1.1.5

To add a text box to your document in Writer, you need to activate the Drawing toolbar by selecting the *View* menu, choosing *Toolbars*, and then selecting *Drawing*. From this toolbar, you can select the *Text* icon to draw a text box in the document; you will need to apply formatting so it displays the way you want it to. You can add drop caps to your text by selecting the *Format* menu and choosing *Paragraph*. In the dialog box that appears, select the *Drop Caps* tab and adjust the settings as desired.

To add symbols to your Writer document, select the *Insert* menu and choose *Special Character*. Adding special characters

or symbols in your document in Writer can also be accomplished by the use of specific fonts such as Wingdings or Webdings.

In OpenOffice, you can insert a formula into your document using a special program called OpenOffice Math. It is possible to create a new Math document as well as use its functionality within the other applications in the OpenOffice suite. You can add a formula within Writer by selecting the *Insert* menu, choosing *Object*, and then choosing *Formula*. A floating *Elements* toolbar lets you select the pieces to form your formula or equation, and a separate pane in the bottom of the interface will display the formula as you are editing it. Each selection in the top part of the Elements toolbar opens a subset at the bottom of the toolbar from which you can choose the formatting you want to use.

In Writer, you add a table to your document by selecting the *Insert* menu and choosing *Table*. From here you can enter the number of rows and columns you want to include. You can also select the *AutoFormat* button to select from a predefined set of table layouts and color schemes similar to the formatting options available in Microsoft Word.

The Drawing toolbar in Writer is where you will find the various shapes that you can insert into your document. To activate the Drawing toolbar, select the *View* menu, choose *Toolbars*, and then select *Drawing*. The toolbar is arranged into categories of shapes, and you can select any one of them to open a submenu of shape options.

You can display the nonprinting characters in Writer by selecting the icon that looks like a paragraph mark in the Standard toolbar called *Nonprinting Characters*. This icon acts as a toggle that will alternately display or hide the hidden characters in the document.

With the original document open in Writer, you perform a document comparison by selecting the *Edit* menu and choosing *Compare Document*. This will open a dialog box in which you can select the alternate version of the document. The result will be tracked changes of both versions of the document. In Writer, the changes must be accepted or rejected from the list interface that appears when the comparison is complete. The formatting in the document indicating the changes is similar to what is available in Word.

OpenOffice Impress

B.1.2

OpenOffice has its own presentation software, called Impress. The interface for Impress looks quite different from the new versions of Microsoft Office PowerPoint. If you have experience with older versions of PowerPoint, Impress is vaguely reminiscent of the Office 97 version.

When you open up Impress, the Presentation Wizard appears. For this

Microsoft has delivered a great pedigree of presentation software with PowerPoint. The OpenOffice version, Impress, will serve as an effective alternative, but it does not have the amount of features included in its commercial counterpart. PowerPoint lets you deliver a polished and professional presentation relatively quickly, but Impress will likely require you to work much harder at achieving the results you need.

example, select *Empty presentation*. Now the wizard will prompt you to select a slide design from the list of options. A preview of what this will look like displays in the panel on the right side. Finally, the wizard will ask you to select a slide transition for each slide. You can alter each of these properties later, so just select *No Effect* for now. Now you are ready to click *Create*. The steps of this process are shown in Figure B.7.

B.1.2.1 Anatomy of OpenOffice Impress

The interface for Impress can be seen in Figure B.8. The main menu across the top has most of the tools you will need. The toolbar beneath it has the common functions to create your presentation, and a context-sensitive toolbar beneath that will change depending on the element you have selected. The left pane of the main window has the slide preview and organization information, just like PowerPoint. The middle pane is a display of the current slide that you can edit. The right pane contains a lot of functionality that PowerPoint places in the ribbon interface across the top. This is where you can access the Slide Master pages, change your layouts, and set your slide transitions.

To create a new Impress document, select the *File* menu in OpenOffice and select *New* and then *Presentation*. Whenever you create a new document in Impress, the Presentation Wizard is launched. You can skip the steps of the wizard by clicking the *Create* button at any time. This will bring you to the *Normal* view for your presentation.

Your first step should always be to save your file. You can do this by selecting the *File* menu and then choosing *Save* or *Save As* or by clicking the icon that looks like a floppy disk. This will open the *Save As* dialog box. The native format for Impress documents is ODF Presentation (.odp). You will notice that Impress can save documents in the Microsoft Office PowerPoint format, but only the 97 version; you can still open these documents

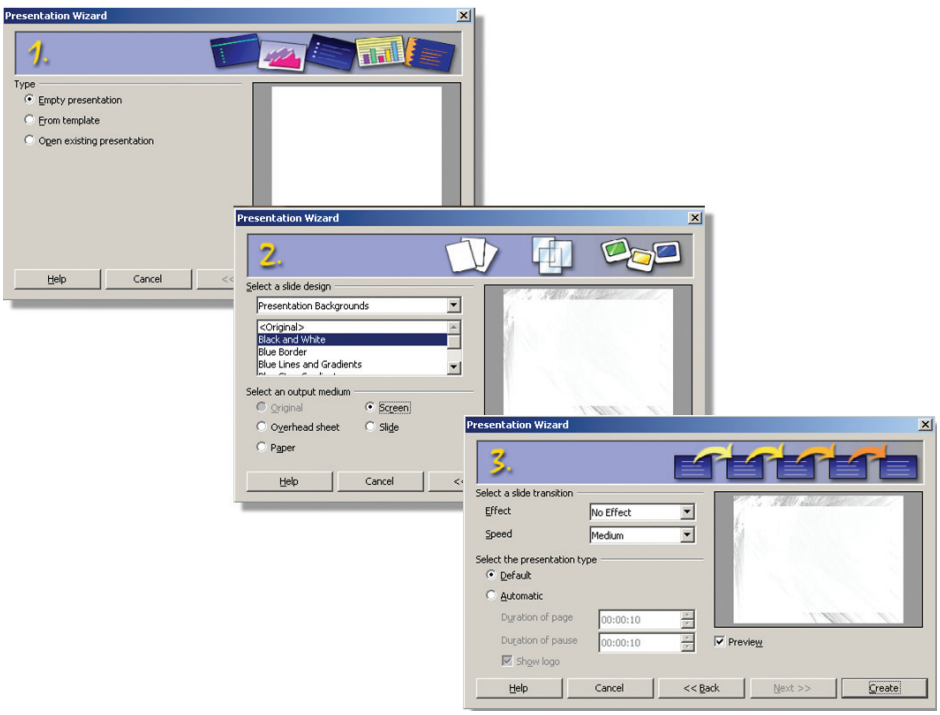
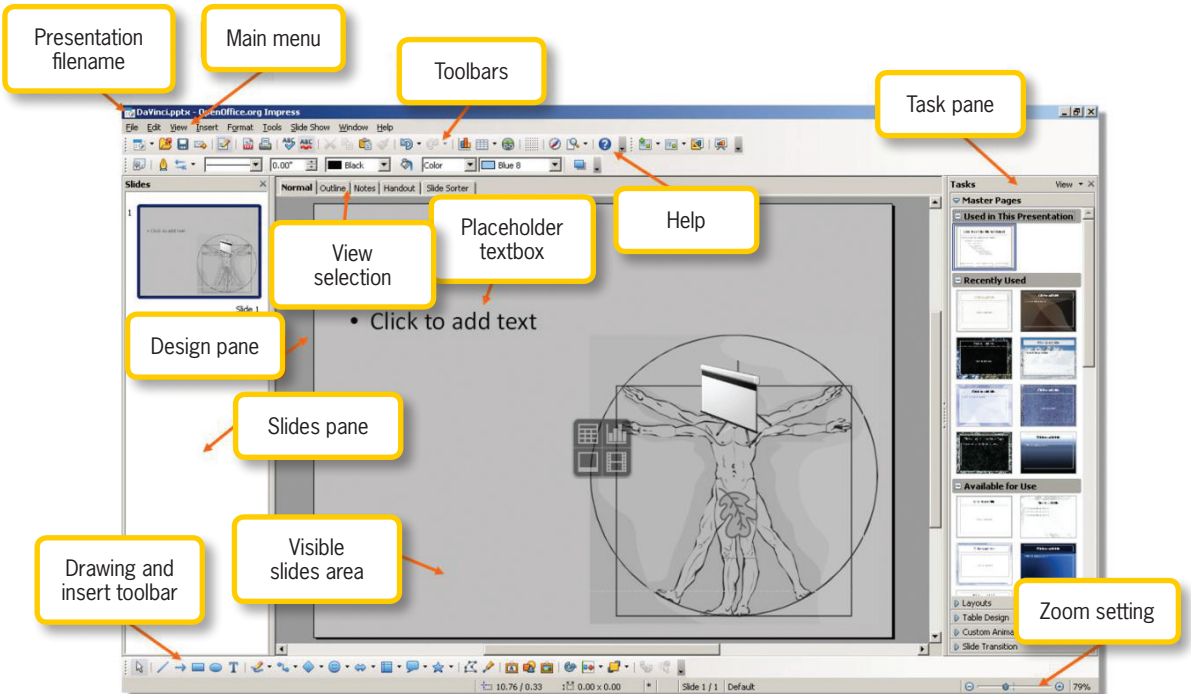


