

Application Software



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Competencies

After you have read this chapter, you should be able to:

- 1 Discuss general-purpose applications.
- 2 Describe word processors, spreadsheets, database management systems, and presentation programs.
- 3 Discuss specialized applications.
- 4 Describe graphics programs, web authoring programs, and other specialized professional applications.
- 5 Describe mobile apps and app stores.
- 6 Discuss software suites.
- 7 Describe office suites, cloud suites, specialized suites, and utility suites.

Why should I read this chapter?

At one time all document preparation was a manual process performed by clerical staff. That was then and this is now. Now, a required skill for nearly every profession is the ability to create documents, to analyze data, to develop presentations, and to store and retrieve information. Professionals need to know how to use software applications on their desktops or from the cloud to perform these activities.

This chapter discusses these applications including word processors, spreadsheets, database management systems, and presentation graphics. Additionally, you'll learn about cloud computing applications, integrated packages, and software suites. To be competent and to be competitive in

today's professional workplace, you need to know and to understand these things.



chapter 3



Introduction



Hi, I'm James, and I'm a software engineer. I'd like to talk with you about application software . . . programs that we all need to know. I'd also like to talk with you about how to access and use these traditional programs using cloud computing.

Not long ago, trained specialists were required to perform many of the operations you can now do with a microcomputer. Market analysts used calculators to project sales. Graphic artists created designs by hand. Data processing clerks created electronic files to be stored on large computers. Now you can do all these tasks—and many others—with a microcomputer and the appropriate application software.

Think of the microcomputer as an electronic tool. You may not consider yourself very good at typing, calculating, organizing, presenting, or managing information. However, a microcomputer can help you do all these things and much more. All it takes is the right kinds of software.

Competent end users need to understand the capabilities of general-purpose application software, which includes word processors, spreadsheets, database management systems, and presentation programs. They need to know about integrated packages and software suites.

Application Software

As we discussed in Chapter 1, there are two kinds of software. **System software** works with end users, application software, and computer hardware to handle the majority of technical details. **Application software** can be described as end-user software and is used to accomplish a variety of tasks.

Application software can be divided into three categories. One category, **general-purpose applications**, includes word processing programs, spreadsheets, database management systems, and presentation graphics. Another category, **specialized applications**, includes thousands of other programs that tend to be more narrowly focused and used in specific disciplines and occupations. The third category, **mobile apps**, are add-on features or programs designed for a variety of mobile devices including smartphones and tablets.

User Interface

A **user interface** is the portion of the application that allows you to control and to interact with the program. Almost all applications use a **graphical user interface (GUI)** that displays graphical elements called **icons** to represent familiar objects and a mouse. The mouse controls a **pointer** on the screen that is used to select items such as icons. Another feature is the use of windows to display information. A **window** is simply a rectangular area that can contain a document, program, or message. (Do not confuse the term *window* with the various versions of Microsoft's Windows operating systems, which are programs.) More than one window can be opened and displayed on the computer screen at one time.

Traditionally, most software programs use a system of menus, toolbars, and dialog boxes. (See Figure 3-1.)

- **Menus** present commands that are typically displayed in a **menu bar** at the top of the screen.
- **Toolbars** typically appear below the menu bar and include small graphic elements called **buttons** that provide shortcuts for quick access to commonly used commands.
- **Dialog boxes** provide additional information and request user input.

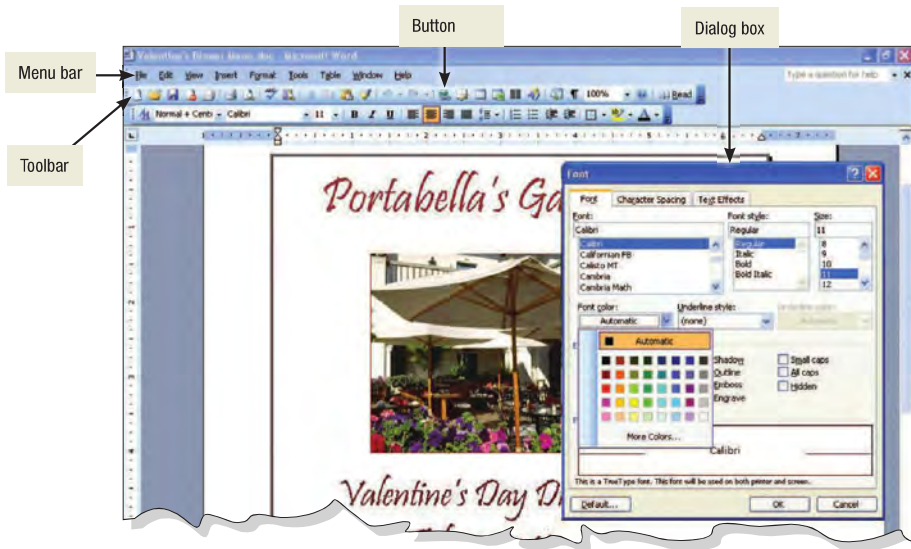


Figure 3-1 Traditional graphical user interface

Many Microsoft and other applications use an interface known as the **Ribbon GUI** to make it easier to find and use all the features of an application; this GUI uses a system of ribbons, tabs, and galleries. (See Figure 3-2.)

- **Ribbons** replace menus and toolbars by organizing commonly used commands into a set of tabs. These tabs display command buttons that are the most relevant to the tasks being performed by the user.
- **Tags** are used to divide the ribbon into major activity areas. Each tab is then organized into **groups** that contain related items. Some tabs, called **contextual tabs**, only appear when they are needed and anticipate the next operations to be performed by the user.
- **Galleries** simplify the process of making a selection from a list of alternatives. This is accomplished by graphically displaying the effect of alternatives before being selected.

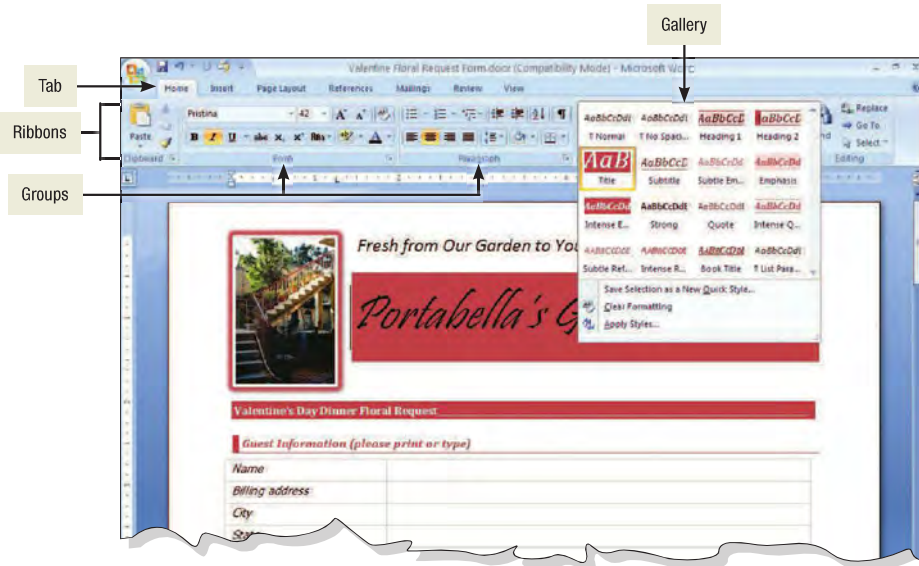


Figure 3-2 Ribbon GUI

environment

Did you know that downloading software can actually generate energy savings? Microsoft, for example, finds that distributing its software as an electronic download results in a 91 percent reduction of carbon emissions, when compared to traditional CD or DVD distribution. This occurs because of the emissions that come from the manufacture and shipment of the discs and packing materials. So instead of purchasing physical software packages, consider buying them on the web and downloading the file to your computer. Not only will you benefit the environment, but you will also get the software faster and likely save a few dollars. To see more environmental facts, visit our website at www.computing2014.com and enter the keyword **environment**.

Common Features

Most applications provide a variety of features to make entering/presenting, editing, and formatting documents easy. Some of the most common features include:

- Spell checkers—look for misspelled words
- Alignment—either centers, right-aligns, or left-aligns numbers and characters
- Font and font sizes (perhaps use character effects)—specifies the size and style of entered numbers and text
- Tables—presents numbers and text in table format
- Reports—provides a variety of different types and styles to report information



concept check



List three categories of application software.



What is a graphical user interface? What are windows, menus, toolbars, and dialog boxes?



What is the Ribbon GUI? What are ribbons, tabs, and galleries?



Discuss some of the most common features in application programs.

General-Purpose Applications

As mentioned previously, general-purpose applications include word processors, spreadsheets, database management systems, and presentation graphics.

Word Processors

Word processors create text-based **documents** and are one of the most flexible and widely used software tools. All types of people and organizations use word

processors to create memos, letters, and faxes. Organizations create newsletters, manuals, and brochures to provide information to their customers. Students and researchers use word processors to create reports. Word processors can even be used to create personalized web pages.

Microsoft Word is the most widely used word processor. Other popular word processors include Corel WordPerfect, Apple Pages, OpenOffice Writer, and Google Docs.

Assume that you have accepted a job as an advertising coordinator for Adventure Travel Tours, a travel agency specializing in active adventure vacations. Your primary responsibilities are to create and coordinate the company's promotional materials, including flyers and travel reports. To see how you could use Microsoft Word as the advertising coordinator for the Adventure Travel Tours, see Figures 3-3 and 3-4.

tips

Did you know that Microsoft provides thousands of free templates on its website? Here's how to quickly access a variety of templates ranging from party invitations and exercise planners to professional communications.

