VISUAL SUMMARY | Information Technology, the Internet, and You

INFORMATION SYSTEMS

The way to think about a microcomputer is to realize that it is one part of an **information system**. There are several parts of an information system:

- **People** are an essential part of the system. The purpose of information systems is to make people, or **end users** like you, more productive.
- **Procedures** are rules or guidelines to follow when using software, hardware, and data. They are typically documented in manuals written by computer professionals.
- **Software (programs)** provides step-by-step instructions to control the computer to convert **data** into **information**.
- **Hardware** consists of the physical equipment. It is controlled by software and processes data to create information.
- **Data** consists of unprocessed facts including text, numbers, images, and sound. **Information** is data that has been processed by the computer.
- **Connectivity** allows computers to connect and share information.

To be computer competent, end users need to understand **information technology (IT)**, including software, hardware, data, and connectivity.
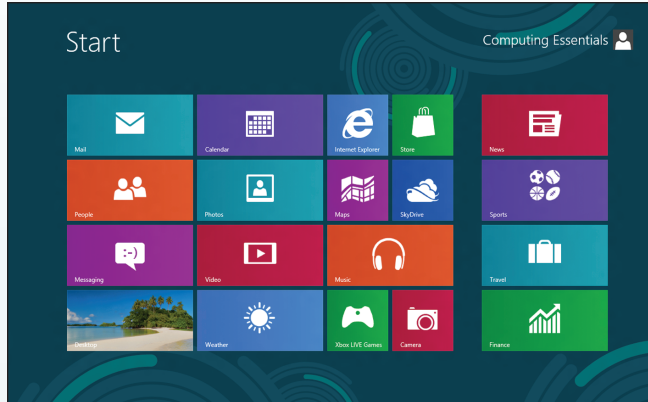
PEOPLE

People are the most important part of an information system. This book contains several features to demonstrate how people just like you use computers. These features include the following:

- **Making IT Work for You** presents several interesting and practical applications. Topics include using digital video editing and locating job opportunities.
- **Tips** offer a variety of suggestions on such practical matters as how to improve slow computer performance and how to protect your privacy while on the web.
- **Explorations** direct you to important information and websites that relate to computers and technology.
- **Ethics** boxes pose a variety of different ethical/unethical situations for your consideration.
- **Environment** discusses important and relevant environmental issues. The impact of computers and other technologies is more critical today than ever before.
- **Careers in IT** presents job descriptions, employment demands, educational requirements, salary ranges, and advancement opportunities.
- **Computing Essentials website** integrates the textbook with information on the web, including animations, career information, tips, test review materials, and much more.

To prepare for your future as a competent end user, you need to understand the basic parts of an information system: people, procedures, software, hardware, data, and connectivity. Also you need to understand the Internet and the web and to recognize the role of technology in your professional and personal life.

SOFTWARE

Software, or **programs**, consists of system and application software.

System Software

System software enables application software to interact with computer hardware.

- **Operating systems** coordinate resources, provide an interface, and run applications.
- **Utilities** perform specific tasks to manage computer resources.
- **Device drivers** are specialized programs to allow input and output devices to communicate with the rest of the computer system.

Application Software

Application software includes general-purpose, specialized, and mobile applications.

- **General purpose**—widely used in nearly all career areas; programs include browsers, word processors, spreadsheets, database management systems, and presentation graphics.
- **Specialized**—focus more on specific disciplines and occupations; programs include graphics and web authoring.
- **Mobile apps**—designed for mobile devices; most popular are for text messaging, Internet browsing, and connecting to social networks.

HARDWARE

Hardware consists of electronic devices that can follow instructions to accept input, process the input, and produce information.

Types of Computers

Supercomputer, mainframe, midrange (server), and **microcomputer** are four types of computers. Microcomputers can be **desktop, notebook (laptop computer), tablet**, or **handheld (PDAs** and **smartphones** are the most widely used handheld microcomputers).

Microcomputer Hardware

There are four basic categories of hardware devices.

- **System unit** contains electronic circuitry, including the **microprocessor** and **memory. Random-access memory (RAM)** holds the program and data currently being processed.
- **Input/output devices** are translators between humans and computers. **Input devices** include the **keyboard** and **mouse. Output devices** include **monitors** and **printers**.
- **Secondary storage** holds data and programs. Typical media include **hard disks, solid-state storage (solid-state drives, flash memory cards**, and **USB drives)**, and **optical discs (CD, DVD**, and **Blu-ray)**.
- **Communication devices** allow microcomputers to communicate with other computer systems. **Modems** modify audio, video, and other types of data for transmission and processing.
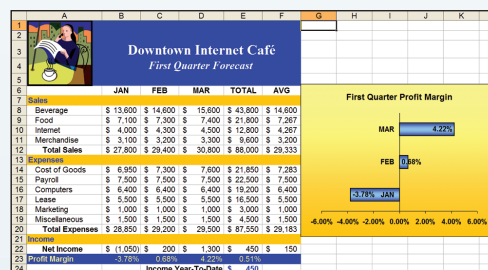
DATA

Data is the raw unprocessed facts about something. Common file types include
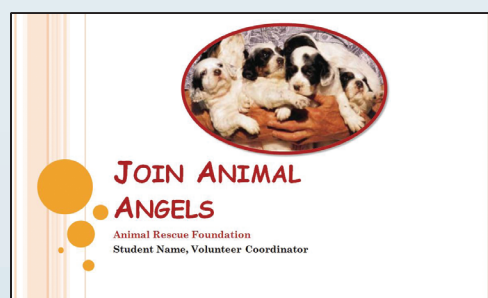
- **Document files** created by word processors.

- **Worksheet files** created by spreadsheet programs.

