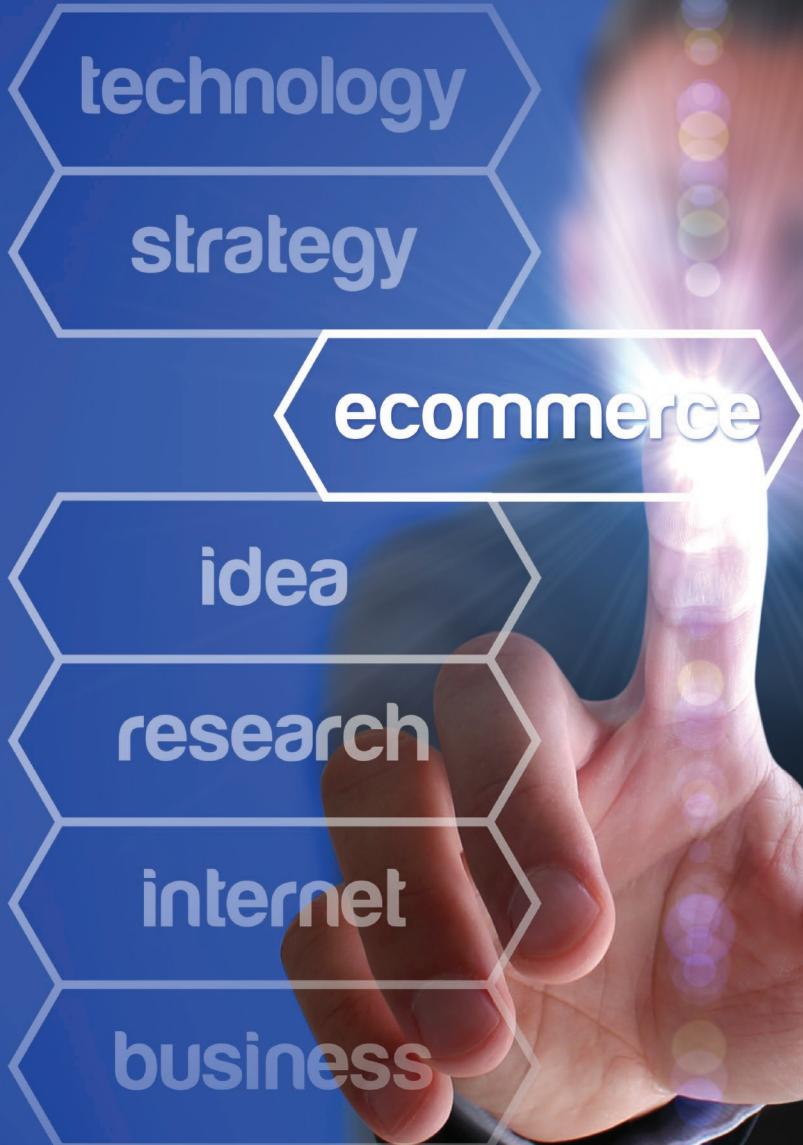


chapter 3

Application Software



Why should I read this chapter?



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The power and capability of application software is exploding. We can expect applications beyond our imagination and to control these applications entirely with our voice, gestures, and thoughts.

This chapter covers the things you need to know to be prepared for this ever-changing digital world, including:

- General-purpose applications—how to create documents, analyze data, make presentations, and organize information.
- Special-purpose applications—how to use programs for image editing, web page creation, video game development, and how to locate and use mobile apps.
- Software suites—how to use suites and cloud-based applications.

Learning Objectives

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

- 1 Identify general-purpose applications.
- 2 Describe word processors, spreadsheets, presentation programs, and database management systems.
- 3 Describe specialized applications, such as graphics, web authoring, and video game development programs.
- 4 Describe mobile apps and app stores.
- 5 Identify software suites.
- 6 Describe office suites, cloud suites, specialized suites, and utility suites.

Introduction

“Hi, I’m Mia, and I’m a software engineer. I’d like to talk with you about application software and how to access these traditional programs using cloud computing.”



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Not long ago, trained specialists were required to manually perform many of the operations you can now do with a computer. 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 personal computer and the appropriate application software.

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

To efficiently and effectively use computers, you need to understand the capabilities of general-purpose application software, which includes word processors, spreadsheets, presentation programs, and database management systems. You also 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, presentation software, and database management systems. Another category, **specialized applications**, includes thousands of other programs that are more narrowly focused on specific disciplines and occupations. The third category, **mobile apps**, consists of programs designed for 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. Depending on the application, you can use a mouse, a keyboard, and/or your voice to communicate with the application. Most general-purpose applications use a mouse and a **graphical user interface (GUI)** that displays graphical elements called **icons** to represent familiar objects. 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.

The standard GUI uses 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.

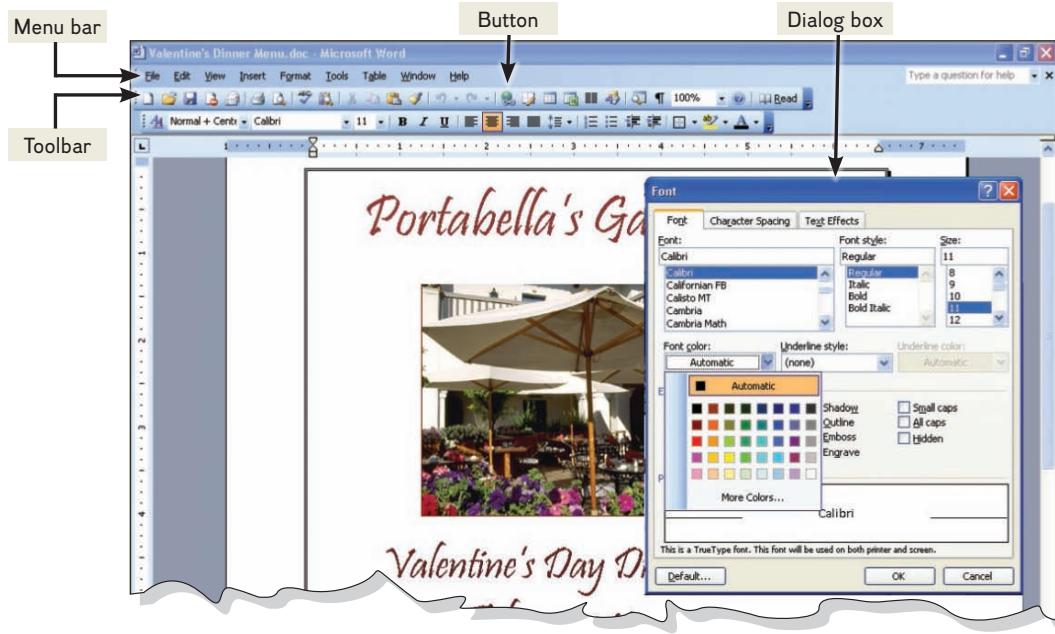


Figure 3-1 Traditional graphical user interface

Source: Microsoft

Many applications, and Microsoft applications in particular, use an interface known as the **Ribbon GUI**, which changes based on the needs of the user. This GUI uses a system of interrelated ribbons, tabs, and galleries. (See Figure 3-2.)