- 1 Connect to office.microsoft.com.
 - 2 Click the *Templates* menu option at the top.
 - 3 Use the search feature or browse through a variety of categories.
 - 4 Once you find a template you want to use, download it and then open it in the appropriate MS Office program.
- To see other tips, visit our website at www.computing2014.com and enter the keyword [tips](#).

Creating a Flyer

You have been asked to create a promotional advertising flyer. After discussing the flyer's contents and basic structure with your supervisor, you start to enter the flyer's text. As you enter the text, the spelling checker and grammar checker catch some spelling and grammatical errors. Once the text has been entered, you proofread the text and then focus your attention on enhancing the visual aspects of the flyer. You add a photograph and experiment with different character and paragraph formats, including fonts, font sizes, colors, and alignments. ●

Spelling Checker

Correcting spelling and typing errors identified by the **spelling checker** creates an error-free and professional-looking document.

Center-Aligning

Center-aligning all of the text in the flyer creates a comfortable, balanced appearance.

Fonts and Font Size

Using interesting **fonts** and a large **font size** in the flyer's title grabs the reader's attention.

Character Effects

Adding **character effects** such as bold and color makes important information stand out and makes the flyer more visually interesting.

Grammar Checker

Incomplete sentences, awkward wording, and incorrect punctuation are identified and corrections are offered by the **grammar checker**.



Figure 3-3 Flyer

Creating a Report

Your next assignment is to create a report on Tanzania and Peru. After conducting your research, you start writing your paper. As you enter the text for the report, you notice that the AutoCorrect feature automatically corrects some grammar and punctuation errors. Your report includes several figures and tables. You use the captions feature to keep track of figure and table numbers, to enter the caption text, and to position the captions. You use the footnote feature to assist in adding notes to further explain or comment on information in the report.

Finally, you prepare the report for printing by adding header and footer information. ●



Captions

Identifying figures with **captions** in a report makes the report easier to read and more professional.

AutoCorrect

As you enter text, you occasionally forget to capitalize the first word in a sentence. Fortunately, **AutoCorrect** recognizes the error and automatically capitalizes the word.

Footnote

To include a note about Mt. Kilimanjaro, you use the footnote feature. This feature inserts the **footnote** superscript number and automatically formats the bottom of the page to contain the footnote text.

Header or Footer

Page numbers and other document-related information can be included in a header or footer.

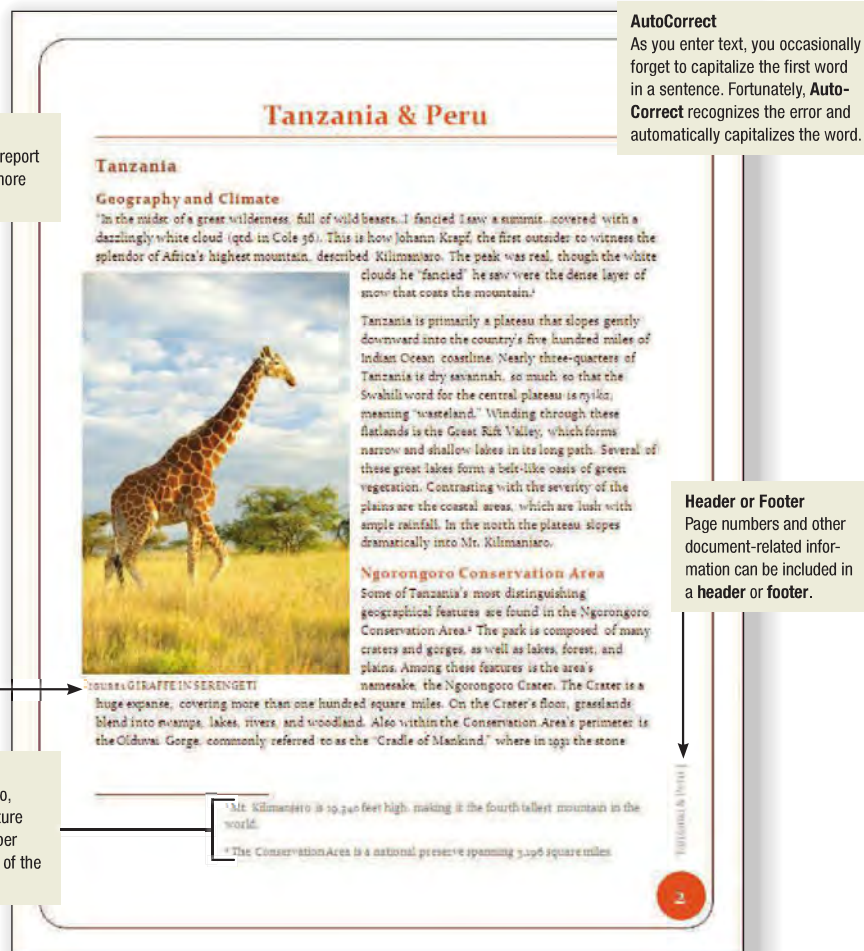


Figure 3-4 Report

Spreadsheets

Spreadsheets organize, analyze, and graph numeric data such as budgets and financial reports. Once used exclusively by accountants, spreadsheets are widely used by nearly every profession. Marketing professionals analyze sales trends. Financial analysts evaluate and graph stock market trends. Students and teachers record grades and calculate grade point averages.

The most widely used spreadsheet program is Microsoft Excel. Other spreadsheet applications include Apple Numbers and OpenOffice Calc.

Assume that you have just accepted a job as manager of the Downtown Internet Café. This café provides a variety of flavored coffees as well as Internet access. One of your responsibilities is to create a financial plan for the next year. To see how you could use Microsoft Excel, as the manager for the Downtown Internet Café, see Figures 3-5 and 3-6.

Creating a Sales Forecast

Your first project is to develop a first-quarter sales forecast for the café. You begin by studying sales data and talking with several managers. After obtaining sales and expense estimates, you are ready to create the first-quarter forecast. You start structuring the worksheet by inserting descriptive text entries for the row and column headings. Next, you insert numeric entries, including formulas and functions to perform calculations. To test the accuracy of the worksheet, you change the values in some cells and compare the recalculated spreadsheet results with hand calculations. ●

Worksheets


Worksheets are used for a wide range of different applications. One of the most common uses is to create, analyze, and forecast budgets.

Text Entries

Text entries provide meaning to the values in the worksheet. The rows are labeled to identify the various sales and expense items. The columns are labeled to specify the months.

Functions

One advantage of using **functions** rather than entering formulas is that they are easier to enter. In this case, cell C20 (Total Expenses for February) contains the function SUM(C14:C19) rather than the formula = C14+C15+C16+C17+C18+C19.

	A	B	C	D	E	F
1		Downtown Internet Café <i>First Quarter Forecast</i>				
2						
3						
4						
5						
6		JAN	FEB	MAR	TOTAL	AVG
7	Sales					
8	Beverage	\$ 13,600	\$ 14,600	\$ 15,600	\$ 43,800	\$ 14,600
9	Food	\$ 7,100	\$ 7,300	\$ 7,400	\$ 21,800	\$ 7,267
10	Internet	\$ 4,000	\$ 4,300	\$ 4,500	\$ 12,800	\$ 4,267
11	Merchandise	\$ 3,100	\$ 3,200	\$ 3,300	\$ 9,600	\$ 3,200
12	Total Sales	\$ 27,800	\$ 29,400	\$ 30,800	\$ 88,000	\$ 29,333
13	Expenses					
14	Cost of Goods	\$ 6,950	\$ 7,300	\$ 7,600	\$ 21,850	\$ 7,283
15	Payroll	\$ 7,500	\$ 7,500	\$ 7,500	\$ 22,500	\$ 7,500
16	Computers	\$ 6,400	\$ 6,400	\$ 6,400	\$ 19,200	\$ 6,400
17	Lease	\$ 5,500	\$ 5,500	\$ 5,500	\$ 16,500	\$ 5,500
18	Marketing	\$ 1,000	\$ 1,000	\$ 1,000	\$ 3,000	\$ 1,000
19	Miscellaneous	\$ 1,500	\$ 1,500	\$ 1,500	\$ 4,500	\$ 1,500
20	Total Expenses	\$ 28,850	\$ 29,200	\$ 29,500	\$ 87,550	\$ 29,183
21	Income					
22	Net Income	\$ (1,050)	\$ 200	\$ 1,300	\$ 450	\$ 150
23	Profit Margin	-3.78%	0.68%	4.22%	0.51%	
24		Income Year-To-Date			\$ 450	

Cells

Cells can contain labels, numbers, formulas, and functions. A cell's content is indicated by the row and column labels. For example, cell D15 contains a number for the Payroll expense expected for March.

Formulas

Formulas provide a way to perform calculations in the worksheet. In this case, cell C22 has the formula = C12 (Total Sales for February) - C20 (Total Expenses for February) that contains a number for the Net Income for February.

Figure 3-5 First-quarter forecast

Analyzing Your Data

After presenting the First-Quarter Forecast to the owner, you revise the format and expand the workbook to include worksheets for each quarter and an annual forecast summary. You give each worksheet a descriptive sheet name. At the request of the owner, you perform a what-if analysis to test the effect of different estimates for payroll, and you use a chart to visualize the effect.

Workbook

The first worksheet in a **workbook** is often a summary of the following worksheets. In this case, the first worksheet presents the entire year's forecast. The subsequent worksheets provide the details.

Sheet Name

Each worksheet has a unique **sheet name**. To make the workbook easy to navigate, it is a good practice to always use simple yet descriptive names for each worksheet.