FIGURE B.7
Presentation Wizard steps in OpenOffice Impress

➤ **FIGURE B.8**
Anatomy of Impress



in PowerPoint 2010/2011 without any difficulty. Name your presentation *MyImpress* and save it using the default format of *ODF Presentation*.

You can insert new slides in Impress by right-clicking in the *Slides* pane and selecting *New Slide*. You can also insert new slides from the *Slide* icon in the main toolbar at the top. The drop-down list that appears allows you to select the specific layout you want for your new slide. Add a few slides to get started.

Now click on the *Master Pages* tab on the right pane. This is where you will select and apply the style you want for your presentation. Select one of the options that you like and click on your selection. This will update all of the slides in your presentation with the new layout and style of the Master Slide that you have selected.

Press the *F5* key to enter Slide Show view or select the *View* menu and then choose *Slide Show*. From here, you can move your presentation forward using the spacebar or right arrow key and move your presentation backward using the left arrow key. You can exit *Slide Show* view by pressing the *Escape* key.

Completing the Projects in Impress

B.1.2.2

The placeholder text boxes in Impress work just like they do in PowerPoint. To create your first slide, enter your name in the slide title placeholder. You can change the font using the context-sensitive font toolbar that appears beneath the main toolbar whenever you click on a text box. Add a shadow and change your font to something impressive. Click on the remaining placeholder and delete it by clicking on the *Delete* key since you will not be adding a subtitle.

Use your mouse to move the text box containing your name lower in the page

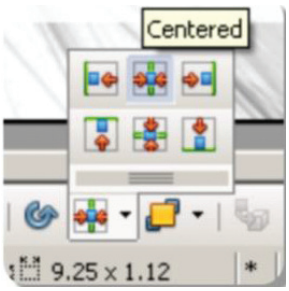


FIGURE B.9
Alignment menu in Impress

and use the *Alignment* icon on the toolbar at the bottom of the interface to align the text box to the horizontal center of the slide. You can see the *Alignment* icon menu in Figure B.9; this menu has only icons to represent the different alignment options you have, but these are supplemented by tooltips that appear when you place your mouse over them.

The shapes for drawing are all located along the toolbar at the bottom of the interface. Select a star shape you like and insert it into your slide; you can do this by selecting the shape menu for the star and picking a specific star you like. Unlike PowerPoint, you cannot just click to stamp shapes; instead, you must click and drag to set the size of your shape in the slide.

Use the context-sensitive drawing toolbar to set your fill and line color. You can also add a shadow effect. Most of the fine-tuning for a drawing object in Impress is done via the *Graphic Styles* dialog box. You access this by right-clicking on the drawing object and selecting *Edit Style*. Here you can select and edit the properties for your shape's line, fill, shadow, transparency, and text effects for any text entered into the shape. Add transparency to the shadow of the star (50% should be a good setting) and use a gradient fill to make it stand out against the background.

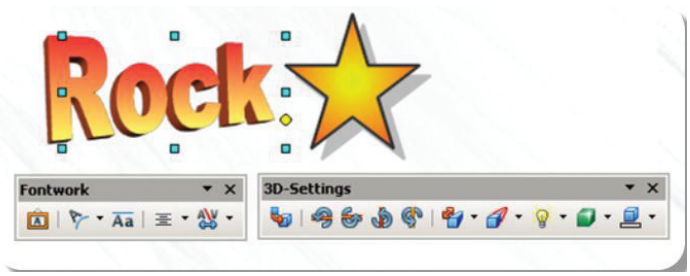
The Fontwork Gallery is the Impress equivalent of WordArt. Select the *Fontwork Gallery* icon on the toolbar at the bottom of the interface and you will be prompted to select a style for your Fontwork. This will stamp a placeholder for the Fontwork in your slide, as shown in Figure B.10. You can then double-click the placeholder and enter the text you want. Type *Rock* in the text box and click outside of the text box. You can edit your text later by double-clicking inside the object. Clicking on the Fontwork object opens a pop-up toolbar specific to Fontwork settings and another toolbar that lets you alter the 3D properties of the Fontwork display. You can also set the gradient and line for the Fontwork object using the text formatting toolbar that appears.

Hold the *Shift* key and select both the Fontwork object and the star. Group these objects together by right-clicking on them while they are selected and choosing *Group* from the menu. You can now use the alignment tool from the bottom toolbar to align this group to the horizontal center of the slide.

Note that you cannot add placeholder text boxes to a group, just as in PowerPoint.

Add a new slide to your presentation by either right-clicking in the slide panel on the left side and choosing *New Slide* or by

FIGURE B.10
Fontwork example in Impress

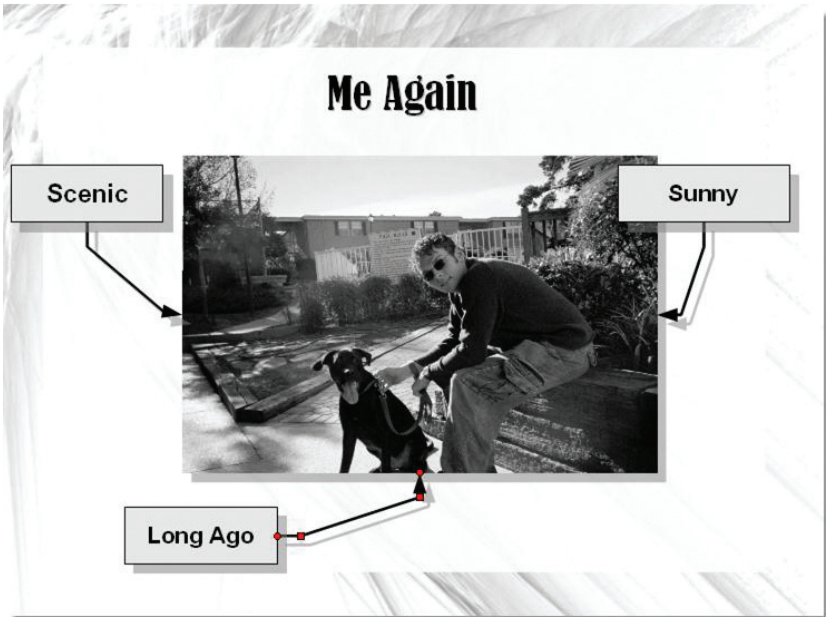


clicking the *Slide* icon in the main toolbar across the top. You are going to add your picture to this slide, so type a suitable caption for the image in the slide title placeholder. Make sure you format your text to match the formatting for your name on the title slide. Consistency is essential for a successful presentation.

Select the *From File* icon on the toolbar at the bottom of the screen. This will open a dialog box for you to select an image that is stored on your computer. Once you have selected an image, it should display in the middle of your slide. The context-sensitive picture editing toolbar will also appear. You can apply a number of effects and filters to your image using this toolbar. Set your image to *Grayscale* using the drop-down menu. You can also crop your image using the Crop tool the same way you would in PowerPoint.