- **Ribbons** replace toolbars and menus by organizing commonly used commands into sets of related activities. These activities are displayed as tabs and appear in the first ribbon.
- **Tabs** divide the ribbon into major activity areas. Each tab is then organized into **groups** that contain related items. Some tabs, called **contextual tabs**, appear only when they are needed and anticipate the next operation to be performed by the user.

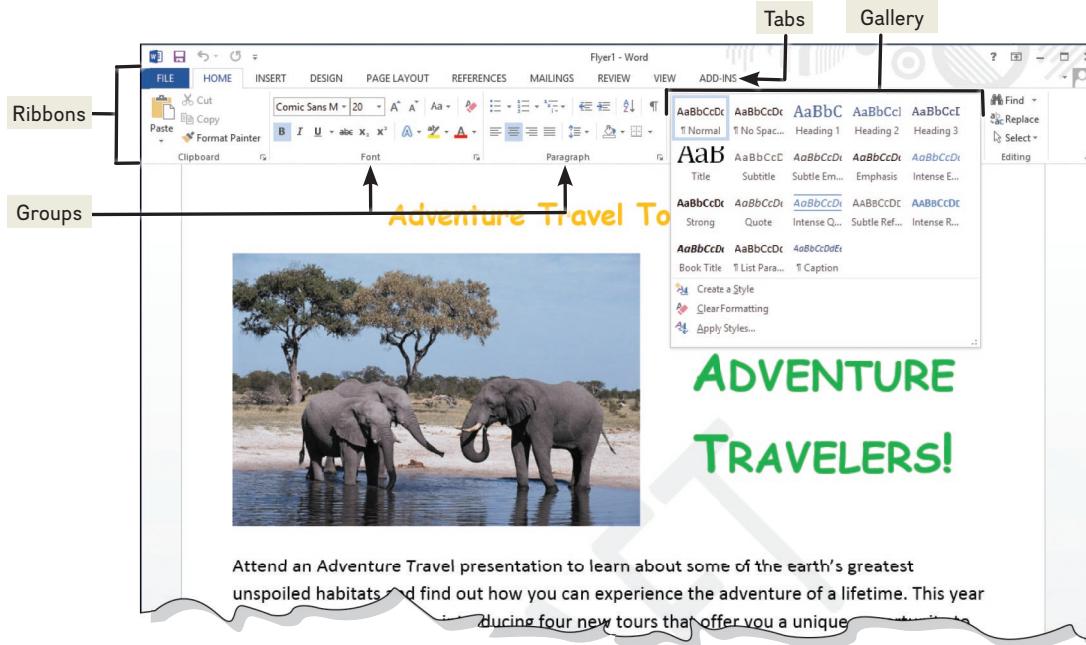


Figure 3-2 Ribbon GUI

Source: Microsoft; ©Comstock/Stockbyte/Getty Images

- **Galleries**, like dialog boxes, provide additional options and simplify choosing an option by showing the effect.

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 checker—looks for misspelled words.
- Alignment—centers, right-aligns, or left-aligns numbers and characters.
- Fonts and font sizes—specify the size and style of entered numbers and text.
- Character effects—provide a variety of different typefaces, such as bold or italics.
- Edit options—provide easy ways to edit text, such as cut, copy, and paste.



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, presentation software, and database management systems.

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 reports. Organizations create newsletters, manuals, and brochures to provide information to their customers. Students and researchers use word processors to create reports.

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

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.

Creating a Flyer

You have been asked to create a promotional advertising flyer. After discussing the flyer's content and basic structure with your supervisor, you start to enter the flyer's text. As you enter the text, the spell 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.

Spell Checker

Correcting spelling and typing errors identified by the **spell 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.

Adventure Travel TOURS

New Adventures



Attention adventure travelers! Attend an Adventure presentation to learn about some of the earth's greatest unspoiled habitats and find out how you can experience the adventure of a lifetime. This year we are offering four new tours:

- India Wildlife Adventure
- Inca Trail to Machu Picchu
- Safari in Tanzania
- Costa Rica Rivers and Rainforests

Call Student Name at
1-800-555-0004 for
presentation locations,
full color brochures,
itinerary information,
costs, and trip dates.

Grammar Checker

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

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 make the flyer more visually interesting.

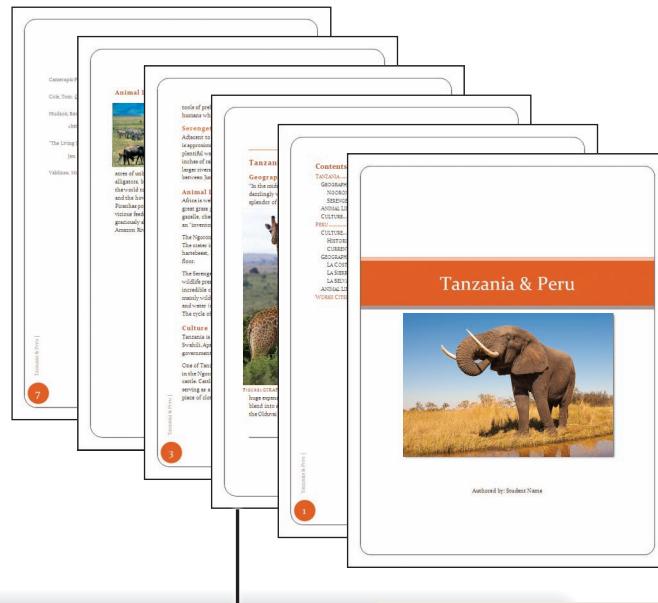
Figure 3-3 Flyer

©Panksvatouny/Shutterstock

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.

Tanzania & Peru

Tanzania

Geography and Climate

"In the midst of a great wilderness, full of wild beasts...I fancied I saw a summit...covered with a dazzlingly white cloud (qtd. in Cole 56). This is how Johann Krapf, the first outsider to witness the splendor of Africa's highest mountain, described Kilimanjaro. The peak was real, though the white clouds he "fancied" he saw were the dense layer of snow that coats the mountain.¹



FIGURE 1: GIRAFFE IN SERENGETI

Some of Tanzania's most distinguishing geographical features are found in the Ngorongoro Conservation Area.² The park is composed of many craters and gorges, as well as lakes, forest, and plains. Among these features is the area's namesake, the Ngorongoro Crater. The Crater is a huge expanse, covering more than one hundred square miles. On the Crater's floor, grasslands blend into swamps, lakes, rivers, and woodland. Also within the Conservation Area's perimeter is the Olduvai Gorge, commonly referred to as the "Cradle of Mankind," where in 1931 the stone

Ngorongoro Conservation Area

Mt. Kilimanjaro is 19,340 feet high, making it the fourth tallest mountain in the world.

The Conservation Area is a national preserve spanning 3,196 square miles.

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.

Header or Footer

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

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.

Figure 3-4 Report

©WLDavies/iStock/Getty Images; ©Paul Springett/Alamy; ©WLDavies/iStock/Getty Images; ©Donvanstaden/Getty Images

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, Google Sheets, 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

Functions are prewritten formulas. In this case, cell C22 (Total Expenses for February) contains the function `SUM(C14:C21)` rather than the formula `=C14 + C15 + C16 + C17 + C18 + C19 + C20 + C21`.