- **Database files** created by database management programs.

- **Presentation files** created by presentation graphics programs.

CONNECTIVITY

Connectivity

Connectivity describes the ability of end users to use resources well beyond their desktops.

The Wireless Revolution

The **wireless revolution** is the widespread and increasing use of mobile (wireless) communication devices.

Internet

The **Internet** is the world's largest computer **network**. The **web** provides a multimedia interface to resources available on the Internet.

Cloud Computing

Cloud computing uses the Internet and the web to shift many activities from users' computers to computers on the Internet.

CAREERS IN IT

Career	Description
Webmaster	Develops and maintains websites and web resources. See page 51.
Software engineer	Analyzes users' needs and creates application software. See page 82.
Computer support specialist	Provides technical support to customers and other users. See page 112.
Computer technician	Repairs and installs computer components and systems. See page 141.
Technical writer	Prepares instruction manuals, technical reports, and other scientific or technical documents. See page 174.
Network administrator	Creates and maintains computer networks. See page 229.

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KEY TERMS

application software   (9)

Blu-ray disc   (14)

cloud computing   (16)

communication device   (14)

compact disc (CD)   (14)

computer competency   (4)

connectivity   (6, 15)

data   (6)

database file   (15)

desktop computer   (11)

device driver   (9)

digital versatile disc (DVD)   (14)

digital video disc (DVD)   (14)

document file   (15)

end user   (5)

flash memory card   (14)

general-purpose application   (9)

handheld computer   (11)

hard disk   (13)

hardware   (6)

information   (6)

information system   (5)

information technology (IT)   (8)

input device   (12)

Internet   (16)

keyboard   (12)

laptop computer   (11)

mainframe computer   (11)

memory   (12)

microcomputer   (11)

microprocessor   (12)

midrange computer   (11)

mobile app (application)   (9)

modem   (14)

monitor   (12)

mouse   (12)

network   (16)

notebook computer   (11)

operating system   (8)

optical disc   (14)

output device   (12)

people   (5)

personal digital assistant (PDA)   (12)

presentation file   (15)

printer   (12)

procedures   (5)

program   (6)

random-access memory (RAM)   (12)

secondary storage   (13)

server   (11)

smartphone   (12)

software   (6)

solid-state drive (SSD)   (14)

solid-state storage   (14)

specialized application   (9)

supercomputer   (11)

system software   (8)

system unit   (12)

tablet   (11)

tablet computer   (11)

USB drive   (14)

utility   (8)

virus   (8)

web   (16)

wireless revolution   (16)

worksheet file   (15)

To test your knowledge of these key terms with animated flash cards, visit our website at www.computing2014.com and enter the keyword terms1. You can also access flash cards using the *Computing Essentials 2014* app.

MULTIPLE CHOICE

Circle the letter of the correct answer.

1. The keyboard, mouse, monitor, and system unit are:
   a. hardware
   b. output devices
   c. storage devices
   d. software

2. Programs that coordinate computer resources, provide an interface, and run applications are known as:
   a. application programs
   b. operating systems
   c. storage systems
   d. utility programs

3. A browser is an example of a:
   a. general-purpose application
   b. specialized program
   c. system application
   d. utility program

4. Although not as powerful as a supercomputer, this type of computer is capable of great processing speeds and data storage.
   a. mainframe
   b. midrange
   c. notebook
   d. tablet

5. The smallest type of microcomputer:
   a. handheld
   b. notebook
   c. midrange
   d. tablet

6. RAM is a type of:
   a. computer
   b. memory
   c. network
   d. secondary storage

7. Unlike memory, this type of storage holds data and programs even after electric power to the computer system has been turned off.
   a. primary
   b. RAM
   c. ROM
   d. secondary

8. The type of file created by word processors to save, for example, memos, term papers, and letters.
   a. database
   b. document
   c. presentation
   d. worksheet

9. Uses the Internet and the web to shift many computer activities from a user's computer to computers on the Internet.
   a. cloud computing
   b. high definition
   c. network
   d. USB

10. The largest network in the world is [the]:
    a. Facebook
    b. Internet
    c. web
    d. USB

For an interactive multiple-choice practice test, visit our website at www.computing2014
.com and enter the keyword multiple1. You can also access quizzes using the *Computing
Essentials 2014* app.

MATCHING

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

a. desktop
b. modem
c. network
d. output
e. presentation
f. program
g. software
h. solid-state
i. system software
j. system unit

___ 1. Consists of the step-by-step instructions that tell the computer how to do its work.
___ 2. Another name for a program.
___ 3. Enables the application software to interact with the computer hardware.
___ 4. Type of computer that is small enough to fit on top of or alongside a desk yet is too big to carry around.
___ 5. A container that houses most of the electronic components that make up a computer system.
___ 6. Devices that translate the processed information from the computer into a form that humans can understand.
___ 7. Unlike hard disks, this type of storage does not have any moving parts, is more reliable, and requires less power.
___ 8. The most widely used communication device.
___ 9. A type of a file that might contain, for example, audience handouts, speaker notes, and electronic slides.
___10. A communications system connecting two or more computers.

For an interactive matching practice test, visit our website at www.computing2014.com and enter the keyword matching1. You can also access quizzes using the *Computing Essentials 2014* app.

OPEN-ENDED

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

1. Explain the parts of an information system. What part do people play in this system?
2. What is system software? What kinds of programs are included in system software?
3. Define and compare general-purpose, specialized, and mobile application software. Describe some different types of general-purpose applications. Describe some types of specialized applications.
4. Describe the different types of computers. What is the most common type? What are the types of microcomputers?
5. What is connectivity? What are wireless devices and the wireless revolution? What is a computer network? What are the Internet and the web? What is cloud computing?