What-If Analysis

What-if analysis is a very powerful and simple tool to test the effects of different assumptions in a spreadsheet.

Chart

Once data is in the worksheet, it is very easy to **chart** the data. All you need to do is to select the data to chart, select the chart type, and add some descriptive text.

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
Sales										
Beverage	\$18,000	\$17,500	\$17,200	\$18,039	\$17,940	\$19,074	\$10,993	\$9,099	\$12,909	
Food	\$8,500	\$8,200	\$8,000	\$8,123	\$9,231	\$7,001	\$6,912	\$5,500	\$8,700	
Internet	\$5,700	\$7,400	\$7,200	\$8,021	\$6,751	\$5,781	\$4,510	\$8,233	\$7,811	
Merchandise	\$3,600	\$3,500	\$3,300	\$2,390	\$1,290	\$1,892	\$1,677	\$3,008	\$2,987	
Total Sales	\$35,800	\$36,600	\$35,700	\$36,573	\$36,212	\$33,448	\$24,092	\$25,840	\$32,407	
Expenses										
Cost of Goods	\$8,750	\$8,475	\$8,300	\$8,750	\$8,475	\$8,300	\$8,750	\$8,475	\$8,300	
Payroll	\$9,398	\$8,700	\$8,100	\$9,398	\$8,700	\$8,100	\$9,398	\$8,700	\$8,100	
Computers	\$6,400	\$6,400	\$6,400	\$6,400	\$6,400	\$6,400	\$6,400	\$6,400	\$6,400	
Lease	\$6,000	\$6,000	\$6,000	\$6,000	\$6,000	\$6,000	\$6,000	\$6,000	\$6,000	
Advertising	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	
Miscellaneous	\$1,500	\$1,500	\$1,500	\$1,500	\$1,500	\$1,500	\$1,500	\$1,500	\$1,500	
Total Expenses	\$33,048	\$32,075	\$31,300	\$33,048	\$32,075	\$31,300	\$33,048	\$32,075	\$31,300	
Income										
Net Income	\$2,752	\$4,525	\$4,400	\$2,752	\$4,525	\$4,400	\$2,752	\$4,525	\$4,400	
Profit Margin	7.69%	12.36%	12.32%	7.69%	12.36%	12.32%	7.69%	12.36%	12.32%	
Quarter Profit Margin										
Income Year-To-Date	\$11,677									

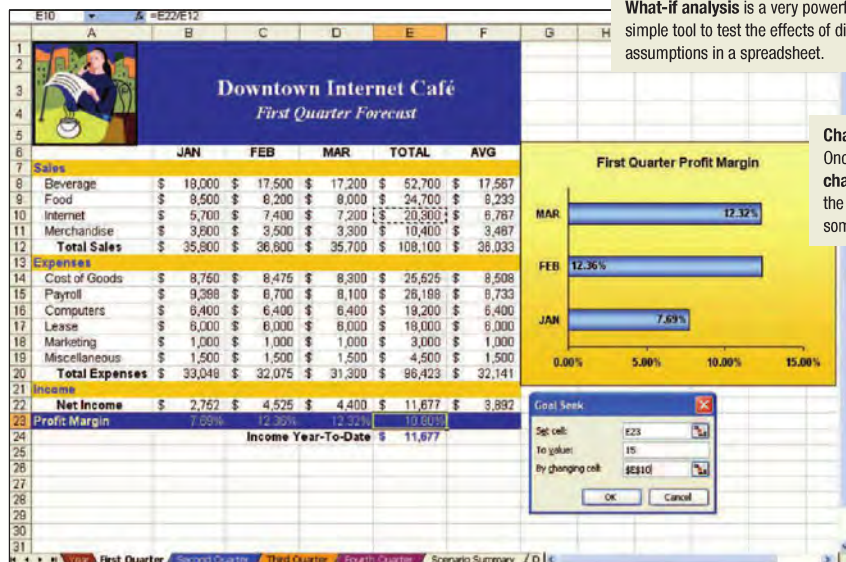


Figure 3-6 Annual forecast and analysis

Database Management Systems

A **database** is a collection of related data. It is the electronic equivalent of a file cabinet. A **database management system (DBMS)** or **database manager** is a program that sets up, or structures, a database. It also provides tools to enter, edit, and retrieve data from the database. All kinds of individuals use databases, from hospital administrators recording patient information to police officers checking criminal histories. Colleges and universities use databases to keep records on their students, instructors, and courses. Organizations of all types maintain employee databases.

Two widely used database management systems designed for microcomputers are Microsoft Access and OpenOffice Base.

Assume that you have accepted a job as an employment administrator for the Lifestyle Fitness Club. To see how you could use Microsoft Access, see Figure 3-7.

Presentation Graphics

Research shows that people learn better when information is presented visually. **Presentation graphics** are programs that combine a variety of visual objects to create attractive, visually interesting presentations. They are excellent tools to communicate a message and to persuade people.

People in a variety of settings and situations use presentation graphics programs to make their presentations. For example, marketing managers use presentation graphics to present proposed marketing strategies to their superiors. Salespeople use these programs to demonstrate products and encourage customers to make purchases. Students use presentation graphics programs to create high-quality class presentations.

Three of the most widely used presentation graphics programs are Microsoft PowerPoint, OpenOffice Impress, and Apple Keynote.

Assume that you have volunteered for the Animal Rescue Foundation, a local animal rescue agency. You have been asked to create a powerful and persuasive presentation to encourage other members from your community to volunteer. To see how you could use Microsoft PowerPoint, see Figure 3-8.

Are you getting ready for a classroom or a boardroom presentation and need some help? Did you know that both Apple and Microsoft provide expert guidance on creating professional-looking presentations? Here's how to access that guidance.

tips

- 1** For Apple, connect to www.apple.com/iwork/keynote/#easy and play the videos Choose a theme, Add and edit graphics with ease, Add stunning effects, 3D charts and chart animations, and Benefit from helpful tools.
- 2** For Microsoft, connect to www.microsoft.com/atwork/skills and select 3 Ways to simplify your PowerPoint presentations.

To see other tips, visit our website at www.computing2014.com and enter the keyword [tips](#).



concept check



- What are word processors? What are they used for?
- What are spreadsheets? What are they used for?
- What are database management systems? What are they used for?
- What are presentation graphics programs? What are they used for?

Creating a Database

You have been asked to create an employee database to replace the club's manual system for recording employee data. The first step in creating the database management system is to plan. You study the existing manual system focusing on how and what data is collected and how it is used. Next, using Microsoft Access, one of the most widely used DBMS programs, you design the basic structure or organization of the new database system to include a table that will make entering data and using the database more efficient. You create the table structure by specifying the fields and primary key field. To make the process faster and more accurate, you create a form and enter the data for each employee as a record in the table. ●

Primary Key

The **primary key** is the unique employee identification number. You considered using the last name field as the primary key but realized that more than one employee could have the same last name. Primary keys are often used to link tables.

Fields

Fields are given field names that are displayed at the top of each table. You select the field names to describe their contents.

Table

Tables make up the basic structure of a relational database with columns containing field data and rows containing record information. This table records basic information about each employee, including name, address, and telephone number.

Record

Each **record** contains information about one employee. A record often includes a combination of numeric, text, and object data types.

Employee ID	Last Name	First Name	Address	City	State	ZIP Code	Home Phone	Gender	Birth Date
12920	Larson								
13456	Lembi								
11747	Lettow	Ryan	358 Maple St.	Maldin	CA	92121-3740	(507) 555-2805	M	11/15/1981
22085	Undau	Kristina	1947 E. Warren	Landis	CA	92120-3741	(941) 555-6363	F	2/24/1977
03406	Lopez	Mina	4290 E. Alameda Dr.	Maldin	CA	92121-3740	(507) 555-5050	F	2/25/1977
04731	Marchant	Robert	564 Palm Avenue	Landis	CA	92120-3741	(507) 555-6707	F	5/13/1980
13543	Martinez	Julie	1920 First Ave.	Maldin	CA	92121-3740	(941) 555-1044	F	12/10/1982
13635	Martinez	Juan	7115 E. Roosevelt Dr.	Maldin	CA	92121-3740	(507) 555-2935	M	12/10/1983
22407	Mazneau	Rebecca	7383 Oak St.	Landis	CA	92120-3741	(941) 555-1093	F	9/23/1979
03225	Morgan	Dan	564 S. Lemon Dr.	Maldin	CA	92121	(507) 555-5567	M	8/5/1975
09999	Name	Student	1234 N. Fifth St.	Chesterfield	CA	92122-1268	(507) 555-1234	F	4/1/1982
00617	Nichols	Cathy	75 Brooklea Dr.	Landis	CA	92120-3741	(507) 555-0001	F	5/19/1965
00907	Pennington	Mark	23 Mill Ave.	Landis	CA	92120-3741	(507) 555-3333	M	7/7/1969
12194	Polonsky	Mitch	8701 E. Sheridan	Maldin	CA	92121-3740	(507) 555-1018	M	3/13/1980
12247	Rath	Kathy	87 E. Aurora Ave.	Chesterfield	CA	92122-1268	(507) 555-9797	F	5/30/1978
12594	Reddie	Mark	900 W. Campus Dr.	Maldin	CA	92121	(507) 555-1139	M	11/5/1983
12230	Reddie	Suzanne	932 E. Parkway Dr.	Landis	CA	92120-3741	(507) 555-1191	F	7/14/1978
13005	Reilly	Emily	125 N. Marigold St.	Maldin	CA	92121-3740	(941) 555-6532	F	5/23/1985
12612	Richards	Melissa	5522 W. Marin Lane	River Mist	CA	92123	(507) 555-7788	F	9/30/1978
06000	Robertson	Kirk	832 S. William Ave.	Maldin	CA	92121	(507) 555-3730	M	4/5/1974
22297	Rogondino	Patricia	7583 Turquoise	Chesterfield	CA	92122-1268	(941) 555-7539	F	8/30/1977
07287	Roman	Anita	2348 S. Bala Dr.	Maldin	CA	92121-3740	(507) 555-9870	F	3/15/1981
12918	Ruiz	Carlos	10101 First St.	Maldin	CA	92121-3740	(507) 555-5125	M	7/27/1992
08391	Ruiz	Enrique	35 Palm St.	Chesterfield	CA	92122-1268	(507) 555-0091	M	12/10/1973
04321	Sabin	Greg	90 E. Rawhide Ave						
00212	Schiff	Chad	235 N. Cactus Dr.						
22114	Schneider	Paul	1731 Jackson Ave						
03421	Spehr	Timothy	90 Royal Dr.						
12466	Stacey	David	737 S. College Rd.						
13497	Steele	Jeff	1011 E. Holly Ln.						
12608	Stueland	Valerie	34 University St.						
12583									
12867									
03890									
22304									
22100									

Form

Like printed paper forms, electronic **forms** should be designed to be easy to read and use. This form makes it easy to enter and view all employees' data, including their photographs.