Cells

Cells can contain labels, numbers, formulas, and functions. A cell's content is indicated by the row and column labels. For example, cell D16 contains a number for the Payroll expense expected for March.

| Downtown Internet Café First Quarter Forecast | | | | | | |
|--|-----------|-----------|---------------------|-----------|-----------|--|
| | JAN | FEB | MAR | TOTAL | Avg | |
| 6 Sales | | | | | | |
| 7 Espresso | \$ 13,300 | \$ 13,600 | \$ 14,200 | \$ 41,100 | \$ 13,700 | |
| 8 Drip Coffee | \$ 5,800 | \$ 6,000 | \$ 6,200 | \$ 18,000 | \$ 6,000 | |
| 9 Food/Beverage | \$ 3,600 | \$ 3,800 | \$ 3,800 | \$ 11,200 | | |
| 10 Merchandise | \$ 1,000 | \$ 1,100 | \$ 1,100 | \$ 3,200 | | |
| 11 Computer | \$ 400 | \$ 400 | \$ 400 | \$ 1,200 | | |
| 12 Total Sales | \$ 24,100 | \$ 24,900 | \$ 25,700 | \$ 74,700 | | |
| 13 Expenses | | | | | | |
| 14 Cost of Goods | \$ 7,225 | \$ 7,480 | \$ 7,690 | \$ 22,395 | | |
| 15 Cost of Merchandise | \$ 700 | \$ 770 | \$ 770 | \$ 2,240 | | |
| 16 Payroll | \$ 9,000 | \$ 9,000 | \$ 9,000 | \$ 27,000 | \$ 9,000 | |
| 17 Internet | \$ 325 | \$ 325 | \$ 325 | \$ 975 | \$ 325 | |
| 18 Building | \$ 2,100 | \$ 2,100 | \$ 2,100 | \$ 6,300 | \$ 2,100 | |
| 19 Advertising | \$ 600 | \$ 600 | \$ 600 | \$ 1,800 | \$ 600 | |
| 20 Capital Assets | \$ 1,500 | \$ 1,500 | \$ 1,500 | \$ 4,500 | \$ 1,500 | |
| 21 Miscellaneous | \$ 1,300 | \$ 1,300 | \$ 1,300 | \$ 3,900 | \$ 1,300 | |
| 22 Total Expenses | \$ 22,700 | \$ 23,075 | \$ 23,285 | \$ 69,110 | \$ 23,037 | |
| 23 Income | | | | | | |
| 24 Net Income | \$ 1,350 | \$ 1,825 | \$ 2,415 | \$ 5,590 | \$ 1,863 | |
| 25 Profit Margin | 5.60% | 7.33% | 9.40% | 7.48% | 7.48% | |
| | | | Income Year-To-Date | \$ 5,590 | | |

Figure 3-5 First-quarter forecast

©Stockbyte/Getty Images

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.

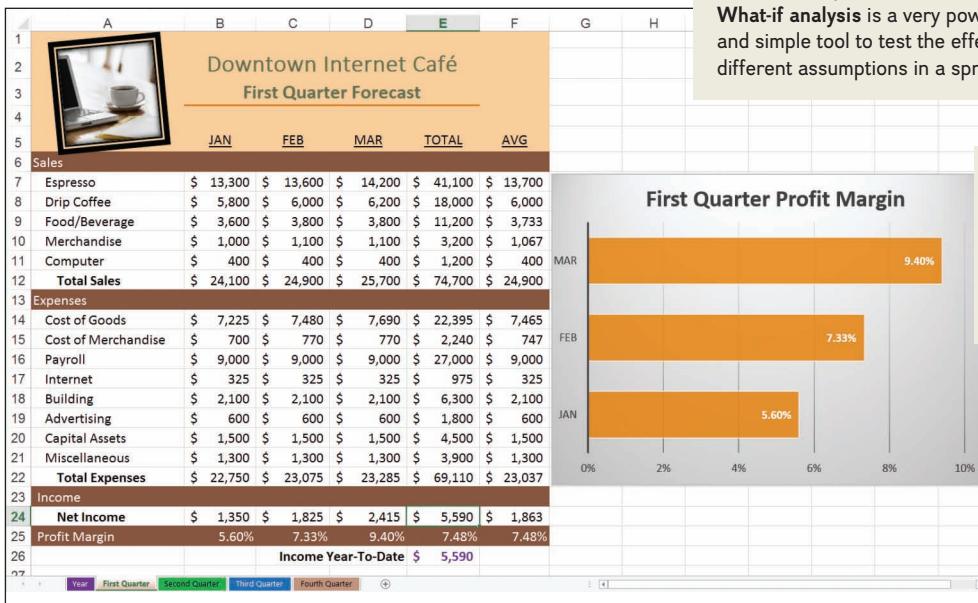
| | A | B | C | D | E | F | G | H | I | J |
|----|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | | | | | | |
| 2 | | | | | | | | | | |
| 3 | | | | | | | | | | |
| 4 | | | | | | | | | | |
| 5 | | | | | | | | | | |
| 6 | | | | | | | | | | |
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| 23 | | | | | | | | | | |
| 24 | | | | | | | | | | |
| 25 | | | | | | | | | | |
| 26 | | | | | | | | | | |
| 27 | | | | | | | | | | |

Sheet Name

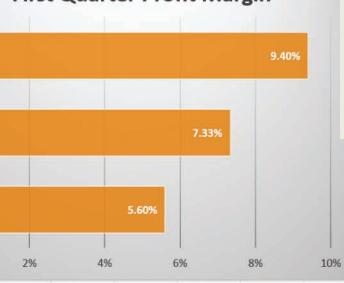
Each worksheet has a unique **sheet name**. To make the workbook easy to navigate, it is a good practice to always use simple yet descriptive names for each worksheet.

What-If Analysis

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



First Quarter Profit Margin



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.

Figure 3-6 Annual forecast and analysis

©Stockbyte/Getty Images; ©Stockbyte/Getty Images

Presentation Software

Presentation software 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 software programs to make their presentations. For example, marketing managers use presentation software to present proposed marketing strategies to their superiors. Salespeople use these programs to demonstrate products and encourage customers to make purchases. Students use presentation software to create high-quality class presentations.

Five of the most widely used presentation software programs are Microsoft PowerPoint, Apple Keynote, Google Slides, OpenOffice Impress, and Prezi.

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 3-7.

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.

How Does the Foundation Help?

- ▶ Provides temporary homes
- ▶ Provides obedience training
- ▶ Provides veterinary care
- ▶ Finds loving permanent homes

Templates

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

Who Are Animal Angels?

- ▶ Believe unwanted animals deserve a home
- ▶ Believe you can teach an old dog new tricks
- ▶ Believe you can retrain animals to be loving



Join Animal Angels

Animal Rescue Foundation
Volunteer Coordinator

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.

Figure 3-7 Presentation

©Image Source/Getty Images

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.

Three widely used database management systems designed for personal computers are Microsoft Access, Apple FileMaker, and OpenOffice Base.

Assume that you have accepted a job as an employment administrator for the Life-style Fitness Club. To see how you could use Microsoft Access, see Figure 3-8.

