SUMMARY

COMPUTERS IN YOUR LIFE

Chapter Objective 1: Explain why it is essential to learn about computers today and discuss several ways computers are integrated into our business and personal lives.

Computers appear almost everywhere in today's world, and most people need to use a computer or a computerized device frequently on the job, at home, at school, or while on the go. **Computer literacy**, which is being familiar with basic computer concepts, helps individuals feel more comfortable using computers and is a necessary skill for everyone today.

Computers abound in today's homes, schools, workplaces, and other locations. Increasingly, students and employees need to use a computer for productivity or research. Individuals often use computers at home and/or carry portable computers or devices with them to remain in touch with others or to use Internet resources on a continual basis.

WHAT IS A COMPUTER AND WHAT DOES IT DO?

Chapter Objective 2: Define a computer and describe its primary operations.

A **computer** is a *programmable* electronic device that accepts **input**; performs **processing** operations; **outputs** the results; and provides **storage** for data, programs, or output when needed. Most computers today also have **communications** capabilities. This progression of input, processing, output, and storage is sometimes called the *information processing cycle*.

Data is the raw, unorganized facts that are input into the computer to be processed. Data that the computer has processed into a useful form is called **information**. Data can exist in many forms, representing *text*, *graphics*, *audio*, and *video*.

Chapter Objective 3: List some important milestones in computer evolution.

One of the first calculating devices was the *abacus*. Early computing devices that predate today's computers include the *slide rule*, the *mechanical calculator*, and Dr. Herman Hollerith's *Punch Card Tabulating Machine and Sorter*. *First-generation computers*, such as *ENIAC* and *UNIVAC*, were powered by *vacuum tubes*; *second-generation computers* used *transistors*; and *third-generation computers* were possible because of the invention of the *integrated circuit* (*IC*). Today's *fourth-generation computers* use *microprocessors* and are frequently connected to the *Internet* and other *networks*. Some people believe that *fifth-generation computers* will likely be based on *artificial intelligence*.

Chapter Objective 4: Identify the major parts of a personal computer, including input, processing, output, storage, and communications hardware.

A computer is made up of **hardware** (the actual physical equipment that makes up the computer system) and **software** (the computer's programs). Common hardware components include the *keyboard* and *mouse* (*input devices*), the *CPU* and *memory* (*processing devices*), *monitors* and *printers* (*output devices*), and *storage devices* and *storage media* (such as *floppy disks*, *CDs*, and *flash memory cards*). Most computers today also include a *modem* or other type of *communications device* to allow users to connect to the Internet or other network.

Chapter Objective 5: Define software and understand how it is used to instruct the computer what to do.

All computers need *system software*, namely an **operating system** (usually *Windows*, *Mac OS*, or *Linux*), to function. The operating system assists with the **boot** process, and then controls the operation of the computer, such as to allow users to run other types of software and to manage their files. Most software programs today use a *graphical user interface* (*GUI*), which typically displays information in **windows** on the **Windows desktop**. The Windows **taskbar** contains the *Start button*, *taskbar buttons* and *taskbar toolbars*, and the *system tray*. Common features found on windows include **menus**, **toolbars**, **icons**, **dialog boxes**, and **sizing buttons**. The **Ribbon** is a new interface used with *Microsoft Office 2007* programs. **Hyperlinks**, sometimes found in windows and documents, are clicked to display another document, Web page, or other information.

Application software consists of programs designed to allow people to perform specific tasks or applications, such as word processing, Web browsing, photo touch-up, and so on. Software programs are written using a *programming language*. Programs are written by **programmers**; **computer users** are the people who use the computer system.

COMPUTERS TO FIT EVERY NEED

Chapter Objective 6: List the six basic types of computers, giving at least one example of each type of computer and stating what that computer might be used for.

Embedded computers are built into products to give them added functionality. **Mobile devices** are small devices with computing or Internet capabilities and are used by individuals to maintain communications with the office while on the road, as well as for quick checks of weather forecasts, flight information, and other Internet resources available for that particular device. A mobile device based on a mobile phone is called a **smart phone**.

Small computers used by individuals at home or work are called **personal computers** (**PCs**) or **microcomputers**. Most PCs today are either **desktop PCs** or **portable PCs** (**notebook computers**, **tablet PCs**, or **handheld computers**) and typically conform to either the *PC-compatible* or *Macintosh* standard. Tablet PCs come in both *slate* and *convertible* tablet *PC* formats; newer fully functioning handheld computers are called **ultra mobile personal computers** (**UMPCs**). **Thin clients** are designed solely to access a network; **Internet appliances** are designed specifically for accessing the Internet and e-mail.

Medium-sized computers, or **midrange servers**, are used in small- to medium-sized businesses to host data and programs that can be accessed by the company network. The powerful computers used by most large businesses and organizations to perform the information processing necessary for day-to-day operations are called **mainframe computers**. The very largest, most powerful computers, which typically run one application at a time, are classified as **supercomputers**. A supercomputer comprised of numerous smaller computers connected together to act as a single computer is called a **supercomputing cluster**.

COMPUTER NETWORKS AND THE INTERNET

Chapter Objective 7: Explain what a network, the Internet, and the World Wide Web are, as well as how computers, people, and Web pages are identified on the Internet.

Computer networks are used to connect individual computers and related devices so that users can share hardware, software, and data as well as communicate with one another. The **Internet** is a worldwide collection of networks. Typically, individual users connect to the Internet by connecting to computers belonging to an **Internet service provider** (**ISP**)—a company that provides Internet access, usually for a fee. One resource available through the Internet is the **World Wide Web**—an enormous collection of **Web pages** located on **Web servers**. The starting page for a **Web site** (a related group of Web pages) is called the *home page* for that site. Web pages are viewed with a **Web browser**, are connected with hyperlinks, and can be used to retrieve news and product information, download music and movies, play online games, shop, and access a host of other activities.

Chapter Objective 8: Describe how to access a Web page.

To access a computer network, you need some type of *modem* or *network adapter*. To access the Internet, an Internet service provider (ISP) is also used. **Internet addresses** are used to identify resources on the Internet and include numerical **IP addresses** and text-based **domain names** (used to identify computers), **uniform resource locators** or **URLs** (used to identify Web pages), and **e-mail addresses** (a combination of a **username** and domain name that is used to send an individual e-mail messages).

Web pages are displayed by clicking hyperlinks or by typing appropriate URLs in the browser's *Address bar*. *Search sites* can be used to locate Web pages matching certain criteria, and **electronic mail** (**e-mail**) is used to send electronic messages over the Internet.

COMPUTERS AND SOCIETY

Chapter Objective 9: Discuss the societal impact of computers, including some benefits and risks related to their prominence in our society.

Computers and devices based on related technology have become indispensable tools for modern life, making ordinary tasks easier and quicker than ever before and helping make today's worker more productive than ever before. However, there are many societal implications related to our heavy use of the Internet and the vast amount of information available through the Internet. Issues include privacy and security risks and concerns, the differences in online and offline communications, the anonymity factor, and the amount of unreliable information that can be found on the Internet.