Employee Records

Employee ID: 12918

First Name: Carlos

Last Name: Ruiz

Address: 10101 First St.

City: Maldin

State: CA

ZIP Code: 92121-3740

Home Phone: (507) 555-5125

Gender: M

Birth Date: 7/27/1992

Photo/Resume: 

Records: 41 of 55

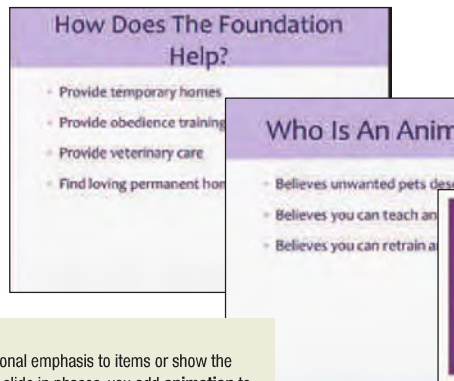
Figure 3-7 Database

Creating a Presentation

You have been asked to create a powerful and persuasive presentation for the director of the foundation designed to encourage other members from your community to volunteer. The first step is to meet with the director of the foundation to determine the content of the presentation. Then using PowerPoint, you begin creating the presentation by selecting a presentation template and document theme. After entering the content, you add interest to the presentation by adding animation to selected objects and using slide transition effects. ●

Document Theme

To make your presentation more professional and eye-catching, you select a **document theme**, built-in sets of colors, fonts, and effects that can be quickly applied to your entire presentation.



Animation

To provide additional emphasis to items or show the information on a slide in phases, you add **animation** to text and objects. Finally, you use slide **transition** effects to animate the transition from one slide to the next.

Templates

Templates provide an excellent way to quickly create a presentation by providing predefined styles and layouts as well as suggested content based on the type of template you select.



Figure 3-8 Presentation

Specialized Applications

While general-purpose applications are widely used in nearly every profession, specialized applications are widely used within specific professions. These programs include graphics programs and web authoring programs.

Graphics

Graphics are widely used by professionals in the graphic arts profession. They use desktop publishing programs, image editing programs, illustration programs, and image galleries.

- **Desktop publishing programs, or page layout programs**, allow you to mix text and graphics to create publications of professional quality. While word processors focus on creating text and have the ability to combine text and graphics, desktop publishers focus on page design and layout and provide greater flexibility. Professional graphic artists use desktop publishing programs to create documents such as brochures, newsletters, newspapers, and textbooks.

Popular desktop publishing programs include Adobe InDesign, Microsoft Publisher, and QuarkXPress. While these programs provide the capability to create text and graphics, typically graphic artists import these elements from other sources, including word processors, digital cameras, scanners, image editors, illustration programs, and image galleries.

Explorations



Adobe is one of the leaders in specialized applications, particularly in the graphics, publishing, and web authoring fields.

To learn more about these specialized applications, visit our website at www.computing2014.com and enter the keyword **adobe**.

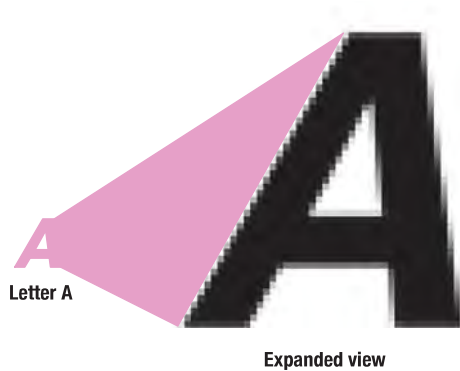


Figure 3-9 Bitmap image

- **Image editors**, also known as **photo editors**, are specialized graphics programs for editing or modifying digital photographs. They are often used to touch up photographs to remove scratches and other imperfections. The photographs consist of thousands of dots or **pixels** that form images often referred to as **bitmap** or **raster** images. One limitation of bitmap images, however, is that when they are expanded, the images can become pixelated, or jagged on the edges. For example, when the letter *A* in Figure 3-9 is expanded, the borders of the letter appear jagged, as indicated by the expanded view.

Popular image editors include Adobe Photoshop, Corel Paint Shop Pro, GIMP (GNU Image Manipulation Program), and Windows Live Photo Gallery. To learn more about using one of the most popular free image editing programs, see *Making IT Work for You: Image Editing* on pages 75 and 76.

- **Illustration programs**, also known as **drawing programs**, are used to create and edit vector images. While bitmap images use pixels to represent images, **vector images**, also known as **vector illustrations**, use geometric shapes or objects. (See Figure 3-10.) These objects are created by connecting lines and curves. Because these objects can be defined by mathematical equations, they can be rapidly and easily resized, colored, textured, and manipulated. An image is a combination of several objects.

Illustration programs are often used for graphic design, page layout, and creating sharp artistic images. Popular illustration programs include Adobe Illustrator, CorelDRAW, and Inkscape. (See Figure 3-11.)

- **Image galleries** are libraries of electronic images. These images are used for a wide variety of applications from illustrating textbooks to providing visual interest to presentations.

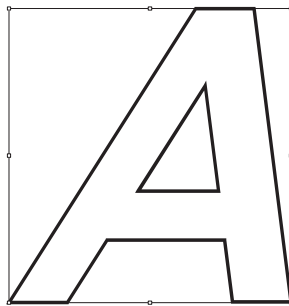


Figure 3-10 Vector image

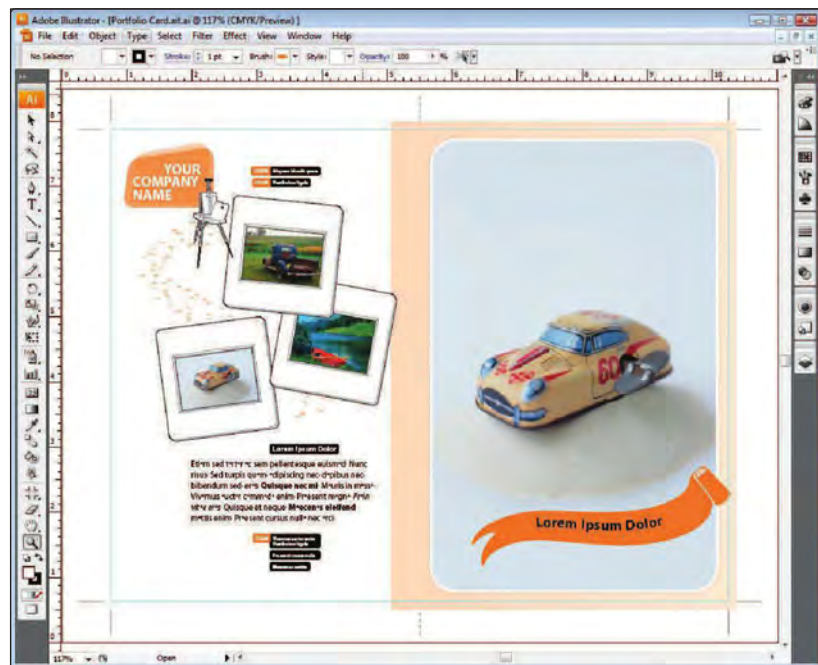


Figure 3-11 Adobe Illustrator

Making **IT** work for you

IMAGE EDITING

Would you like a simple way to fix problems in your photos? Do you need a tool that can manage your images locally and on the cloud? Windows Live Photo Gallery is a free, easy-to-use photo editing and management program. Besides powerful photo-repairing features, it allows you to identify or “tag” people and places for easy searching in the future. In addition, it includes 7 GB of free online storage/backup using the Microsoft SkyDrive service.

Installing the Software Windows Live Photo Gallery is a free download for Windows users. Some Windows users will find that they have it already. If not, follow these steps to install it:

- 1 • Go to <http://windows.microsoft.com>, and type “photo gallery” in the search box. Click the first search result.
- 2 • Click the **Download Now** button.
- 3 • Follow the instructions to complete the installation.

Once installed, the software will scan your Pictures library (including My Pictures and Public Pictures folders) for photos.