Creating a Database

You have been asked to create an employee database to replace the club's manual system for recording employee data. Using Microsoft Access, 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.

| Employee ID | Last Name | First Name | Address | City | State | Home Phone | Birth Date | Photo/Resume |
|-------------|-----------|------------|--------------------|--------------|-------|----------------|------------|--------------|
| 12655 | Lahti | Jill | 5401 E. Thomas Rd. | Landis | CA | (507) 555-4765 | 6/14/1980 | |
| 22407 | Mazeau | Rebecca | 7383 Oak Dr. | Landis | CA | (941) 555-1093 | 9/23/1982 | |
| 03225 | | | | aldin | CA | (507) 555-4567 | 3/5/1984 | |
| 99999 | | | | ver Mist | CA | (507) 555-9999 | 1/1/1989 | |
| 00617 | | | | ndis | CA | (507) 555-0001 | 5/19/1972 | |
| 00907 | | | | ndis | CA | (507) 555-3333 | 7/7/1977 | |
| 12194 | | | | aldin | CA | (507) 555-1018 | 3/13/1990 | |
| 12247 | | | | esterfield | CA | (507) 555-4797 | 5/30/1988 | |
| 12594 | | | | aldin | CA | (507) 555-1139 | 11/5/1986 | |
| 12230 | | | | ndis | CA | (507) 555-1191 | 7/14/1988 | |
| 13005 | | | | aldin | CA | (941) 555-4532 | 5/21/1988 | |
| 12612 | | | | ver Mist | CA | (507) 555-4789 | 9/30/1981 | |
| 06000 | | | | aldin | CA | (507) 555-3730 | 4/5/1982 | |
| 22297 | Rogondino | Patricia | 7583 Turquoise | Chesterfield | CA | (941) 555-4539 | 8/30/1980 | |
| 07287 | Roman | Anita | 2348 S. Bala Dr. | Maldin | CA | (507) 555-4870 | 3/15/1990 | |
| 12918 | Ruiz | Carlos | 10101 First St. | Maldin | CA | (507) 555-0125 | 7/27/1987 | |
| 08391 | Ruiz | Enrique | 35 Palm St. | Chesterfield | CA | (507) 555-0091 | 12/10/1982 | |
| 04321 | Sabin | Greg | 90 E. Rawhide Ave. | Chesterfield | CA | (507) 555-4455 | 9/30/1987 | |
| 00212 | Schiff | Chad | 235 N. Cactus Dr. | | | | | |
| 22114 | Schneider | Paul | 1731 Jackson Ave. | | | | | |
| 01421 | Spehr | Timothy | 90 Royal Dr. | | | | | |
| 12366 | Stacey | David | 737 S. College Rd. | | | | | |
| 13497 | Steele | Jeff | 1011 E. Holly Ln. | | | | | |
| 12668 | Stueland | Valerie | 34 University Dr. | | | | | |
| 12583 | Sullivan | Marie | 78 Omega Drive | | | | | |
| 12867 | Tallic | Elvis | 21 Oasis St. | | | | | |

Fields
Fields are given 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.

Employee Records

| | | | |
|-------------|---|--------------|--|
| Employee ID | <input type="text" value="08391"/> | Photo/Resume | |
| Last Name | <input type="text" value="Ruiz"/> | | |
| First Name | <input type="text" value="Enrique"/> | | |
| Address | <input type="text" value="35 Palm St."/> | | |
| City | <input type="text" value="Chesterfield"/> | | |
| State | <input type="text" value="CA"/> | | |
| Home Phone | <input type="text" value="(507) 555-0091"/> | | |
| Birth Date | <input type="text" value="12/10/1982"/> | | |

Figure 3-8 Database

©Sam Edwards/age fotostock

64 CHAPTER 3



concept check



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

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

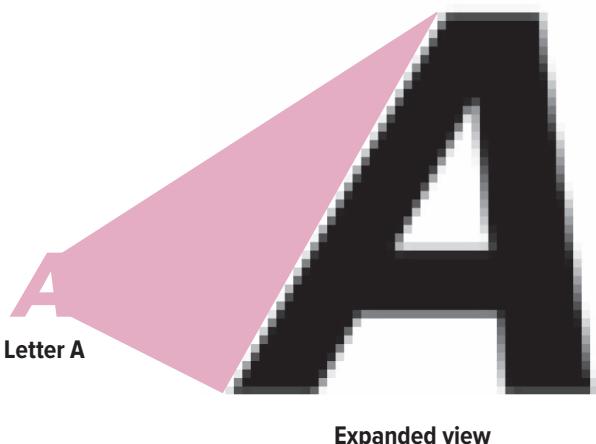
Graphics are widely used by professionals in the graphic arts profession. They use desktop publishing programs, image editing programs, illustration programs, and video editors.

- **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. These programs provide the capability to create text and graphics; however, typically graphic artists import these elements from other sources, including word processors, digital cameras, scanners, image editors, illustration programs, and image galleries.

- **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 PaintShop Pro, GIMP (GNU Image Manipulation Program), and Windows Photo Gallery.



Expanded view

Figure 3-9 Bitmap image

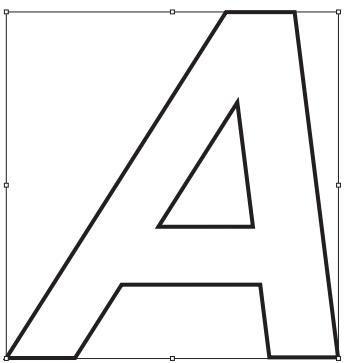


Figure 3-10 Vector image

- **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. These objects are created by connecting lines and curves, avoiding the pixelated or ragged edges created by bitmap images. (See Figure 3-10.) 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.

- **Video editors** are used to edit videos to enhance quality and appearance. Once used only by Hollywood professionals, video editors are now widely used to edit high-quality video captured using smartphones and other devices. You can readily add special effects, music tracks, titles, and on-screen graphics.

Just a few years ago, video editors were used only by professionals with expensive specialized hardware and software. Now, there are several free or inexpensive editors designed to assist the amateur videographer. Three well-known video editors are Microsoft's Story Remix, Apple iMovie, and Adobe Premier. (See Figure 3-11.)



concept check



What are desktop publishing programs?

What are image editors? Bitmap images?

What are illustration programs? Vector images?

What are video editors?

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 intentionally misleads the viewer and often creates unobtainable or unhealthy definitions of beauty. What do you think?