Insert three rectangles using the toolbar across the bottom and click and drag in the slide to define the shape. If you want to draw one rectangle and copy and paste it for the other two, the command is the same as in any other program on a PC: *Ctrl-C* copies the object and *Ctrl-V* pastes the copy. (The Macintosh equivalent of these simply substitutes the Command (or Apple) key for the Control (Ctrl) key.) In Impress, pasting an object places it directly over the original item, so you have to click and drag the copy away to access the original. You can select all of the rectangles and format them at the same time using the drawing object toolbar or you can format each of them separately.

You can type directly into these rectangles by simply clicking on the shape and typing with the keyboard. Add one adjective to each rectangle. You are now going to use the linking objects to add arrows from the rectangles to your picture. Selecting the *Connector* icon from the toolbar at the bottom of the interface and choose which connector you want. These connectors are not as flexible as those in PowerPoint, so you cannot use them to point inside of an object; they will either point to empty space around the slide or they will link directly to one of the connection points of an object. The adjectives you add should therefore describe the picture in general. Format the connectors using the standard line properties. The result is shown in Figure B.11.



▼ FIGURE B.11
Completed example with connectors in Impress

Add your next slide. This is going to be either a slide listing your hobbies or one listing things you like to eat. Format the title for this slide to match the rest of your presentation. The text entry process in Impress is similar to PowerPoint: You simply click inside the text box to type. The context-sensitive outlining toolbar lets you change the indentation of items and move them up and down in the list by clicking on the arrow icons. You can also change the bullet style using the *Bullets and Numbering* dialog box.

Impress does not offer a clip art library, so if you want any extra images to spice up your presentation, you will have to pick from what is already on your computer or get them from *Office.com*. Impress accepts the clip art file type, so you can use the *Office.com* copy feature and paste images directly in your slide. Visit *Office.com* and select a piece of clip art that works with your list.

Add a new slide with the title *This Is Me Working*; this is where you will add a screenshot to your presentation. There is no icon or shortcut for placing a screenshot into Impress. You will have to take the screenshot manually; this process is described in Chapter 10. You can either insert this screenshot as an image or paste it into your Impress document on the current slide. You can crop your screenshot just like any other image.

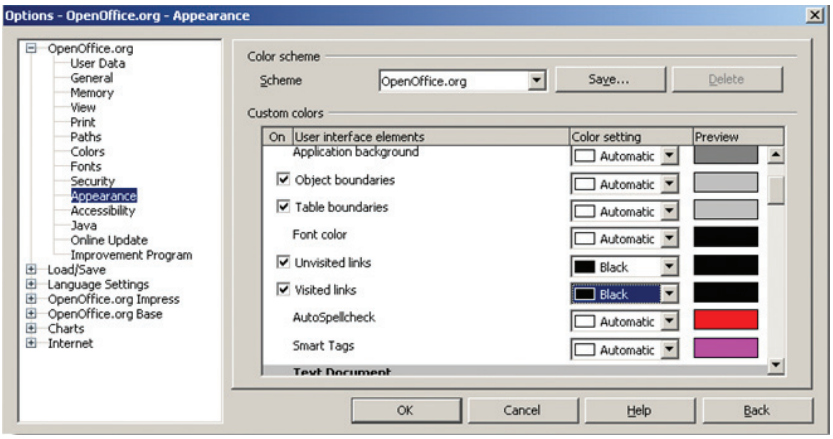
Remember that if your slides get out of order or you want to rearrange them, you can do so by clicking and dragging the slide you want to move in the left-hand *Slides* pane. You can also click on the *Slide Sorter* tab across the top of the design pane to see thumbnails of each of your slides that you can click and drag to move as needed. Just click the *Normal* tab when you are finished to get back to your design view.

Holding down the *Control* (Ctrl) key while cropping in Impress helps you get a more precise result.

The last slide of your presentation will be the contact slide. If you type a Website address or email address, Impress will automatically convert it to a hyperlink. You can also add a hyperlink manually by selecting the *Hyperlink* icon in the main toolbar. This will open a dialog box allowing you to enter the destination to which you want to link and the text you want to display.

To change the color of your hyperlink from the default blue, you have to set it as a global setting for your document. To do this, click on the *Tools* menu and select *Options* to open the *Options* dialog box. Select *OpenOffice*, then *Appearance*. You should now see a list of default colors used in your document. Change the color of both the *Unvisited Links* and *Visited Links* to format your hyperlink color correctly. These are found in the *Appearance* category of the menu that appears as shown in Figure B.12.

Add clip art to enhance your contact slide at the end of your presentation. Now you just need to polish your presentation by adding transitions. You can add these by selecting the *Slide Transition* tab on the right-hand pane of the interface. Whenever you select an option in this menu, you are applying it only to the currently selected slide. You can also click the *Apply to All*



▲ **FIGURE B.12**
Appearance dialog box in Impress

Slides button to make the transition part of every slide you have. Select *Fade Smoothly* from the choices and apply it to all of the slides.

Now go back to the title slide to add a sound effect to your transition. Remember that sounds can be irritating to an audience, so they should be used with caution. Select *applause* from the *Sound* menu under *Apply Transition* in the *Slide Transition* panel. Save your work (as you should do often), and press *F5* to play your presentation. Listen to that applause; you've earned it!

B.1.2.3 Advanced Features of Impress

If you are using OpenOffice Impress, you can edit the slide master by opening the *Master Pages* tab in the pane on the right side of the interface, right-clicking on the slide master you wish to use, and selecting *Edit Master*. This will open a small toolbar for use with the instance of the slide master that you have opened. You cannot change the theme of this slide master once you have selected it, and there are no one-click options for fonts and colors. You have the option to rename the master that you have changed for later use by using the *Rename Master* icon in the toolbar. When you are finished editing this slide master instance, click *Close Master View* to return to the *Normal* view for your presentation. If you later wish to change the theme for your presentation, you can select *Master Pages* and choose a new layout and theme by clicking on one of the slide masters, but any changes you made to the previous slide master will not carry over to the new slide master.

In Impress, you can access the options for bullets and numbering by right-clicking on the text box and selecting *Numbering/Bullets*. This opens a dialog box where you can edit the style for the current level that is selected. You can also use the *Customize* tab in the dialog box to alter each layer of the outline from a single screen, including the bullet size, character, and color.

When using Impress, you can edit the footer text on the slide master just as you would in PowerPoint. To activate any of the footer options for your slide show, select the *View* menu and then *Headers and Footers*. In this dialog box, you can enable or disable all of the options that you can use in PowerPoint, including omitting the footer from the first/title slide.

OpenOffice Impress offers you the ability to print multiple types of handouts just as you can in PowerPoint. In Impress, this is done by selecting the appropriate setting for the *Document* entry on the Print dialog box; your options are Slides, Handouts, Notes,

or just an Outline containing the slide text. You can select how many slides you want to appear per page as well. The *OpenOffice Impress* tab contains additional options such as the inclusion of hidden slides and the ability to set the color output, and the *Page Layout* tab is where you can customize the slide order.

In Impress, the *Handout* tab works almost exactly like the Handout Master. You have four text boxes with predefined information that you can edit, move, or delete. You can select a layout with different slide arrangements in the *Task* pane on the right-hand side of the interface under the *Layouts* tab. To exit the handout master in Impress, select the *Normal* tab in the main design pane.

In Impress, the *Notes* tab across the main design pane serves as the *Notes* pane and the Notes Master found in PowerPoint. This tab allows you to apply text formatting and effects directly to the notes section of each individual slide. You can return to the design view of your slides by clicking the *Normal* tab.

Impress has the ability to import audio and video just like PowerPoint. To add a video or audio element to an Impress presentation, click the *Insert* menu and then choose the *Movie and Sound* icon. The tools for editing these files are more limited than they are in PowerPoint. You can preview the file, set it to repeat, and adjust the volume setting for the sound of the file using the Movie and Sound toolbar that appears, but any file trimming needs to be done externally before the media file is added to the presentation.