Basic Photo Editing You should now see many of your photos in the center of the interface. Here are some of the most common fixes your photos might need:

- 1 • Double-click the photo that needs editing. The **Edit** tab of the ribbon is now active.
- 2 • Click the **Rotate left** or **Rotate right** buttons to change the orientation of the photo.
- 3 • Click the **Crop** button to remove an unwanted section of the photo. When the **Crop** window appears on top of your photo, move it around and resize it to include the section of the photo you want to keep. Press the Enter key to complete the crop.
- 4 • Click the **Red eye** button to fix red eye problems in photos. Simply drag the mouse pointer to surround the entire red section of the person's eye, and it is instantly fixed.
- 5 • Click the **Retouch** button to activate a very powerful feature that can remove a blemish or discoloration on a photo. It does this by using the surrounding area as a sample of what it should look like. Simply drag the mouse pointer to surround the problem area, and Photo Gallery will attempt to remove the blemish.



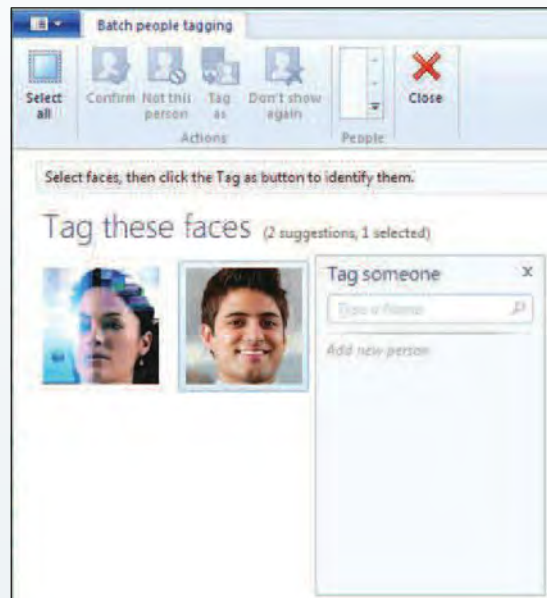
Tag and Caption Photo Gallery has the ability to detect faces in photos so that you can tag those individuals with a name. You are also encouraged to add a brief caption to each of your photos. Once these are done, you will be able to search your computer for photos by using a person's name or any text in the caption.

- 1 From the **Home** tab, click the **Batch people tag** button. Photo Gallery may display some faces that you can start tagging. Otherwise, click the **Tag them** link in the center of the window.
- 2 Select a detected face, and click the **Tag as** button on the ribbon.
- 3 Type a name in the box that appears, and press Enter. The face will immediately disappear because this individual is now tagged. This face will appear in your Home ribbon (for quick searches), and the name will be remembered for future tagging.
- 4 Click the **Close** button on the ribbon once you have finished tagging all the detected faces.
- 5 Double-click a photo in your collection. You are now in the **Edit** tab. Make sure the **Tag and caption** button is selected on the ribbon.
- 6 Click the **Add caption** box, and type a very brief title for the photo. Press Enter to finish.

Sharing/Uploading Photos You can share any of the photos and videos on your computer with your friends by using such popular services as Facebook and YouTube. Most noteworthy is Microsoft's free SkyDrive service, which you can sign up for by using a Microsoft account. Follow these steps to upload all your photos to SkyDrive:

- 1 Click the **Create** tab of the ribbon.
- 2 Select all the photos you wish you upload (Ctrl + A selects all photos).
- 3 Click the **SkyDrive** button in the Publish group of the ribbon and then sign in.
- 4 Select the **Large (1600px)** option, and type the name for this new album. Click **Publish**.

The web is continually changing, and some of the specifics presented in this Making IT Work for You may have changed. To learn about other ways to make information technology work for you, visit our website at www.computing2014.com and enter the keyword **miw**.



Organization	Site
Classroom Clipart	www.classroomclipart.com
MS Office clip art	office.microsoft.com/clipart
iStockphoto	istockphoto.com
Flickr Creative Commons	www.flickr.com/creativecommons

Figure 3-12 Select web image galleries

There are two basic types of electronic images in these galleries: stock photographs and clip art. **Stock photographs** are photographs on a variety of subject material from people to landscapes. **Clip art** are graphic illustrations representing a wide range of topics. Most applications provide access to a limited selection of free clip art. For example, in Microsoft Word, you can gain access to clip art by issuing the command Insert>Clip Art.

There are numerous web image galleries. (See Figure 3-12.) Some of these sites offer free images and clip art, while others charge a fee.

Web Authoring Programs

There are over a billion websites on the Internet, and more are being added every day. Corporations use the web to reach new customers and to promote their products. (See Figure 3-13.) Individuals create online diaries or commentaries, called **blogs**. Creating a site is called **web authoring**. It begins with site design followed by creation of a document file that displays the website's content.

A website is an interactive multimedia form of communication. Designing a website begins with determining the site's overall content. The content is then broken down into a series of related pieces of information. The overall site design is commonly represented in a **graphical site map**.

Notice that in the graphical site map shown in Figure 3-14, each block in the map represents a web page. Lines joining the blocks represent links to related

ethics

Image editing software has made it easy to alter any photo or video to correct for a variety of different imperfections. However, some professionals can use these programs to significantly manipulate the content or meaning of a photo or video. Such changes are often intended to influence the opinions or emotions of the viewer. Supporters argue that this type of editing is acceptable and is just another way to express an opinion or feeling from an editor. Critics note that this type of image and video manipulation is unethical because it is being used intentionally to mislead and fool the public. What do you think?

To see more ethical issues, visit our website at www.computing2014.com and enter the keyword **ethics**.

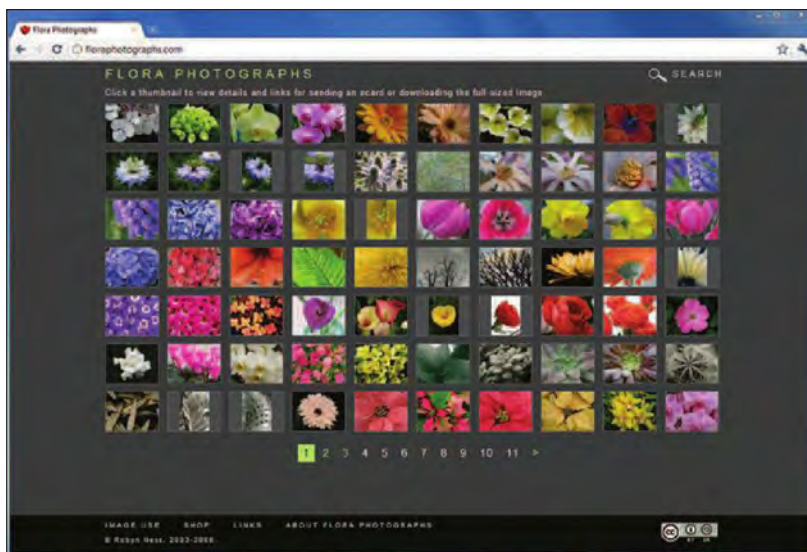


Figure 3-13 Flora Photographs website

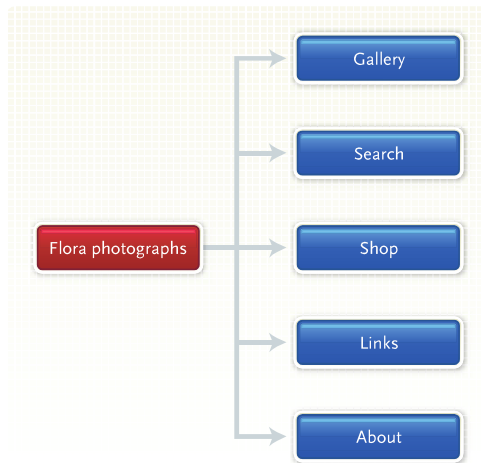


Figure 3-14 Partial graphical site map for the Flora Photographs website

ethics

Application software has become increasingly powerful and, in many cases, can be used to replace many manual processes. These programs can allow a few workers to perform the activities once required by many. For example, a single junior accountant using modern accounting software can accomplish complex bookkeeping tasks that once required several experienced, licensed accountants. Many argue that the continued development of automated software is unethical because it could lead to widespread job loss. Do you agree with this claim?

To see other ethical issues, visit our website at www.computing2014.com and enter the keyword **ethics**.



concept check



- Discuss desktop publishing programs, image editors, and illustration programs.
- What are image galleries? Stock photos? Clip art?
- What are blogs? What is web authoring? What are animations? What is Flash?
- What are web authoring programs, web page editors, HTML editors, and WYSIWYG editors?

pages of information that make up the website. The first page, or main page, typically serves as an introduction and supplies a table of contents. The following pages present the specific pieces or blocks of information.

Multimedia elements are added to individual pages to enhance interest and interactivity. One multimedia element found on many websites is moving graphics called **animations**. These animations can be simple moving text or complicated interactive features. There are many specialized programs available to aid in the creation of animation. One type of interactive animation is produced using software called Adobe **Flash**. Flash movies can be inserted as a part of the page or to encompass the entire screen.

As we mentioned in Chapter 2, web pages are typically HTML (Hypertext Markup Language) and CSS (cascading style sheets) documents. With knowledge of HTML and a simple text editor, you can create web pages. Even without knowledge of HTML, you can create simple web pages using a word processing package like Microsoft Word.

More specialized and powerful programs, called **web authoring programs**, are typically used to create sophisticated commercial sites. Also known as **web page editors** and **HTML editors**, these programs provide support for website design and HTML coding. Some web authoring programs are **WYSIWYG (what you see is what you get) editors**, which means you can build a page without interacting directly with HTML code. WYSIWYG editors preview the page described by HTML code. Widely used web authoring programs include Adobe Dreamweaver and Microsoft Expression Web. The website depicted in Figure 3-13 was created using Adobe Dreamweaver. (See Figure 3-15.)