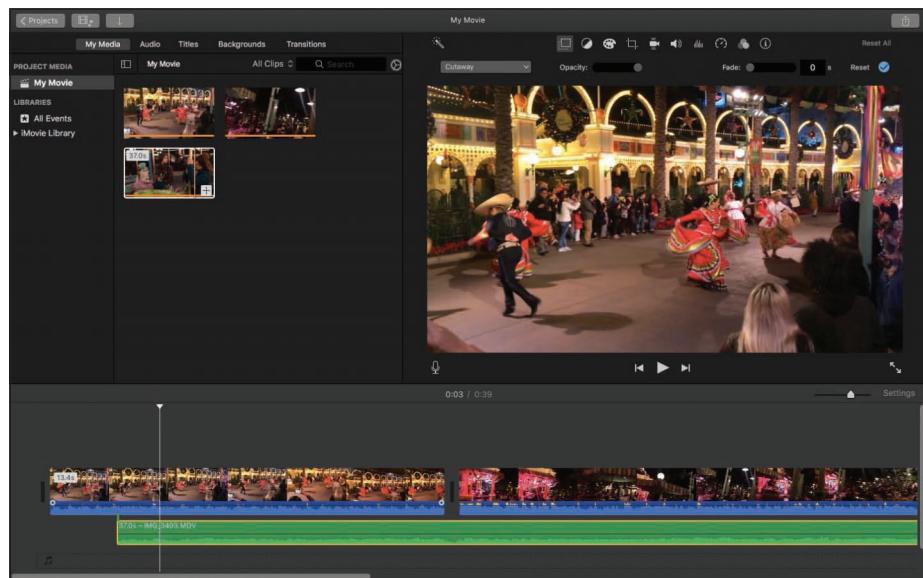


Figure 3-11 Video editor

Source: Apple

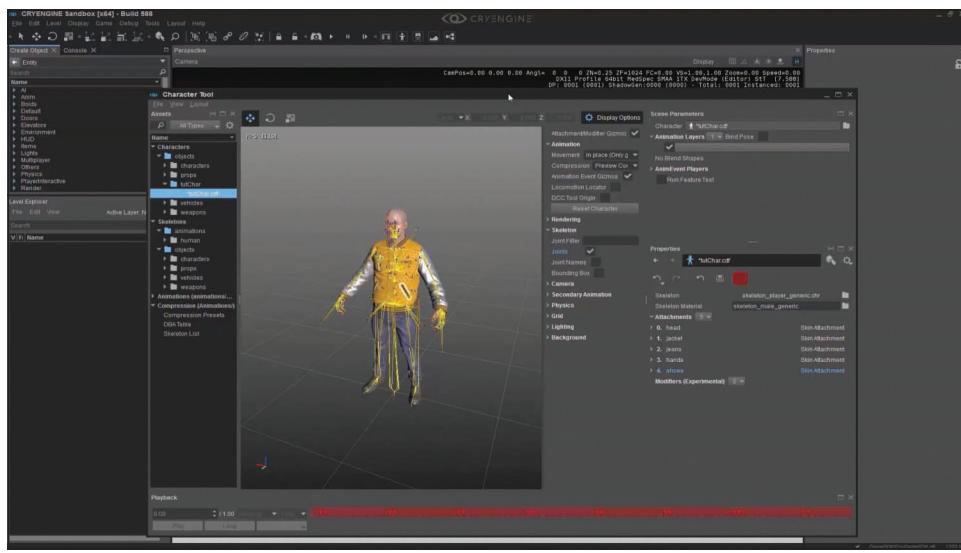


Figure 3-12 Video game design software

Source: Cryengine

Video Game Design Software

Have you ever thought about designing a video game? Although it may initially be unrealistic to create an immersive 3D world like Call of Duty or Grand Theft Auto, you can experiment and create some impressive games on your own with the right software. The first step is to visualize the game by thinking about the game's length and plot. The second step is to choose the right video game design software.

Video game design software will help you organize your thoughts and guide you through the game design process, including character development and environmental design. There are many choices from free software to very expensive software designed for professional game designers. The video game design software behind some of the biggest games include the Unreal Game Engine 4, the Unity development kit, and the CryEngine SDK. (See Figure 3-12.)

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. Individuals create online diaries or commentaries, called **blogs**. Creating a site is called **web authoring**.

Almost all websites consist of interrelated web pages. 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.

Other Specialized Applications

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



concept check



What is video game design software?



What are blogs? Web authoring? Web authoring programs? WYSIWYG?

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 smartphones, tablets, and wireless connections to the Internet, mobile capabilities are almost limitless. 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 for listening to music, viewing video, social networking, shopping, and game playing.

environment

Digital Paper

Have you considered how you can better use your application software to reduce waste and improve efficiency? Traditionally, when reviewing a paper or essay, a student would print out the document and write margin notes and add editing changes. However, with modern general-purpose applications, these notes and edits can be added to the document digitally. Similarly, mobile apps offer new ways to replace traditional paper actions—like digitally signing documents or highlighting text on e-books. What applications do you use that could reduce paper use?

- Music. For many, their smartphone and/or tablet is their primary source for music. The mobile apps Pandora and Spotify offer free streaming music with ads and playlists that you can customize in a limited way. For a monthly fee, most streaming music services will offer ad-free music and extra features.
- Video. With faster data speeds and higher-resolution screens, smartphones and tablets are becoming a favorite way to watch TV shows, movies, or video clips. The YouTube app offers access to free online videos such as movie trailers and video blogs. The Netflix app provides access to more professional videos for a fee.
- Social networking. Mobile apps are ideal for sharing a picture while on vacation, checking in at your favorite coffee shop, or sending out invites to a last-minute party. The Facebook mobile app offers many of the features of the Facebook website, with additional features that take advantage of a mobile device's camera and GPS capability. The Instagram app provides a more specialized and artistic flair by focusing on sharing photos.
- Shopping. A recent poll concluded that well over half of all smartphone users in the United States regularly use their phones for shopping. By scanning a product's barcode, shopping apps search for the product and provide price comparisons as well as product reviews. Using Amazon's Price Check app, all you need to do is take a picture of the product.

- Games. One of the most popular activities on smart-phones and tablets is game playing. Some of these games are quite basic, are free, and include in-app optional purchases. For example, Crossy Road challenges game players to assist a character across obstacles (roads, rivers, grass, and train tracks) without succumbing to obstacles such as rivers, trees, trains, and cars. Players have the option to buy additional characters. Some other games are quite complex and are not free. For example, Final Fantasy is a popular **role playing game (RPG)** where gamers can join a team of adventurers and battle across fantastic worlds. (See Figure 3-13.)

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.



Figure 3-13 Final Fantasy game

Source: Square Enix

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. (See Figure 3-14.) Although most of the best-known app stores specialize in applications for a particular line of mobile devices, 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 3-15.