Impress has the same quick link functionality for adding tables that is available in PowerPoint from any of the content placeholder text boxes. You must select the number of rows and columns for the table and it will be inserted to fill the placeholder. You can also insert a table by using the *Insert* menu and selecting *Table*. The context-sensitive Table toolbar will appear whenever you click on a table; you can use this to format the settings of your table just as you can with the ribbon interface in PowerPoint. The color and border settings will apply only to the selected cells. You can add or delete rows or columns from this toolbar as well as merge and split cells.

There is a single icon in the toolbar to add a chart to a slide in Impress. When you have added the default chart, you can edit the chart data by right-clicking the chart and selecting *Chart Data Table*; you can also select this icon from the context-sensitive Chart toolbar. A small window will open with the chart data displayed. You can rename and format the values in the spreadsheet here. When you close window, you can use the Chart toolbar to format the elements of the chart using the drop-down list of items and the available formatting commands. Click the *Chart Type* icon to open a dialog box that allows you to select the type of chart you want to include.

Impress does not have an equivalent for SmartArt. You can create the effect of a SmartArt graphic, though, by using drawing objects with text. SmartArt is really just a

convenience tool to allow you to create these graphics quickly from text entry rather than designing them from a blank slide.

In Impress, the animations are all controlled by the *Custom Animation* tab in the *Tasks* pane on the right side of the interface. To add an animation, just click on the object or group and select the *Add* button. This gives you a choice of effects similar to those offered in PowerPoint, including Entrance, Emphasis, Exit, and Motion effects. You can alter the settings for Start, Direction, and Speed once you have added the effect. All of the animations for the slide are added to the text area beneath the settings options. You can click any of these to change the settings or use the arrow icons beneath the list to move them up or down in the order of display. The *Play* button will preview the animation, and the *Slide Show* button will display the current slide in Slide Show view to preview the animation as it will appear during a presentation.

You can edit the slide size in Impress by selecting the *Format* menu and then choosing *Page*. On the *Page* tab of the *Page Setup* dialog box, you can set the height and width values for your slide, as well as the page orientation.

Impress does not allow you to define a custom layout, but you can define a custom slide master with your own layout variation. You can apply the slide master by selecting the slide you want to change and clicking the slide master icon you want to use in the *Master Pages* tab of the *Tasks* pane.

The *Hide Slide* option in Impress is located in the *Slide Show* menu. You can make a hidden slide visible again by selecting *Show Slide* in the *Slide Show* menu.

Impress offers more export options for images than PowerPoint. These include Encapsulated PostScript (EPS) and Scalable Vector Graphics (SVG) formats, which are used in the professional text editor TeX. Impress also has a native PDF writer that converts a document to the compressed and sharable Adobe Portable Document Format (PDF). These options are available in the Export dialog box, which is accessed by choosing the *File* menu and then selecting *Export*.

OpenOffice Calc

B.1.3

The OpenOffice alternative to Excel is a program called Calc. As with the other OpenOffice programs, Calc is part of the larger OpenOffice program and does not act as a standalone application. You can create a Calc document from the *File* menu of any of the OpenOffice programs in the suite. The native document type for Calc is ODF Spreadsheet (.ods). The interface of Calc should be familiar if you have been using the other OpenOffice programs. The primary difference is in the document pane where the information is organized into rows and columns that intersect in cells. Each tab in the document pane represents a single spreadsheet in the overall workbook.

Anatomy of OpenOffice Calc

B.1.3.1

The interface for Calc, shown in Figure B.13, is similar to the interface for Writer. By default you will see the *Formatting* toolbar and the *Find* toolbar

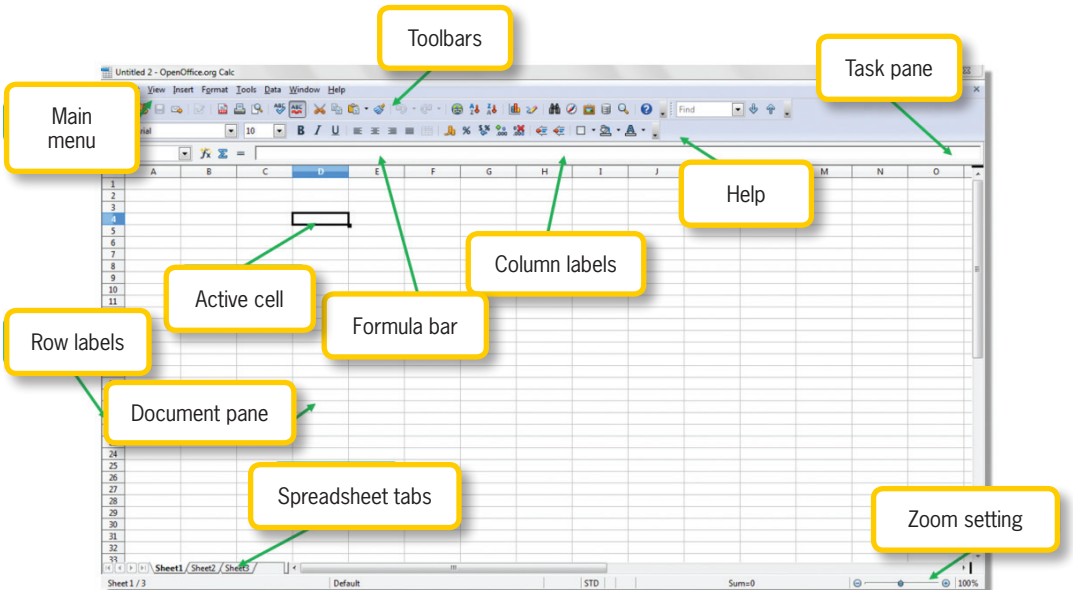


FIGURE B.13
Anatomy of Calc

beneath the menu selection area. Several of the menu options for Calc are different from the standard menus in the rest of the OpenOffice suite. Calc has a new set of formatting options for numeric data values in the *Format* menu and a new *Data* menu; these two menus will be used for the majority of your cell and data-specific commands. The *File* menu contains the same standard functionality common to most applications. The new Formatting toolbar for Calc has several number formatting commands and an icon menu for adding cell borders.

The biggest departure from any of the other OpenOffice applications you have encountered so far is the arrangement of the main document pane. The document pane is divided into columns (denoted by letter) and rows (denoted by number). The intersection of these rows and columns is called a cell, and these cells are where you enter data. The highlighted cell is called the active cell, and the respective row and column header will also be highlighted. The bottom of the interface contains tabs for the individual spreadsheets used within the overall document. You can use the arrows in the lower-right corner to switch between spreadsheets or click directly on the tabs. You can add, delete, and rename the tabs using the right-click menu. The bottom of the interface also contains an automatic sum calculation for the currently selected cells and a slide bar for the zoom settings.

Inside the actual spreadsheet, you can navigate through the various cells using the directional arrow keys on the keyboard. Holding the Shift key along with a directional arrow allows you to select multiple cells, whether you are using the directional arrows or the mouse. You can also highlight an entire column or row by clicking the header for it; this allows you to format or change data for an entire row or column at the same time.

B.1.3.2 *Creating a Budget in Calc*

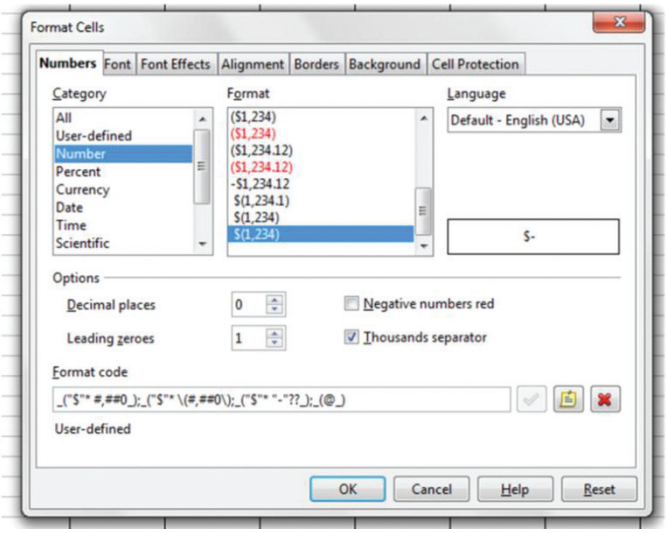
To use Calc to create the budget document described in Chapter 13, begin by entering your row headings into column A. You will be using the same information and configuration described for Excel, but the tools are not necessarily located in the same place. When you have finished, though, there should be no difference between your resulting budget document and the one created using Excel. You should also add your desired savings percentage beneath the Savings category heading; the Percent (%) number format you need to apply to this cell is available as a shortcut icon on the Formatting toolbar. As you enter text or values into your cells, you can adjust the column width or row height by clicking and dragging the separator line between the column or row headings; you can also manually enter values for the column width or row height by selecting the *Format* menu and choosing either *Column* and *Width* or *Row* and *Height*, respectively.