Other Professional Specialized Applications

There are numerous other specialized applications including accounting, personal finance, and project management applications. Accounting applications help companies record and report their financial operations. Personal financial applications help individuals track their personal finances and investments. Project management software is widely used in business to help coordinate and plan complicated projects.



Explorations

There are several apps that allow you to create and edit various types of Microsoft documents.

To learn more about one of these apps, visit our website at www.computing2014.com and enter the keyword **apps**.

Mobile Apps

Mobile apps or **mobile applications** are add-on programs for a variety of mobile devices including smartphones and tablets. Sometimes referred to simply as **apps**, mobile apps have been widely used for years. The traditional applications include address books, to-do lists, alarms, and message lists. With the introduction of



Figure 3-15 Adobe Dreamweaver and the Flora Photographs website

App	Description	Site
Facebook	Connects to Facebook	www.facebook.com/appcenter
Documents To Go	Edits MS Office documents	www.rim.com
Instagram	Photo effects and sharing	www.instagram.com

Figure 3-16 Specialized apps

smartphones, tablets, and wireless connections to the Internet, mobile capabilities have exploded. Now, any number of applications are available.

Apps

The breadth and scope of available mobile applications for smartphones and other mobile devices are ever expanding. There are over 500,000 apps just for Apple’s iPhone alone. Some of the most widely used are social networking, messaging, web browsing, e-mail, photo sharing, and games. See Figure 3-16 for a list of some specialized apps.

One of the fastest-growing apps is **QR code readers**. These readers allow mobile devices to use their digital cameras to scan QR codes. **QR codes**, also known as **quick response codes**, are graphics that typically appear as black and white boxes that automatically link mobile devices to a variety of different content including games, text, videos, and websites. You likely have seen QR codes in magazines, newspapers, and even in books. See Figure 3-17.

Many apps are written for a particular type of mobile device and will not run on other types. For example, an app designed for Apple’s iPhone may not work with Google’s Android.

App Stores

An **app store** is typically a website that provides access to specific mobile apps that can be downloaded either for a nominal fee or free of charge. Three of the best-known stores are Apple’s App Store, Google Play, and Windows Phone Marketplace. (See Figure 3-18.) Although most of the best-known app stores



Figure 3-17 QR Code

environment

Did you know that using mobile devices and apps can benefit the environment by reducing the production of paper? There are many apps that allow you to read electronic books and reference materials that would otherwise have been printed using a large amount of paper. Furthermore, many apps allow you to write digital notes so that you don’t have to buy paper notebooks or notepads.

To see more environmental facts, visit our website at www.computing2014.com and enter the keyword **environment**.

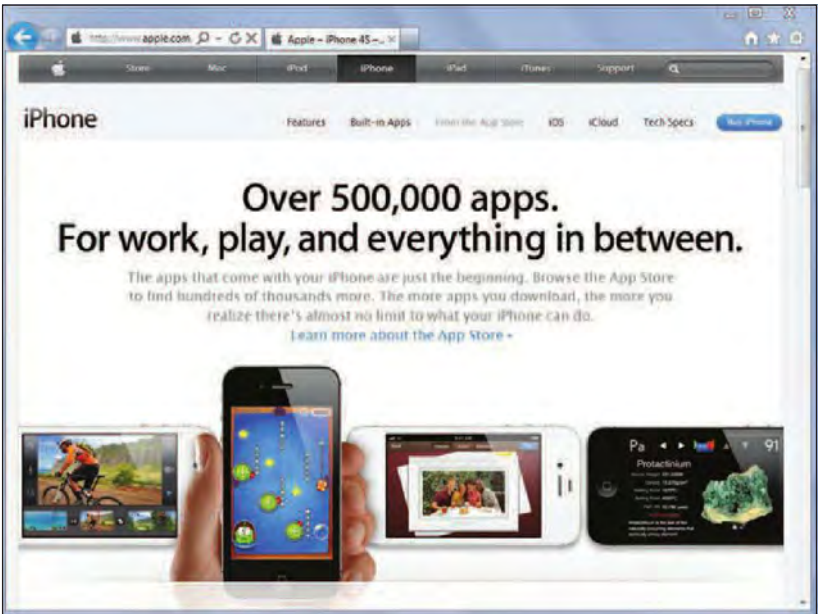


Figure 3-18 Apple's App Store

App	Focus	Site
Apple App Store	iOS devices	www.appstore.com
Google Play	Android devices	play.google.com
BlackBerry App World	BlackBerry products	appworld.blackberry.com
Windows Phone Marketplace	Windows phones	windowsphone.com/marketplace

Figure 3-19 App stores

specialize in applications for a particular line of mobile device, other less well-known stores provide apps for a wide variety of mobile devices. For a list of some more widely used app stores, see Figure 3-19.



concept check



What are mobile apps?



What are some of the most common applications? What are QR codes and QR code readers?



What are app stores?

Software Suites

A **software suite** is a collection of separate application programs bundled together and made available as a group. While the applications function exactly the same whether purchased in a suite or separately, it is significantly less expensive to buy a suite of applications than to buy each application separately. Four types of suites are office suites, cloud suites, specialized suites, and utility suites.

Office Suites

Office suites, also known as **office software suites** and **productivity suites**, contain general-purpose application programs that are typically used in a business situation. Productivity suites commonly include a word processor, spreadsheet, database manager, and a presentation application. The best known is Microsoft Office. (See Figure 3-20.) Other well-known productivity suites are Apple iWork and OpenOffice.



Figure 3-20 Microsoft Office

Cloud Computing

Cloud suites or **online office suites** are stored at a server on the Internet and are available anywhere you can access the Internet. Documents created using online applications can also be stored online, making it easy to share and collaborate on documents with others. One downside to cloud applications is that you are dependent on the server providing the application to be available whenever you need it. For this reason, when using online applications, it is important to have backup copies of your documents on your computer and to have a desktop office application available to use. Popular online office suites include Google Docs, Zoho, and Microsoft Office Web Apps. To learn more about one of the most widely used online office suites, see Making IT Work for You: Google Docs on page 83.

Specialized and Utility Suites

Two other types of suites that are more narrowly focused are specialized suites and utility suites.

- **Specialized suites** focus on specific applications. These include graphics suites, financial planning suites, and many others.
- **Utility suites** include a variety of programs designed to make computing easier and safer. Two of the best known are Norton SystemWorks and Norton Internet Security Suite. (Utility suites will be discussed in detail in Chapter 4.)



concept check



What is a software suite? What are the advantages of purchasing a suite?

What is the difference between a traditional office suite and a cloud or online suite?

What is a specialized suite?

What is a utility suite?



Now, that you have learned about application software, I'd like to tell you about my career as a software engineer.

Careers in IT

Software engineers analyze users' needs and create application software. Software engineers typically have experience in programming but focus on the design and development of programs using the principles of mathematics and engineering.

A bachelor's or an advanced specialized associate's degree in computer science or information systems and an extensive knowledge of computers and technology are required by most employers. Internships may provide students with the kinds of experience employers look for in a software engineer. Those with specific experience with web applications may have an advantage over other applicants. Employers typically look for software engineers with good communication and analytical skills.

Software engineers can expect to earn an annual salary in the range of \$53,000 to \$97,000. Starting salary is dependent on both experience and the type of software being developed. Experienced software engineers are candidates for many other advanced careers in IT. To learn about other careers in information technology, visit us at www.computing2014.com and enter the keyword **careers**.

Making IT work for you

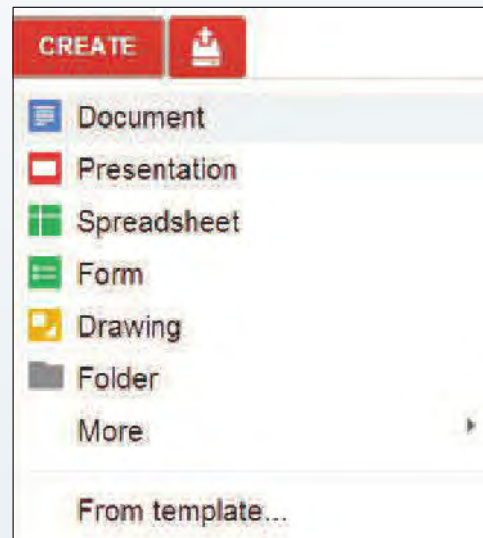
GOOGLE DOCS

Do you need to create and collaborate with others on a document, presentation, or spreadsheet? Do you need access from different computers in different locations? If so, an online office suite, such as Google Docs, might be just what you need.

Creating a Document You must have a free Google account in order to start creating and sharing documents. To get started:

- 1 Go to www.google.com. If you are not currently signed in or you do not have a Google account, click the *Sign in* button and follow the appropriate instructions.
- 2 Once you are signed in, click *Documents* at the top of the page. If the Google Drive screen appears, click the *Get started* button to continue.
- 3 Click the *Create* button; then select *Document*.
- 4 Start typing in the blank document. You will notice many familiar buttons in the toolbar above the document area.
- 5 Click the *Untitled document* area at the top left, and you will be prompted to enter a name for the document.
- 6 Close the browser tab (or window) in order to close the document.

You may have noticed that there is no save option. This is because your document is automatically being saved as you work on it.