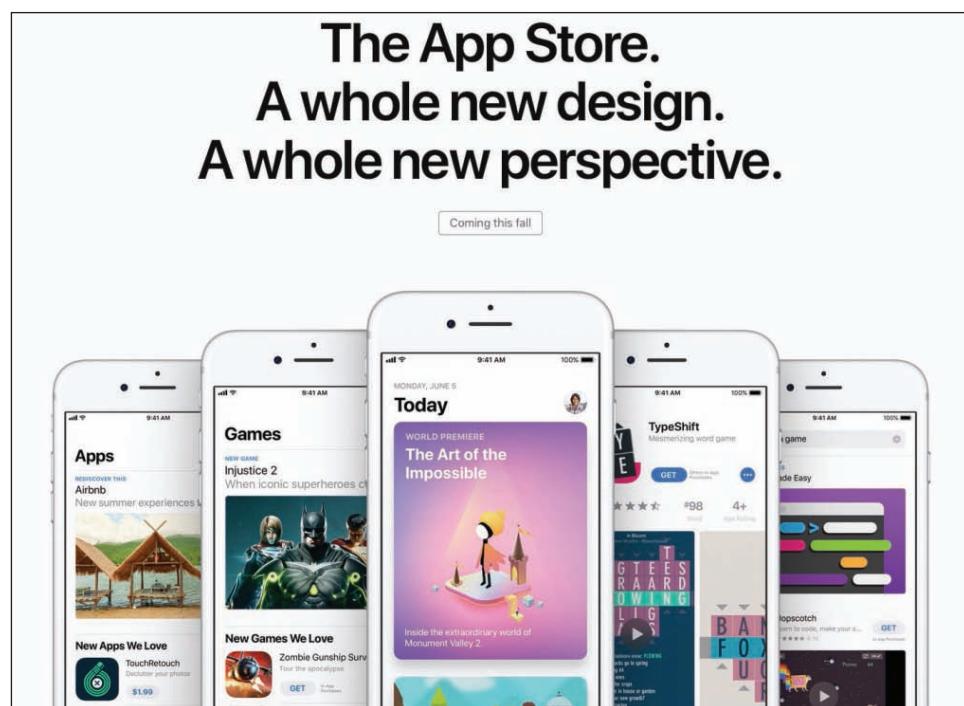


Figure 3-14 Apple's App Store

Source: Apple

privacy

Although mobile apps on your smartphone are an amazing way to share your life with friends and family on social media, it is easy to forget that these apps are constantly recording data relative to your location, photos you take, and local businesses that you visit. Privacy advocates are concerned that this data might be used for unintended purposes. For example, employers could access and use this information when deciding who to hire. In fact, such cases are documented. Employers argue that they should consider every aspect of a future or current employee, including how an employee's media presence could reflect on the company. What do you think?

| App Store | Focus | Site |
|-----------------|-----------------|----------------------------|
| Apple App Store | Apple devices | itunes.apple.com/us |
| Google Play | Android devices | play.google.com/store/apps |
| Amazon | Android devices | http://amazon.com/appstore |

Figure 3-15 App stores



concept check



What are mobile apps? What are they used for?

Describe two types of game apps. What is RPG?

What are app stores? What are they used for?

Software Suites

A **software suite** is a collection of separate application programs bundled together and made available as a group. 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. Other well-known productivity suites are Apple iWork and OpenOffice.

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 365 and Office for iPad. (See Figure 3-16.) To learn more about online office suites, see Making IT Work for You: Online Office Suites on pages 72 and 73.

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 like CorelDRAW Graphics Suite X6, financial planning suites like Moneytree Software's TOTAL Planning Suite, 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.)

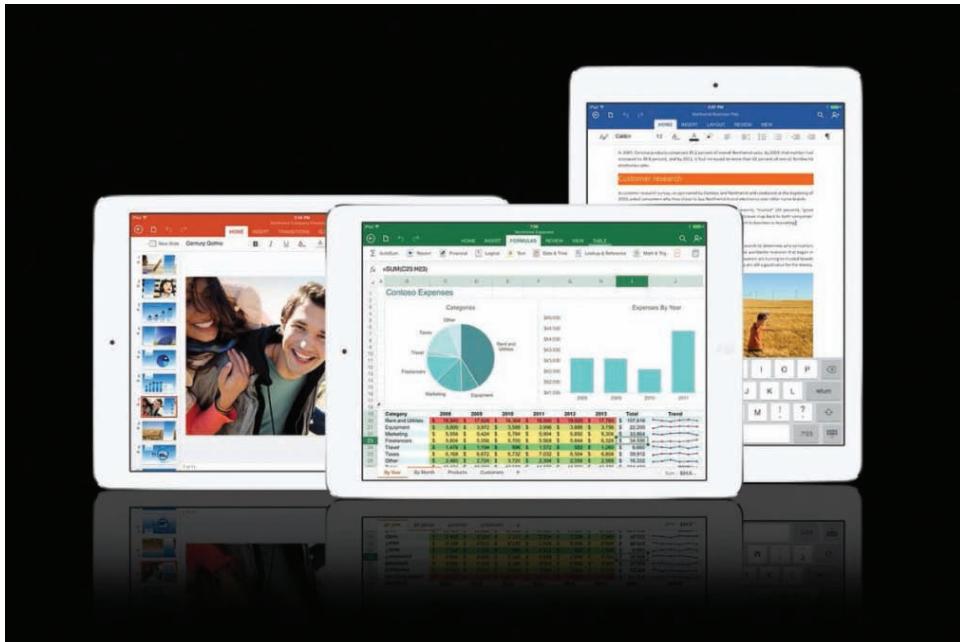


Figure 3-16 Office for iPad

Source: Microsoft



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?

Careers in IT

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



©sheff/Shutterstock

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 \$67,000 to \$100,000. 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.

WORKING TOGETHER ONLINE

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? Do you want to work on the go—on a tablet or even a smartphone? If so, an online office suite might be just what you need.

Choosing an Online Office Suite The three biggest online office suites are Microsoft Office365, Google Drive, and Apple's iWork. Each is unique, with different prices, strengths, and weaknesses. Here are a few things to consider when choosing an online office suite for your group:

1 • What does your group use now?

To use an online office suite, everyone in your group will need to sign up online and set up their devices. This can be time consuming, but if you are already using one of these tools, the work may already be done. For example, if your group currently uses Google Drive, setting up a collaborative workspace could be as simple as sending an e-mail.

The screenshot shows the G Suite by Google Cloud homepage. At the top, there are navigation links for Home, Features, Solutions, Pricing, and Resources, along with Contact Us and Get Started buttons. Below the navigation, there is a large image of a laptop displaying the G Suite interface with various icons for Gmail, Sheets, Slides, and Calendar. To the left of the laptop, the text "All that you need to do your best work, in one package." is displayed. Below the laptop, there are three sections: Communication (with icons for email, messaging, video, and calendar), Collaboration & Storage (with icons for files, spreadsheets, and presentations), and Security & Administration (with icons for users, security, and administration).

2 • How experienced is your group?

Microsoft Office 365 is the gold standard of office suites, with a huge array of tools and options to tweak any document or presentation, but to use those tools effectively takes experience and knowledge. A novice at word processing may find that Apple iWork is better, with fewer options and a simpler interface. On the other hand, a Microsoft Office guru may be frustrated at iWork's limited features or may not want to invest the time to learn a new interface.

Google Docs If your company or school already uses an online office suite, such as Google Drive or Google Docs, the best online tool may be the one you already have.

Source: Google and the Google logo are registered trademarks of Google Inc.

The screenshot shows the Microsoft Office 365 website. It features a large image of a laptop and a smartphone side-by-side, both displaying video conference interfaces. To the right of the devices, the text "Tools for teamwork" is displayed. Below this, there is a section titled "Easy setup and management" featuring a photo of a man wearing headphones working at a computer. At the bottom of the page, there are three circular icons with the text "With step-by-step guidance", "With 1 TB of storage per user", and "With Microsoft Office 365".

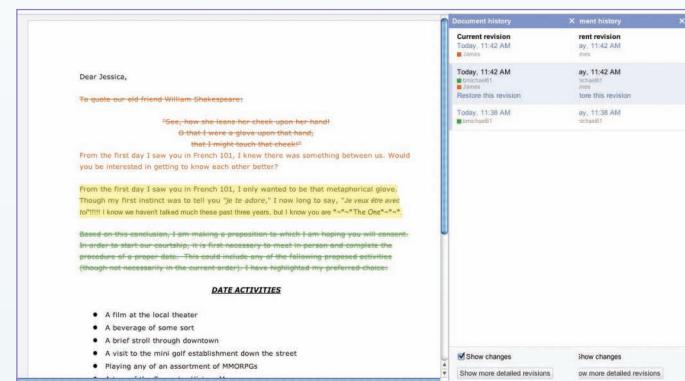
Microsoft Office 365 Collaborative office suites often emphasize their ease of set-up and tools for working with coworkers.