You can use the Formatting toolbar in Calc to bold the category headings and the "Income" label. Add your budget values in column B. Cell *B3* should contain the text "Budget Amount." Enter your values up to the Savings category, including your projected monthly income. Leave the cells next to the category headings blank because you will use a formula to calculate these sums. Select all of the values from cell B4 down to the cell beside the "Net Income" label; apply currency formatting and then remove the decimal places.

Calc has no direct equivalent to the Accounting format in Excel. However, you can apply your own unique formatting code to recreate the style using the *Format Cells* dialog box. The code for this style (which you can also see in Figure B.14) is as follows: *_("$"* #,##0_);_("$"* \(#,##0\);_("$"* "-"??_);_(@_)*

You can customize the format for cells that contain formulas or numbers by using the right-click menu on the selected cell or cells and choosing *Format Cells* (or by selecting the *Format* menu and choosing *Cells*). The *Format Cells* dialog box can be seen in Figure B.14. The different tabs in this dialog box allow you to set the background fill and borders of the cells.

Calc can predict simple series entries the same way as Excel, so you can use it to automatically fill in the months of the year; to do this, type *January* in cell *C3* and *February* in cell *D3*, select both, and drag



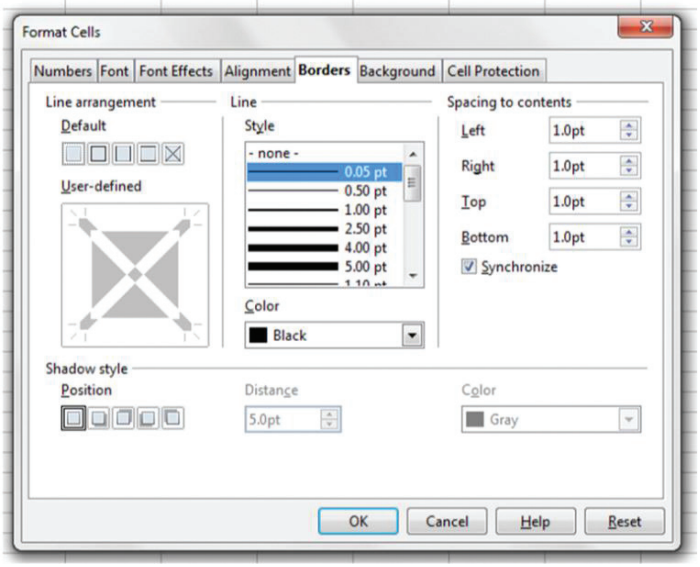
▼ FIGURE B.14 Format Cells dialog box in Calc

the grip point on the lower-right corner of cell D3 to the right to complete the series all the way through *December* in row 3. You can also access the series prediction parameters by highlighting the cells you want to use to predict the series and the cells you want to fill, clicking on the *Edit* menu, selecting *Fill*, and then selecting *Series*. Finally, add the heading *Annual Amount* to cell *O3*.

Use the *Format Cells* dialog box to add a background color (such as the pale green used in the example) to the column headings from cells *B3* to *O3*; this option is accessible on the *Background* tab of the dialog box. You can also use this tool to format the text alignment within the cells by selecting the desired alignment style for *Horizontal* and *Vertical* in the *Alignment* tab of the *Format Cells* dialog box. The *Alignment* tab also contains the *Wrap text automatically* checkbox for whether you want your text to wrap to multiple lines. Select all of the cells from cell B3 to the cell at the intersection of column O and the row containing the "Net Income" label for your budget. Activate the *Format Cells* dialog box and select the *Borders* tab; apply a thin border to the left, right, and center of the cells, as shown in Figure B.15. You can do this by clicking on the diagram at the left until the border you wish to apply is shown; you can adjust the parameters for the border you have selected (it should be surrounded by the dotted line) on the right. In this example, you will just apply a thin, single line.

Repeat these steps to apply a bottom border to the row of cells containing the values for the savings percentage each month. Finally, apply a double-line bottom border to the row of cells containing the values labeled "Net Income." You can freeze cells in Calc to preserve your column and row headings as you scroll your spreadsheet. To do this, select the first cell you want to scroll (in the example, it is cell *C4*), select the *Window* menu, and choose *Freeze*.

Formula entry works the same way in Calc as it does in Excel, so you can follow the instructions for entering the correct formulas in Chapter 13. The instructions for filling cells from Chapter 13 also apply in Calc; to fill adjacent cells in Calc, select the cells you want to copy and the cells you want to fill, click the *Edit* menu, choose *Fill*, and then select the direction you want to fill. You can also fill cells using the grip point of the last selected cell to copy its contents (or the series if multiple cells are selected) in the direction you drag. The navigation shortcuts for Excel also function in Calc. As a final step for this portion of the project, rename your first spreadsheet tab (which



▼ FIGURE B.15
Borders tab of Format Cells dialog box in Calc

contains your budget data) by right-clicking the tab name, selecting *Rename Sheet*, and giving it the name *Monthly Budget*; you should also delete the third spreadsheet tab (which should be labeled *Sheet 3*) by right-clicking on the tab.

B.1.3.3 Adding Charts in Calc

You should now rename your budget sheet as *MyBudgetChart* and add sample values for the expenses and income for the year. The *Chart* icon in the Standard toolbar will launch the Chart Wizard, which is the primary means of constructing a chart in OpenOffice. To create the chart of income versus total expenses, select the row containing the Income values from column A to the column representing the value for December and then click the *Chart* icon. The first step in the wizard that appears is to select the type of chart you want to use. In this case, select *Line* and then choose *Lines Only*, as shown in Figure B.16.

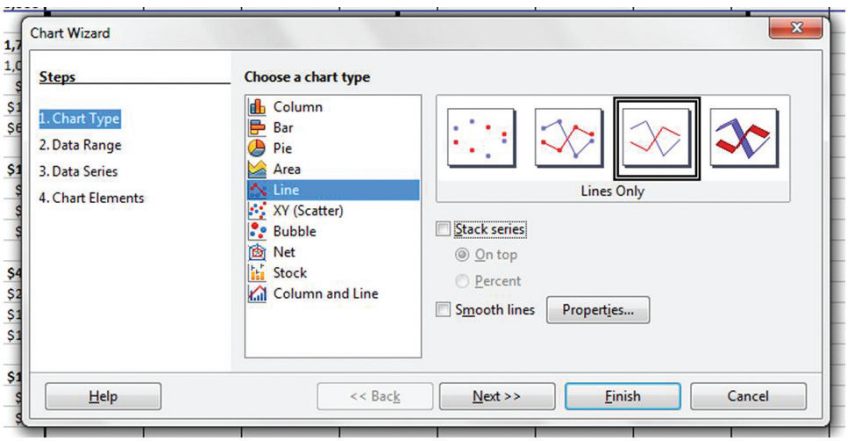
The next step is to choose the data range. This should already be correct if you have highlighted the relevant cells for income. Check the box next to *First column as label* to use the label in column A as the series title in the chart, as shown in Figure B.17.