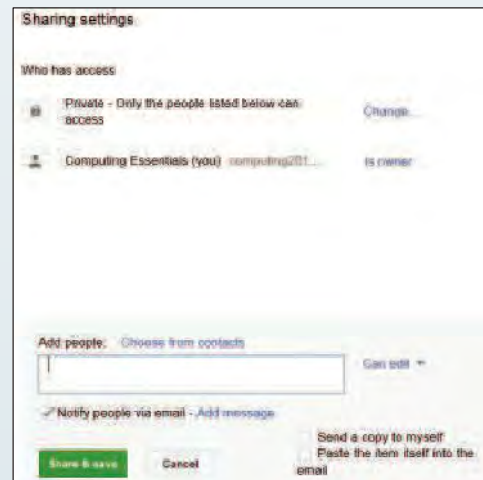


Sharing a Document Any document that you create can be shared with one or more individuals. Those individuals can be granted read-only access, or they could be allowed to edit the document, even at the same time that you are working on it. To share a document:

- 1 With the document open, click the *Share* button at the top right.
- 2 Type in the e-mail addresses of those with whom you wish you share the document.
- 3 To the right of this text box, select the permission these individuals will have for the document.
- 4 Click the *Share & save* button to finish.

The web is continually changing, and some of the specifics presented in this Making IT Work for You may have changed.

To learn about other ways to make information technology work for you, visit our website at www.computing2014.com and enter the keyword [miw](#).



A LOOK TO THE FUTURE

Next-Generation User Interfaces

How will you be interacting with computers in the future? Will you continue using a mouse and keyboard for your desktop, or will touch screen and voice recognition replace them? Will a new type of interface emerge? One thing is for sure: We humans interact with the world around us in many ways, ranging from using our fingers to manipulate objects to making verbal requests. The goal of any future user interface is to bring that same level of interaction to a computer.

There are several challenges with designing interfaces. First is the simple fact that individuals have varying preferences. Some might prefer to interact with a friend through text messages, while others prefer voice communication. Therefore, it is doubtful that a single interface will become dominant. The second challenge is ergonomic in nature; that is, it must be comfortable to use.

Since tablets and smartphones have touch-screen interfaces, many people believe that all home and business computers will eventually have them too. In futuristic movies individuals use both hands to interact with a large screen. Such a setup allows a person to interact with multiple objects at the same time. The only problem with a multitouch, multigesture screen is that it is not comfortable to extend our arms for prolonged periods. Knowing this, many companies are looking toward large, interactive surfaces that perform the same function while lying flat on a desk. Microsoft has already developed a product called "Surface" that acts like a large, interactive table. It responds to both human interactions and objects that are placed on top of it. Although costs prevent it from replacing the desktop of

today, the strain on a person's neck from looking down could prevent it from being used for long periods of time. The ideal use of Surface appears to be activities involving collaboration and teamwork.

Voice recognition is another form of input that is already available, but much improvement is needed. Computers are becoming better at following specific voice commands, but they cannot engage in everyday conversation or follow complex requests. Researchers in the field of artificial intelligence are

working to improve natural language processing to help computers understand our writing and speech. When that is fully developed, you will be able to speak to your computer in the same way you would speak to another person.

The field of interactivity generating the most buzz involves using the entire body. Both cameras and software are becoming sophisticated enough to observe and interpret our movements and ges-

tures. The "Kinect" system for the Xbox 360 is enjoying success for its ability to use body movements to interact with various games and fitness programs. Researchers at MIT are also working with cameras that can observe our gestures and the physical objects we interact with in order to communicate with a computer. In the future, computers could become so attuned to our emotions and expressions that they will be able to see our frustration with the current operation and take various corrective actions to relieve that frustration.

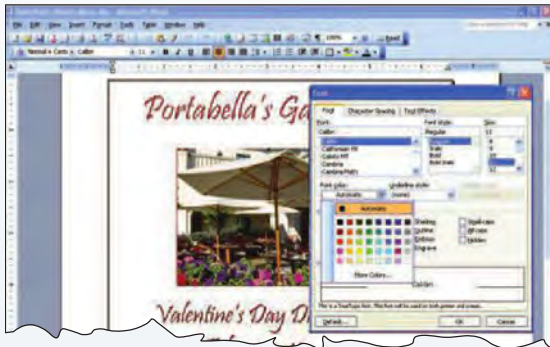
Which type of interface do you currently enjoy using the most? Do you think that touch-screen interfaces will replace keyboards? Do you believe that a computer can ever understand your speech as well as another human does?



VISUAL SUMMARY

Application Software

APPLICATION SOFTWARE



The three categories of application software are general purpose, specialized, and mobile.

User Interface

You control and interact with a program using a user interface. A graphical user interface (GUI) uses icons selected by a mouse-controlled pointer. A window contains a document, program, or message. Software programs with a traditional GUI have:

- **Menus**—present commands listed on the menu bar.
- **Toolbars**—contain buttons for quick access to commonly used commands.
- **Dialog box**—provides additional information or requests user input.

Software programs with a Ribbon GUI have:

- **Ribbons**—replace menus and toolbars.
- **Tabs**—divide ribbons into groups. Contextual tabs automatically appear when needed.
- **Galleries**—graphically display alternatives before they are selected.

Common Features

Common features include spell checkers, alignment, fonts and font sizes, tables, and reports.

GENERAL-PURPOSE APPLICATIONS



General-purpose applications include word processors, spreadsheets, database management systems, and presentation graphics.

Word Processors

Word processors create text-based documents. Individuals and organizations use word processors to create memos, letters, and faxes. Organizations also create newsletters, manuals, and brochures to provide information to their customers. Microsoft Word is the most widely used word processor. Others include Corel WordPerfect, Apple Pages, OpenOffice Writer, and Google Docs.

Spreadsheets

Spreadsheets organize, analyze, and graph numeric data such as budgets and financial reports. They are widely used by nearly every profession. Microsoft Excel is the most widely used spreadsheet program. Others include Apple Numbers and OpenOffice Calc.

To be a competent end user, you need to understand the capabilities of general-purpose and specialized application software. Additionally, you need to know about mobile applications and software suites.

GENERAL-PURPOSE APPLICATIONS



Database Management Systems

A database is a collection of related data. A database management system (DBMS) or database manager is a program that structures a database. It provides tools to enter, edit, and retrieve data from the database. Organizations use databases for many purposes including maintaining employee records. Two widely used database management systems designed for microcomputers are Microsoft Access and OpenOffice Base.

Presentation Graphics

Presentation graphics are programs that combine a variety of visual objects to create attractive, visually interesting presentations. They are excellent tools to communicate a message and to persuade people. People in a variety of settings and situations use presentation graphics programs to make their presentations more interesting and professional. Three of the most widely used presentation graphics programs are Microsoft PowerPoint, OpenOffice Impress, and Apple Keynote.



SPECIALIZED APPLICATIONS



Specialized applications are widely used within specific professions. They include graphics programs and web authoring programs.

Graphics Programs

Graphics programs are used by graphic arts professionals.

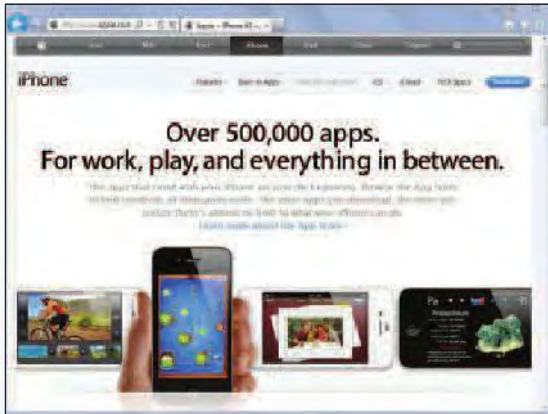
- Desktop publishing programs (page layout programs) mix text and graphics to create professional-quality publications.
- Image editors (photo editors) edit digital photographs consisting of thousands of dots or pixels that form bitmap or raster images.
- Illustration programs (drawing programs) create and edit vector images. Vector images (vector illustrations) use geometric shapes.
- Image galleries are libraries of electronic images. Two basic types are stock photographs and clip art.

Web Authoring Programs

Web authoring is the process of creating a website. Individuals create online diaries called blogs. Many sites have animations (moving graphics) and Flash movies (interactive animation). Website design is represented by a graphical site map.

Web authoring programs (web page editors, HTML editors) create sophisticated commercial websites. Some are WYSIWYG (what you see is what you get) editors.

MOBILE APPS



Mobile apps (mobile applications, apps) are add-on programs for a variety of mobile devices. Traditional applications include address books, to-do lists, alarms, and message lists. Recently mobile capabilities have exploded.

Apps

One of the fastest-growing apps is QR code readers. These readers allow mobile devices to use their digital cameras to scan QR codes. QR codes (quick response codes) are graphics that automatically link mobile devices to content, including games, text, videos, and websites.

App Stores

An app store is typically a website that provides access to specific mobile apps that can be downloaded either for a nominal fee or free of charge. Two of the best-known stores are Apple's App Store and Google Play.

App	Focus	Site
Apple App Store	iOS devices	www.appstore.com
Google Play	Android devices	play.google.com
BlackBerry App World	BlackBerry products	appworld.blackberry.com
Windows Phone Marketplace	Windows phones	windowsphone.com/marketplace

SOFTWARE SUITES



A software suite is a collection of individual application packages sold together.

- **Office suites** (office software suites or productivity suites) contain professional-grade application programs.
- **Cloud suites** (online office suites) are stored on servers and available through the Internet.
- **Specialized suites** focus on specific applications such as graphics.
- **Utility suites** include a variety of programs designed to make computing easier and safer.

CAREERS IN IT



Software engineers analyze users' needs and create application software. Bachelor's or advanced specialized associate's degree in computer science or information systems and extensive knowledge of computers and technology are required. Salary range is \$53,000 to \$97,000.