Source: Microsoft

Collaborating with Your Group Online collaborative office suite tools share many important features:

- 1** • **Document versions**—When changes are made to a document by members of the group, the collaborative tools create a new version of the document. This feature allows group members to explore changes in the document without fear of losing important work.
- 2** • **Member changes**—when a group member changes a document, the collaborative tool tells the group about the change by highlighting the change and identifying who made it. Use this tool to track members' impact on the document and to quickly see what changes have been made.
- 3** • **Adding members to the group**—As the document progresses, you may want to get more opinions. Collaborative tools let you add new people to your group, but also limit what they can do. Some group members may be able to view and edit the document, whereas others may only be able to view it. This is a good tool to show someone your work without concern that they might accidentally edit something.

Mobile Tools For many, working at a laptop or desktop computer is the easiest way to compose a document or presentation. However, when traveling on a crowded plane or walking down the hallway with a classmate, you can use online office suites on your tablet or phone. This is a great way to review a document, make a small comment, or quickly show a document to a teacher or friend. Apple, Google, and Microsoft all have apps to download to smartphones and tablets that allow you to view your online documents and make simple changes with interfaces designed for the smaller screens and touch interfaces of tablets and smartphones.



Google Docs Most collaborative online office suites will offer the ability to see who made changes to a document and when and to undo those changes if necessary.

Source: Google and the Google logo are registered trademarks of Google Inc.



Apple's iWorks Many office suites are designed to work with mobile devices and offline utility suites, such as Apple's word processor, Pages, which has apps for computers, laptops, and smartphones.

Source: Apple

A LOOK TO THE FUTURE

VR and AR Applications in the Workplace

Imagine going to the office without leaving your living room. Or traveling to a business meeting across the globe without ever getting on a plane. Virtual reality (VR) head-mounted displays are computer monitors worn on the head that completely obscure the vision of the outside world. Like VR, augmented reality (AR) head-mounted displays resemble glasses, with computer screens that can show images on the glasses or that can be translucent and allow the user to see the world around them. VR and AR applications are reducing our need to physically visit offices and businesses. In the future, these technologies will drastically change and improve the way business is conducted.

Augmented reality glasses and complex camera arrays are looking to vastly change the way in which we videoconference. Imagine a meeting between yourself in L.A. and a coworker in London. You both enter specialized rooms with multiple cameras that capture your position and appearance. You both wear augmented reality eyeglasses. In London, your coworker sits down at a table. AR software records her position and appearance in London and sends that information to you in L.A. Your AR software projects the appearance and position of your coworker onto the transparent AR glasses. Although you can see the room around you, the image of your coworker is overlaid on your vision of the room to give the appearance that she is in the room as well.

As the meeting progresses, you present your ideas to your coworker through charts and graphs. These charts

float around the room in virtual screens. You decide to bring in a third member to the meeting. Your coworkers in the office outside the augmented reality meeting room are using virtual reality headsets, doing their work in virtual offices. You ask your manager to join you, and the manager joins the meeting by changing his virtual location to the meeting room. Because the VR headset covers your manager's face, he appears in the room as an avatar, a virtual representation of your manager.



©Colin Anderson/Blend Images/Getty Images

Virtual reality office spaces have the potential to completely remove the need for office space. Workers could use VR software at home and complete their work with coworkers in a virtual office. Augmented reality programs could allow you to try on clothes without going to the store, overlaying a projection of an outfit to model the style and fit of a garment. Although not common yet, these tools are currently being developed by researchers and scientists.

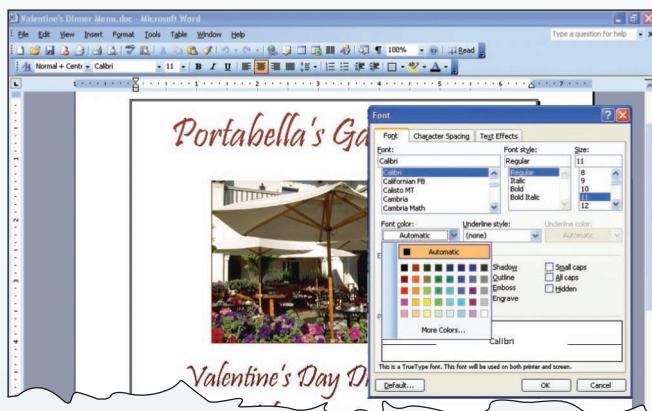
Soon the glasses themselves may be unnecessary. Developments in flexible and translucent screens may one day be so compact that your

AR glasses could be AR contact lenses. Scientists at UC Berkley are working on a power supply that is the size of a grain of rice and transmits power through ultrasonic pulses—allowing energy to pass through the body and be absorbed by the power supply. In this future, a computer screen will always be at your disposal, with hand gestures and head position monitored to create virtual keyboards that only you can see. Would you enjoy working at a virtual desk and attending virtual meetings, or do you think that virtual work would be less productive?

VISUAL SUMMARY

Application Software

APPLICATION SOFTWARE



Source: Microsoft

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, character effects, and editing options.

GENERAL-PURPOSE APPLICATIONS

A screenshot of a travel brochure titled "Adventure Travel Tours New Adventures". It features a photo of a woman feeding giraffes. The brochure includes text about adventure travel, presentation locations, and tour offerings. A call-to-action at the bottom encourages students to call for more information.

©Panksvatouny/Shutterstock

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

Word Processors

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

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, Google Sheets, and OpenOffice Calc.

To efficiently and effectively use computers, 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



©Image Source/Getty Images

Presentation Software

Presentation software 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 software programs to make their presentations more interesting and professional. Five of the most widely used presentation software programs are Microsoft PowerPoint, Apple Keynote, Google Slides, OpenOffice Impress, and Prezi.

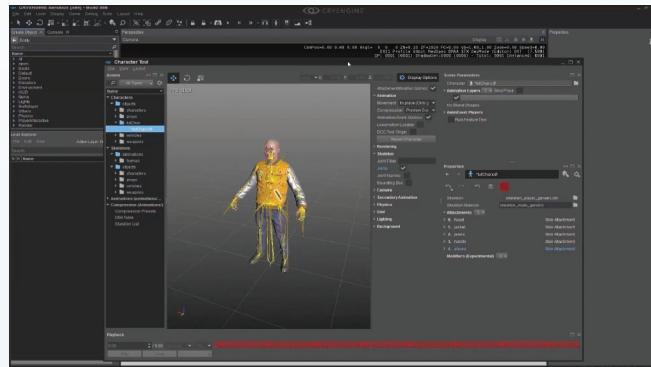
Database Management Systems

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. Three widely used database management systems designed for personal computers are Microsoft Access, Apple FileMaker, and OpenOffice Base.

A screenshot of a computer screen showing a database record for an employee. The title bar says "Employee Records". The form contains fields for Employee ID (08391), Last Name (Ruiz), First Name (Enrique), Address (35 Palm St.), City (Chesterfield), State (CA), ZIP Code (92122-1268), Home Phone ((507) 555-0091), Gender (M), and Birth Date (12/10/1982). To the right of the form is a small photo of a man wearing a headset and smiling.