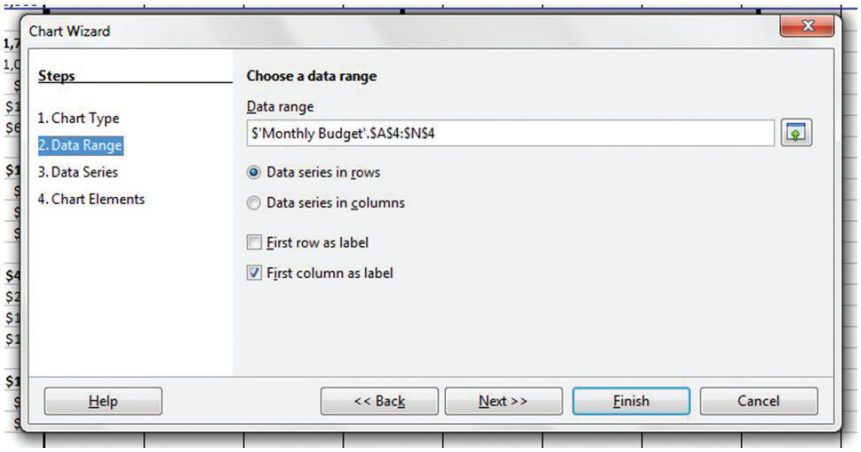
The next step is to modify the series information and the category labels for the chart. The categories here will be months, so use the *Select Data Range* icon to choose January through December in your spreadsheet (this will hide the original dialog box and show only the cell reference and the spreadsheet data until you hit the *Enter* key to accept the values you have chosen). Next, you should choose *Modify* for the *Y-Values* for the *Income* series to remove the reference to the budget amount in column B from the actual data. Finally, select *Add* to add a second series to the chart; this time you will select the cell containing the label *Total Expenses* as the Name value and select the entries for January through December as the Y-Values for the series. The completed example is shown in Figure B.18.

As a final step in the wizard, add your chart title and axis labels. You should display the grid for the Y-axis. The completed example for the final step of the Chart Wizard is shown in Figure B.19. When you click *Finish*, the chart will be pasted into your current spreadsheet.

Click on the chart elements (such as the legend or one of the axes) to access a special formatting toolbar just for chart elements; this will allow you to change the format of the font, the appearance of the lines, and the tick marks for the axes. Click on the chart, cut it from the current spreadsheet, and move it to the

▼ FIGURE B.16
Chart Wizard Step 1 in Calc



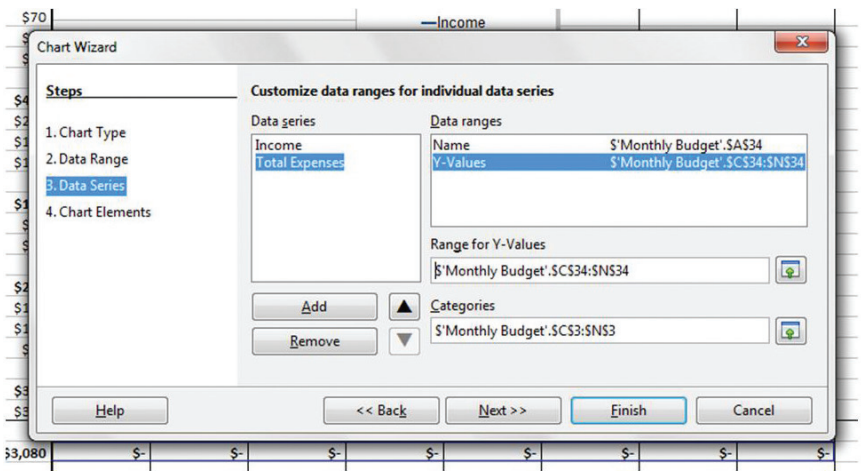


◀ **FIGURE B.17**
Chart Wizard Step 2 in Calc

Advanced Features of Calc B.1.3.4

To merge cells in Calc, select the cells you want to combine, click the *Format* menu, and select *Merge Cells*. This acts as a toggle on the menu, so you can undo the merge for cells by selecting them and unchecking *Merge Cells*.

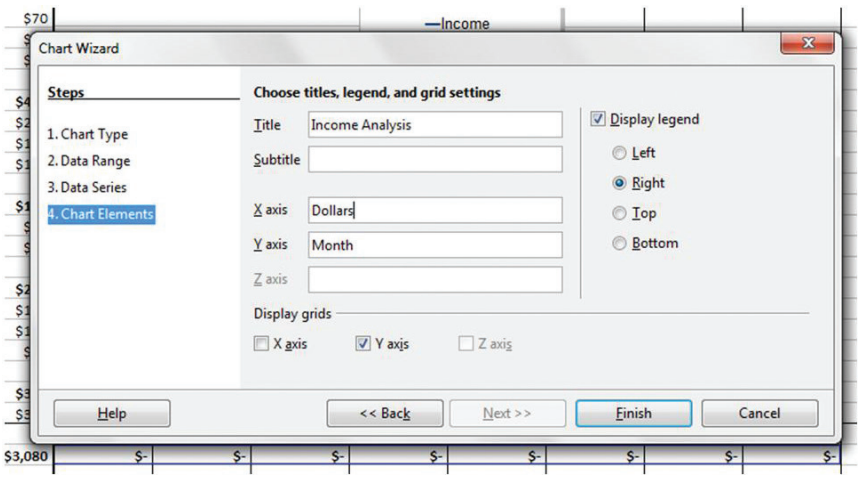
Adding rows or columns in Calc works just as it does in Excel. You click on a column or row label, use either the right-click menu or the *Insert* menu, and select the option to insert columns or rows as needed. New rows are added above the current location, and new columns are added to the left. You can also select the column or row labels and use the right-click menu to delete the cells, or select the cells you want to remove, click the *Edit* menu, and choose *Delete Cells*; in either case, you will be prompted



▲ **FIGURE B.18**
Chart Wizard Step 3 in Calc

▼ **FIGURE B.19**
Chart Wizard Step 4 in Calc

sheet currently labeled "Sheet 2." Rename the spreadsheet *Budget Chart* to complete the project.



to resolve the deletion just as you would be in Excel.

You can hide columns or rows in Calc by selecting the label of the columns or rows, activating the right-click menu, and choosing *Hide*. To display the contents of hidden rows or columns again, select the neighboring rows or columns, right-click, and select *Show*.

Absolute referencing in Calc uses a period (.) instead of an exclamation point after the name of the spreadsheet for a reference across sheets in a document. The example then becomes =*'Supply List'.A4*.

You can alter how data is pasted into your document in Calc by right-clicking where you want to paste the content and choosing the *Paste Special* option. The available choices will be displayed in a list from which you can select.

To remove duplicate values in Calc, you can apply a *Standard Filter* (from the *Filter* selection under the *Data* menu) and set the criteria to always be true (such as *Column A = -not empty-*), then click the *More* icon, and select the checkbox next to *No duplication*. This will remove the duplicate values from the display, but they will be hidden and not fully deleted. To fully remove the duplicates, copy the visible cells to a new worksheet or somewhere else in the existing worksheet and delete the original list.

To apply a filter in Calc, select the range to which you want the filter applied, open the *Data* menu, choose *Filter*, and then choose *AutoFilter*. This allows you to define the filter criteria in each column or select specific values from the drop-down menu. To apply an alphanumeric sort, select from the lower-right corner of your data to the upper-left corner and then click the *Sort Ascending* icon. The cell that is active will be used as the column to sort. Sorting will remove the existing filter, so you may need to apply the filter again.

You can convert a single column of text to multiple columns in Calc by selecting the column you want to convert and choosing the *Data* menu and *Text to Columns*. You will be prompted to enter the delimiters for separating the columns. For this example, select *Space*. A preview will display at the bottom of the dialog box.

In Calc, you can format a group of cells as a table using the *AutoFormat* command in the *Format* menu with the cells selected. Choose the option from the list to format the cells as you desire. You can manually adjust any formatting after this is applied. The selection *Black 1* is the closest to the example formatting used in Excel.

In Calc, you can define your own cell styles by using the *Styles and Formatting* selection under the *Format* menu. There are a few predefined styles that will alter the text display and the cell size, but you will need to create your own for some of the more advanced options such as background and text color.

Calc allows for conditional formatting on a selection of cells with up to three conditions. To apply conditional formatting, select the range of cells to which you want the formatting to apply, open the *Format* menu, and choose *Conditional Formatting*; a new dialog box will open where you can

define your criteria. For this example, you will need to use two of the conditions to match the account types. You will also need to create new styles for the cells to format them as red or green; when you are defining the new styles, select the font color from the *Font Effects* tab and the background color from the *Background* tab.