KEY TERMS

- animation (78)
- app (78)
- application software (64)
- app store (80)
- bitmap (74)
- blog (77)
- button (64)
- clip art (77)
- cloud suite (81)
- contextual tab (65)
- database (71)
- database management system (DBMS) (71)
- database manager (71)
- desktop publishing program (73)
- dialog box (64)
- document (66)
- drawing program (74)
- Flash (78)
- gallery (65)
- general-purpose application (64)
- graphical site map (77)
- graphical user interface (GUI) (64)
- group (65)
- HTML editor (78)
- icon (64)
- illustration program (74)
- image editor (74)
- image gallery (74)
- menu (64)
- menu bar (64)
- mobile app (64, 78)
- mobile application (78)
- office software suite (81)
- office suite (81)
- online office suite (81)
- page layout program (73)
- photo editor (74)
- pixel (74)
- pointer (64)
- presentation graphics (71)
- productivity suite (81)
- QR code (80)
- QR code reader (80)
- quick response code (80)
- raster (74)
- ribbon (65)
- Ribbon GUI (65)
- software engineer (82)
- software suite (81)
- specialized application (64)
- specialized suite (82)
- spreadsheet (69)
- stock photograph (77)
- system software (64)
- tab (65)
- toolbar (64)
- user interface (64)
- utility suite (82)
- vector illustration (74)
- vector image (74)
- web authoring (77)
- web authoring program (78)
- web page editor (78)
- window (64)
- word processor (66)
- WYSIWYG (what you see is what you get) editor (78)

To test your knowledge of these key terms with animated flash cards, visit our website at www.computing2014.com and enter the keyword [terms3](#). Or use the free *Computing Essentials 2014* app.

MULTIPLE CHOICE

Circle the correct answer.

1. This type of software works with end users, application software, and computer hardware to handle the majority of technical details.
 - a. application
 - b. general purpose
 - c. system
 - d. utility
2. A rectangular area that can contain a document, program, or message.
 - a. dialog box
 - b. form
 - c. frame
 - d. window
3. Programs that create text-based documents.
 - a. DBMS
 - b. suites
 - c. spreadsheets
 - d. word processors
4. Programs that organize, analyze, and graph numerical data such as budgets and financial reports.
 - a. DBMS
 - b. suites
 - c. spreadsheets
 - d. word processors
5. Program that allows you to mix text and graphics to create publications of professional quality.
 - a. database
 - b. desktop publishing
 - c. presentation
 - d. productivity
6. The type of image that consists of geometric shapes.
 - a. bitmap
 - b. raster
 - c. ribbon
 - d. vector
7. An online diary or commentary.
 - a. bitmap
 - b. blog
 - c. HTML
 - d. vector
8. Programs that combine a variety of visual objects to create attractive, visually interesting presentations.
 - a. DBMS
 - b. presentation graphics
 - c. spreadsheet
 - d. word processor
9. Graphics that typically appear as black and white boxes that automatically link mobile devices to various content.
 - a. Flash
 - b. animation
 - c. vector
 - d. QR codes
10. Also known as an online suite.
 - a. cloud
 - b. integrated
 - c. office
 - d. utility

For an interactive multiple-choice practice test, visit our website at www.computing2014.com and enter the keyword **multiple3**. Or use the free *Computing Essentials 2014* app.

MATCHING

Match each numbered item with the most closely related lettered item. Write your answers in the spaces provided.

- | | |
|-------------------|---|
| a. buttons | ___ 1. Toolbars typically appear below the menu bar and include small graphic elements called ____. |
| b. cloud | ___ 2. Simplifies the process of making a selection from a list of alternatives by graphically displaying the effect of alternatives before being selected. |
| c. database | ___ 3. A general-purpose program that creates text-based documents. |
| d. galleries | ___ 4. Program that organizes, analyzes, and graphs numerical data. |
| e. image editor | ___ 5. A collection of related data. |
| f. map | ___ 6. Also known as a photo editor, this specialized graphics program edits or modifies digital photographs. |
| g. spreadsheet | ___ 7. The overall site design for a website is commonly represented in a graphical site ____. |
| h. store | ___ 8. A website that provides access to specific mobile apps is known as an app ____. |
| i. utility | ___ 9. A type of suite that is stored at a server on the Internet and is available anywhere you can access the Internet. |
| j. word processor | ___ 10. A type of specialized suite that includes a variety of programs designed to make computing easier and safer. |

For an interactive matching practice test, visit our website at www.computing2014.com and enter the keyword **matching3**. Or use the free *Computing Essentials 2014* app.

OPEN-ENDED

On a separate sheet of paper, respond to each question or statement.

1. Explain the difference between general-purpose and specialized applications. Also discuss the common features of application programs, including those with traditional and ribbon graphical user interfaces.
2. Discuss general-purpose applications, including word processors, spreadsheets, database management systems, and presentation graphics.
3. Discuss specialized applications, including graphics programs, web authoring programs, and other professional specialized applications.
4. Describe mobile apps, including QR code readers and app stores.
5. Describe software suites, including office suites, cloud suites, specialized suites, and utility suites.

DISCUSSION

Respond to each of the following questions.

1 Making IT Work for You: IMAGE EDITORS

Would you like a simple way to fix problems in your photos? Review the Making IT Work for You: Image Editors on pages 75 and 76 and then respond to the following: (a) What software do you currently use to edit your photos? Why did you choose this particular one? If you do not use photo editing software, would you consider installing Windows Live Photo Gallery? Why or why not? (b) List and briefly describe three features of photo editing software.

(c) Do you normally tag your friends and family in photos, either with your software or on a social networking site? Why or why not? (d) Other than on your computer, where else do you store your photos? Do you have all your important folders backed up? If so, where? Would you consider using a cloud service, such as SkyDrive, to store your photos in the future? Why or why not?



2 Making IT Work for You: GOOGLE DOCS

Would you like to try free alternatives to traditional office software suites? Review the Making IT Work for You: Google Docs on page 83 and then respond to the following: (a) Do you currently use Google Docs? If so, what types of documents do you typically create? If not, then list some possible benefits Google Docs could provide. (b) Do you share documents and/or collaborate with others? How do you do it? If you have used Google Docs, describe how you would share documents. (c) Using a search engine or your own research, list a few differences between Google Docs and Microsoft Office Web Apps. Which one do you prefer? Why?

3 Explorations: ADOBE

Did you know that Adobe is one of the leaders in developing software for the graphics, publishing, and web authoring industries? Review the Explorations box on page 73 and then respond to the following: (a) What is the difference between Adobe Reader and Adobe Acrobat? What are some of the benefits of using Acrobat to create and edit PDF files? (b) Which Adobe product is used for professional video editing? What are some key features of video editing software? (c) Briefly describe an Adobe software suite that contains several related products. What are the benefits of purchasing such a suite? (d) What is the Adobe Creative Cloud? Would you use this service instead of purchasing the software? Why or why not?

4 Exploration: MICROSOFT OFFICE APP

Did you know that there are several apps that allow you to create and edit Microsoft Office files? Review the Explorations box on page 78 and then respond to the following: (a) Which mobile operating systems will work with this app? (b) Which types of Microsoft Office files can be created and edited? When these files are viewed on this app, do they retain their formatting and layout? If so, how does the app accomplish this? (c) Does this app offer file synchronization with your desktop or notebook computer? How about the cloud? If so, what are the supported services? (d) Would you purchase this app? Why or why not?

5 Ethics: IMAGE EDITING

Various image and video editing applications have made it easy for both professionals and amateurs to alter photographs and videos. Some of these edits raise ethical concerns when they are used inappropriately. Review the Ethics box on page 77. Research examples of digital photo or video editing that have resulted in controversy and then respond to the following: (a) Do you see any ethical issues related to altering photographs or videos? (b) What do you consider the boundary to be between acceptable editing and deceptive or misleading practices? (c) How does such editing affect courtrooms where visual evidence is often presented? (d) Do you feel the old saying “seeing is believing” needs to be reconsidered for the digital age? Defend your answers.

6 Ethics: AUTOMATION AND APPLICATION SOFTWARE

Modern application software has become easy to use, and many are able to automate many manual processes. This raises an ethical concern about automation reducing the need for human workers in many types of businesses. Review the Ethics box on page 78 and respond to the following: (a) What kind of jobs do you feel are at risk from such software? (b) What are the benefits of businesses using this software? Do customers also benefit? Why or why not? (c) Are there any professions that could enjoy an increase in demand from automation? Explain your answer. (d) How do you feel about automation? Should we regulate the types of programs they develop? How about businesses that use software that replaces human workers? Defend your position.



7 Environment: DOWNLOADING SOFTWARE

Did you know that downloading software can actually generate energy savings? Review the Environment box on page 65 and then respond to the following: (a) Why does purchasing software as a digital download benefit the environment? (b) List a few examples of software that you have purchased and downloaded in the past. If you have never done so, find three examples of application software that you can purchase using this technique. (c) Do you feel that there are any disadvantages to purchasing software online? Explain your answer.



8 Environment: APPS

Did you know that using mobile devices and apps can benefit the environment? Review the Environment box on page 80 and then respond to the following: (a) In what ways are mobile devices helping the environment? (b) Do you currently read any books on mobile devices? If so, list a few of your most recent ones. If you do not, name three of your traditional textbooks that are available as e-books. (c) List and briefly describe three apps that allow you to take notes on your mobile device. If you do not own a mobile device, research these apps for any mobile operating system. (d) Is it possible that mobile devices could actually be worse for the environment? Discuss your response.