©Sam Edwards/age fotostock

SPECIALIZED APPLICATIONS



Source: Cryengine

Specialized applications are widely used within specific professions. They include graphics programs, video game design software, 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.
- **Video editors** edit video to enhance quality and appearance.

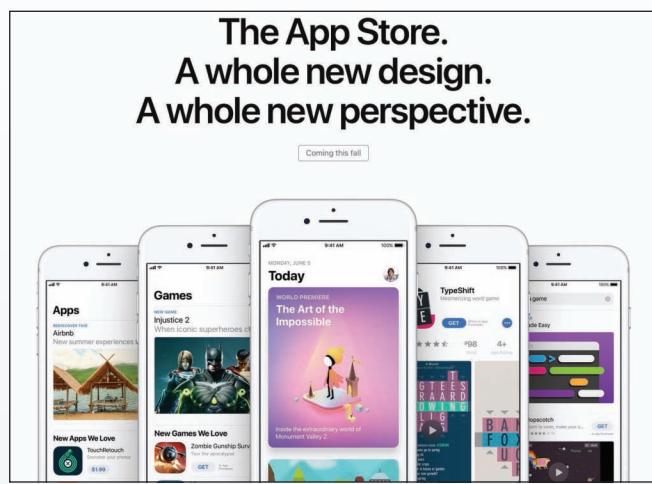
Video Game Design Software

Video game design software helps to organize thoughts and guide users through the game design process, including character development and environmental design.

Web Authoring Programs

Web authoring is the process of creating a website. Individuals create online diaries called **blogs**. **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



Source: Apple

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

Popular apps include those for music, videos, social networking, shopping, and game playing.

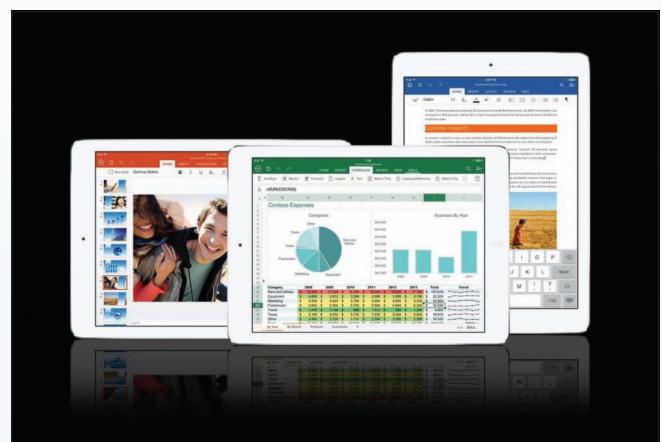
- Pandora and Spotify provide popular music apps.
- YouTube and Netflix provide streaming video apps.
- Facebook and Instagram provide social networking apps.
- Crossy Road and Final Fantasy are popular game playing apps. Crossy Road includes in-app optional purchases, including the ability to purchase additional characters. Final Fantasy is a **role playing game (RPG)** where gamers can join a team of adventurers and battle across fantastic worlds.

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. Most of the best-known app stores specialize in applications for a particular line of mobile devices, other less well-known stores provide apps for a wide variety of mobile devices.

| App Store | Focus | Site |
|-----------------|-----------------|--|
| Apple App Store | Apple devices | itunes.apple.com/us |
| Google Play | Android devices | play.google.com/store/apps |
| Amazon | Android devices | http://amazon.com/appstore |

SOFTWARE SUITES



Source: Microsoft

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



©sheff/Shutterstock

Software engineers analyze users' needs and create application software. A 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 \$67,000 to \$100,000.

KEY TERMS

- app (68)
- application software (56)
- app store (77)
- bitmap (65)
- blog (67)
- button (56)
- cloud suite (70)
- contextual tab (57)
- database (65)
- database management system (DBMS) (65)
- database manager (65)
- desktop publishing program (65)
- dialog box (56)
- document (58)
- drawing program (66)
- gallery (57)
- general-purpose application (56)
- graphical user interface (GUI) (56)
- group (57)
- HTML editor (67)
- icon (56)
- illustration program (66)
- image editor (65)
- menu (75)
- menu bar (75)
- mobile app (56)
- mobile application (68)
- office software suite (70)
- office suite (70)
- online office suite (70)
- page layout program (65)
- photo editor (65)
- pixel (65)
- pointer (56)
- presentation software (61)
- productivity suite (70)
- raster (65)
- ribbon (57)
- Ribbon GUI (57)
- role playing game (RPG) (68)
- software engineer (77)
- software suite (70)
- specialized application (56)
- specialized suite (71)
- spreadsheet (58)
- system software (56)
- tab (57)
- toolbar (56)
- user interface (75)
- utility suite (71)
- video editor (66)
- video game design software (67)
- vector illustration (66)
- vector image (66)
- web authoring (67)
- web authoring program (67)
- web page editor (67)
- window (56)
- word processor (58)
- WYSIWYG (what you see is what you get) editor (67)

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. ribbon
 - b. specialized
 - 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 software
 - c. spreadsheet
 - d. word processor
 9. Programs typically used to create sophisticated commercial websites.
 - a. game design programs
 - b. illustration programs
 - c. video editors
 - d. web authoring programs
 10. Also known as an online office suite.
 - a. cloud suite
 - b. integrated suite
 - c. business suite
 - d. utility suite

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. pixels | ___ 6. Also known as a photo editor, this specialized graphics program edits or modifies digital photographs. |
| g. spreadsheet | ___ 7. Image editors create images made up of thousands of dots known as _____. |
| 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. |

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 software.
3. Discuss specialized applications, including graphics programs, video game design software, web authoring programs, and other professional specialized applications.
4. Describe mobile apps, including popular apps 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: ONLINE OFFICE SUITES

Review the Making IT Work for You: Online Office Suites on pages 72–73 and then respond to the following: (1) Do you currently use an online office suite? If so, what types of documents do you typically create? If not, then list some possible benefits an online office suite could provide. (2) Do you collaborate with others on creating documents? What are some types of documents you create with others that can take advantage of online collaborative tools? (3) Using a search engine or other type of research tool, identify and list a few differences between the online general-purpose applications: Google Drive and Microsoft's Office365. Which one would work best for your needs? Why?

2 Privacy: SMARTPHONE TRACKING

Review the Privacy box on page 69, and respond to the following: (a) Do you think that smartphone tracking is a violation of your privacy? If yes, what can be done? If no, explain your position. (b) Does a company that tracks your movements have the right to sell this information to other companies? Would your opinion change if the company sells your location information but does not reveal your identity? State and defend your position. (c) Does the government have the right to subpoena GPS information from an app maker? Why or why not? (d) Are there any circumstances in which it would be acceptable/justifiable for a company to reveal location data to the government or another company? If so, give some examples.

3 Ethics: IMAGE EDITING

Review the Ethics box on page 66. Using a search engine or other research tool, find 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.

4 Environment: DIGITAL PAPER

Review the Environment box on page 68, and then respond to the following: (1) Do you use a word processor like Microsoft Word? Do you print out your documents to review, make edits, and share with others? What editing and markup features does your word processor have? Could you share and mark up your papers without printing them out? (2) 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. (3) Do you have paperwork for school or work? Are there PDF versions of the forms you fill out? Would your school or employer accept digital copies of your paperwork submissions? Does your PDF reader app have features for filling out forms and signing documents?

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