In Calc, you can change the color of a tab by selecting the *Format* menu, choosing *Sheet*, and then choosing *Tab Color*. Select whatever color you want and click *OK* to apply it.

You insert a comment in Calc by selecting the cell where you want the comment placed, clicking the *Insert* menu, and selecting *Comment*. The icon for a comment is a small red box in the upper-left corner of the cell; the comment will appear when you hover the mouse over the icon. To delete a comment, right-click inside the cell and choose *Delete Comment* from the menu.

The text box is located on the Drawing toolbar in OpenOffice. To add a text box in Calc, select the *View* menu, choose *Toolbars*, and then select *Drawing*; the Drawing toolbar should appear at the bottom of the interface. From here, you can select the *Text* icon and draw the area you want for your text box.

There is only a slight variation in the syntax of formulas in Calc. Instead of an exclamation point being used to reference cells on other spreadsheets, a period (.) is used. Also, to separate the arguments (or parameters) of a function, you must use a semicolon (;) instead of the comma that is used in Excel. Copying contents from Excel to Calc will perform these syntax translations for you, so your formulas can be transported between the two applications.

Representations of true and false in Calc are actually formulas instead of literal values, so to get a true result, you would use *TRUE()*, and to get a false result, you would use *FALSE()*.

Calc also allows you to change the automatic calculation setting for your worksheets. To change whether the spreadsheet is calculated automatically or manually, check or uncheck the *AutoCalculate* item in the *Tools* menu under *Cell Contents*. You can force a manual recalculation by either pressing the *F9* key or navigating back to the *Tools* menu under *Cell Contents* and choosing *Recalculate*.

In Calc, you can view the dependents and precedents of a formula using the Detective tool. You activate these items by selecting the *Tools* menu, choosing *Detective*, and then selecting either *Trace Dependents* or *Trace Precedents*. These traces can be removed using the same submenu by electing to remove the dependents, precedents, or both with *Remove All Traces*.

You can add data validation in Calc as well. To do this, select the data on which you want to enforce validation rules, select the *Data* menu, and choose *Validity*. This will open a dialog box where you can enter the data type and rules for your cell or cells. You can also use the *Input Help* tab to display the criteria or range to a user when the cell is selected and use the *Error Alert* tab to define the error message that appears if the established rules are violated.

You can group rows and columns in Calc by highlighting the selection you want to group, clicking on the *Data* menu, choosing *Group and Outline*, and then selecting *Group*. The groups in Calc function just as they do in Excel; you can use the plus or minus icons in the margin to show or hide grouped elements. You can also show or hide grouped elements from the *Group and Outline* submenu of the *Data* menu; this is also where the *Ungroup* command is located for removing existing groups.

In Calc, you can create subtotals by selecting the data you wish to use, opening the *Data* menu, and selecting *Subtotals*. This will open a dialog box where you can select up to three grouping levels by column heading and function. You should select *Account Number* and *SUM* for the first group. You can also select the *Options* tab on the dialog box to identify any other modifications you wish to make.

The Calc equivalent of a pivot table is called a *DataPilot*. You can create a DataPilot by selecting the range of values you want to use (in this case, the sales information in the January Sales sheet) and choosing the *Data* menu, selecting *DataPilot*, and then selecting *Start*. This will open a dialog box in which you can select the source for your information; this should be the current selection. Next, a window will appear in which you can select the *Page Fields* (which allows a selection of results to use similar to a filter), *Row Fields*, *Column Fields*, and *Data Fields*. These are roughly equivalent to the field options for Excel. Drag the *Sales Representative* box to *Row Fields* and then drag *Revenue* to *Value Fields*, which will convert it to a summation. You should then select the *More* button and change the destination of the DataPilot so it does not overwrite your source information. The *Options* button allows you to change the automatic calculation formula. When you are finished, click *OK* to place the DataPilot in the spreadsheet. You can utilize the subcategory of *Client Company*, but this will make it much more difficult to look up values from the DataPilot for a later step.

The *GETPIVOTDATA* function works in Calc as well; you just have to provide the starting value of the DataPilot where the pivot table reference begins. The rest of the formulas and references should be the same for both applications.

To activate Goal Seek in Calc, select the *Tools* menu and select *Goal Seek*. This works the same as it does in Excel.

You can actually use Calc to define a database in the Base program that is also part of the OpenOffice suite.

In Calc, you can perform the Split operation on the current view of your document by selecting the *Window* menu and choosing *Split*. This acts as a toggle, so you can uncheck it to return to the standard view.

GOOGLE DRIVE B.2

Google Drive is another online application that provides free file storage and online document creation and collaboration. Google Drive allows simultaneous access to a document by multiple authors (each author must be authorized to edit the document by the original document creator).

You can register for a Google Drive account the same way you can register for Gmail by Google. You do not have to have a Gmail address to access Google Drive; any Google account comes with this functionality, including a YouTube account. You can see the Google Drive interface in Figure B.20. You can access Google Drive by selecting *Drive* on the account interface once you are logged into your account.

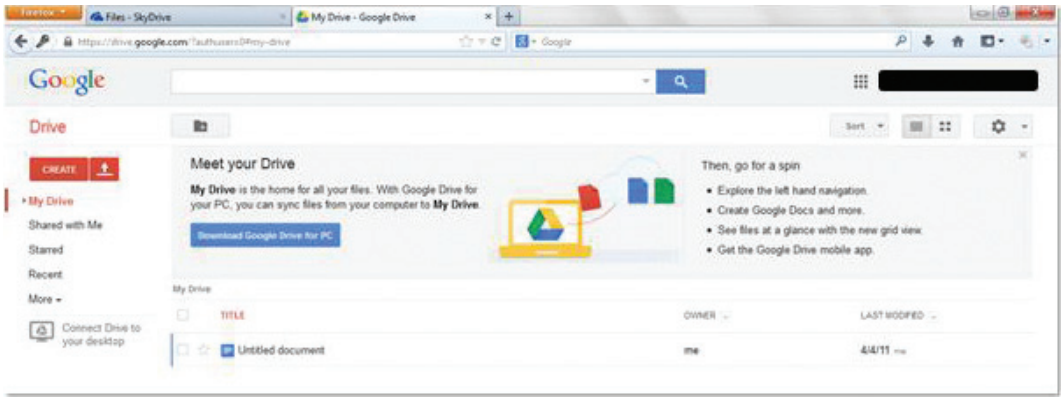


FIGURE B.20 Google Drive Interface

From this interface, you have the ability to upload documents and folders to your Google Drive account, which stores them online. Google Drive provides 1 GB of storage space for any files that are not created in the Google Drive format (or converted to that format). You can view your folders and the documents contained within your account on the main page. You can open an existing document by selecting the file name in the main interface. You can also create new documents by selecting the document type from the *Create New* menu and choosing Document, Presentation, or Spreadsheet.

Document

B.2.1

The document application in Google Drive allows you to perform most of the tasks necessary for word processing. The interface, as shown in Figure B.21, is a menu and toolbar interface. The toolbar contains most of the font and paragraph formatting commands. You can use the *File* menu to save the document, rename it, and close it. You can also use the *File* menu to download the document (using the *Download As* command) as an ODT, Word, PDF, or HTML document to your local machine.

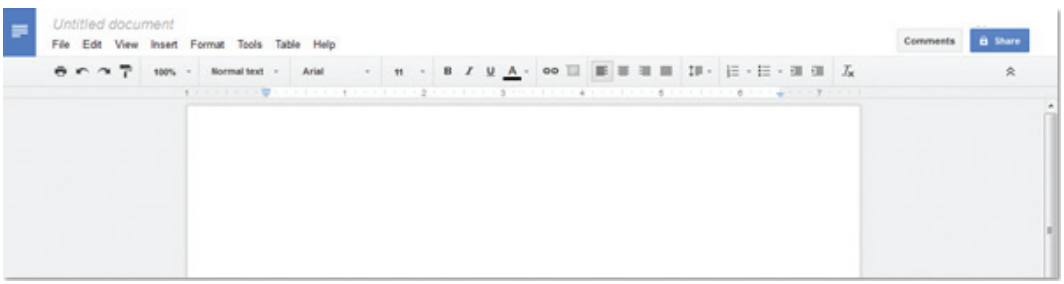


FIGURE B.21 Document Example in Google Drive

The *Edit* menu contains the commands for undoing and redoing actions, copying and pasting, selecting all content, and the find and replace functionality. The *View* menu can be used to toggle the display of the rulers and spelling suggestions. The *Insert* menu allows you to add hyperlinks, images, headers, footers, page breaks, equations, and symbols to your document. The *Format* menu has a shortcut to the available formatting effects. The *Tools* menu contains the command to calculate the word count and the *Table* menu is used to manage and insert tables into the document.

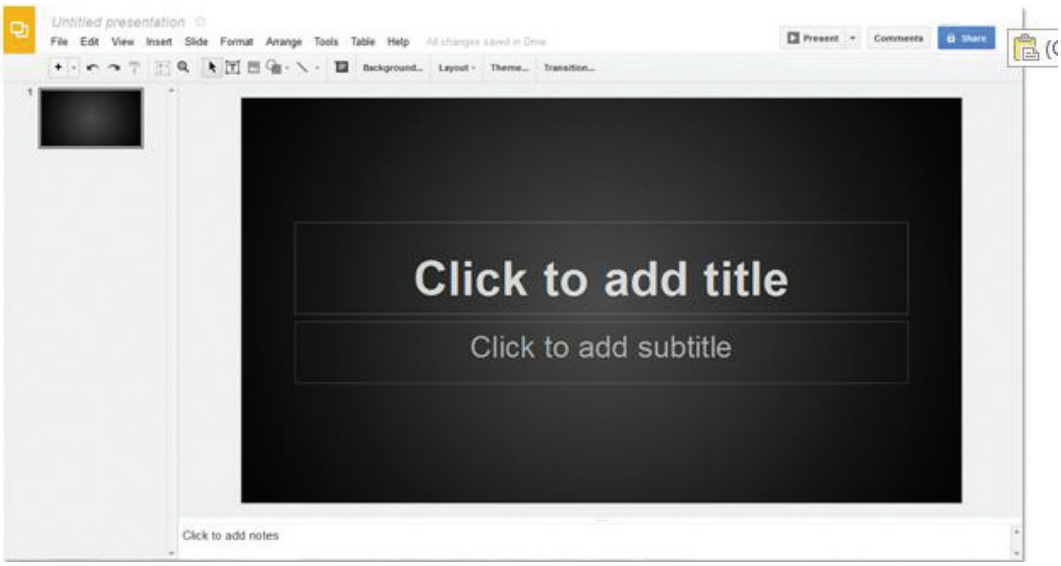
B.2.2 Presentation

The presentation application of Google Drive starts you with a single slide and asks you to select a theme for formatting. You can alter a theme to your presentation by selecting the *Format* menu and choosing the *Slide* menu and then *Change theme*; this will open a dialog box where you can select the presentation theme you want to use. You can add slides to your presentation by using the + icon by the slide thumbnail view or by selecting the *Slide* menu and choosing *New slide*; this opens a dialog box in which you can select the slide layout you want to use. You can see an example of the interface for the presentation application in Figure B.22.

You can add speaker notes at the bottom of the interface in the *Notes* section. You can use the *View* menu to start the presentation as a slide show by selecting *Present*. The *Insert* menu allows you to add various media elements to your slide including images, videos, and tables. You can rename the file using the *File* menu (by selecting *Rename*). The download options (accessed by selecting the *File* menu and choosing *Download As*) for the presentation are PDF and PowerPoint.

B.2.3 Spreadsheet

The spreadsheet application in Google Drive allows you to manage data in cells just as you can with other spreadsheet software. You can utilize formulas and formatting on the cell entries as well as add new worksheets



➤ **FIGURE B.22**
Presentation Example in Google Drive

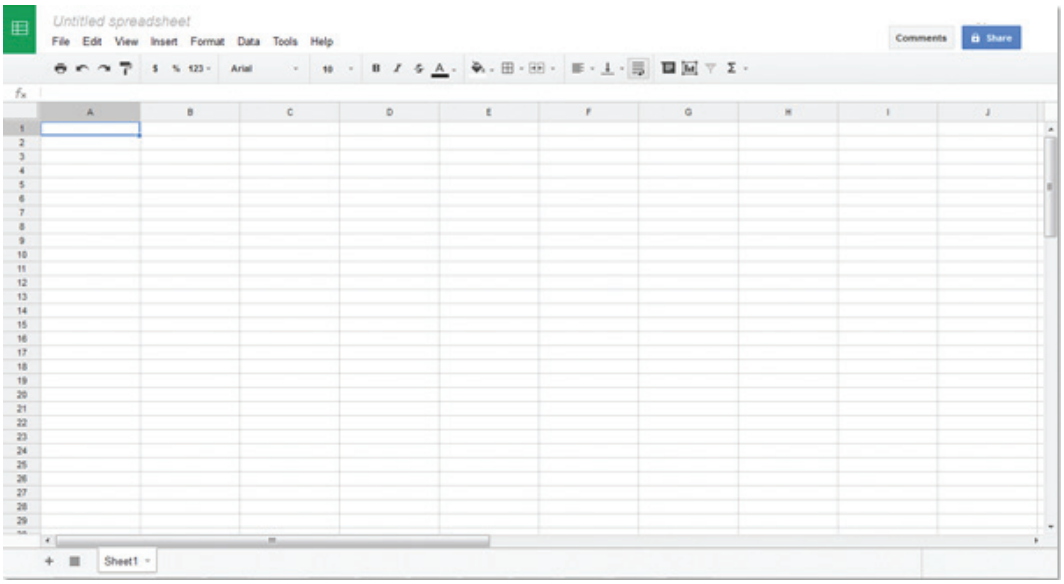


FIGURE B.23
Spreadsheet Example in Google Drive

to the document. The interface, shown in Figure B.23, is a menu and toolbar interface. The formula bar is located beneath the main toolbar. The *Insert* menu allows you to add rows and columns to your spreadsheet. The rest of the functionality available is linked to the toolbar. The *File* menu can be used to rename your document and save any changes. You can download your document using the *File* menu by selecting *Download As*; the formats supported include PDF, Excel, OpenOffice format, and HTML.

APPENDIX

C

Odd Numbered Answers to Knowledge Check Exercises

Chapter 1

1. D
3. D
5. C
7. A
9. A

Chapter 2

1. A
3. B
5. A
7. A
9. A

Chapter 3

1. A
3. D
5. A
7. A
9. A

Chapter 4

1. A
3. E
5. B
7. C
9. D

Chapter 5

1. B
3. A
5. B
7. D
9. B

Chapter 6

1. B
3. B
5. A
7. B
9. A

Chapter 7

1. C
3. F
5. B
7. A
9. A

Chapter 8

1. B
3. E
5. E
7. D
9. A

Chapter 9

1. B
3. A
5. A
7. A
9. E

Chapter 10

1. D
3. D
5. A
7. D
9. B

Chapter 11

1. A
3. A
5. D
7. A
9. A

Chapter 12

1. B
3. B
5. C
7. B
9. A

Chapter 13

1. C
3. A
5. B
7. B
9. D

Chapter 14

1. A
3. B
5. A
7. C
9. D

Chapter 15

1. A
3. B
5. D
7. A
9. A

Chapter 16

1. A
3. C
5. C
7. F
9. A

APPENDIX

D

On The Companion Disc

The textbook provides a DVD inside the back cover that includes resources for the student. This disc includes all of the **PROJECT TEMPLATES and FILES** needed to complete the chapter exercises within the text. You will also find **VIDEO TUTORIALS**, a repository of **HIGH-RESOLUTION IMAGES** from the chapters, and **SAMPLES OF COMPLETED PROJECTS** for comparison.

Upon adoption, all of these files may be found online at *www.authorcloudware.com*.

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