Discovering Computers Enhanced Edition ©2017
Tools, Apps, Devices, and the Impact of Technology

Chapter 1

Introducing Today's Technologies

Objectives Overview

Differentiate among laptops, tablets, desktops, and servers

Describe the purpose and uses of smartphones, digital cameras, portable and digital media players, e-book readers, wearable devices, and game devices

Describe the relationship between data and information

Briefly explain various input options

Differentiate the web from the Internet, and describe the relationship among the web, webpages, websites, and web servers

Explain the purpose of a browser, a search engine, and an online social network

Objectives Overview

Briefly describe digital security risks associated with viruses and other malware, privacy, your health, and the environment

Differentiate between an operating system and applications

Differentiate between wired and wireless technologies, and identify reasons individuals and businesses use networks

Discuss how society uses technology in education, government, finance, retail, entertainment, health care, science, travel, publishing, and manufacturing

Identify technology used by home users, small/home office users, mobile users, power users, and enterprise users

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Today's Technology

- Because technology changes, you must keep up with the changes to remain digitally literate
- Digital literacy involves having a current knowledge and understanding of computers, mobile devices, the web, and related technologies
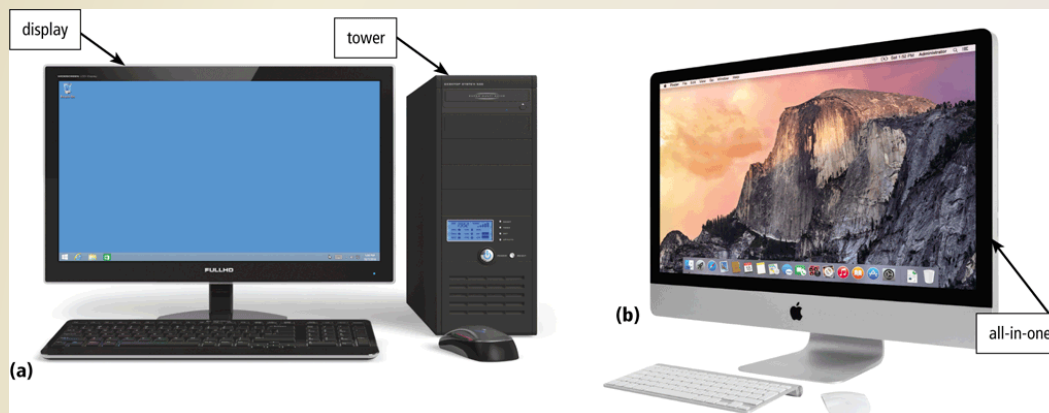
Computers

- A **computer** is an electronic device, operating under the control of instructions stored in its own memory

| Accepts data (input) | Processing | Produces information (output) |
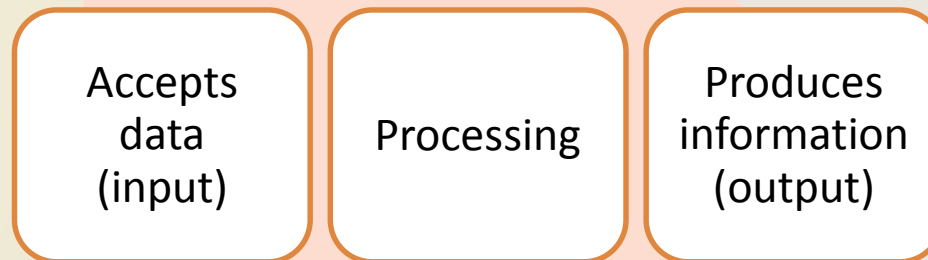
Computers

- **Laptop**
- **Tablet**
- **Desktop** and **All-in-One**
- **Server**

Mobile and Game Devices

Smartphone

Digital camera

Portable and digital media player

E-book reader

Wearable device

Game device

Data and Information

Step 1
Cashier scans or enters items purchased and the amount received from the customer. These items are entered into the computer as data.
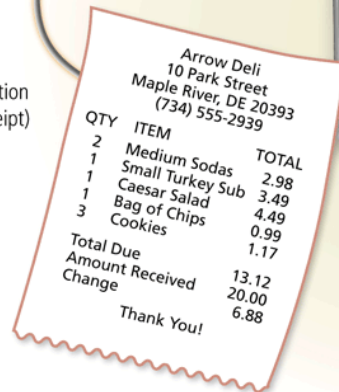
DATA (input)

2 Medium Sodas	$1.49 each
1 Small Turkey Sub	$3.49 each
1 Caesar Salad	$4.49 each
1 Bag of Chips	$0.99 each
3 Cookies	$0.39 each
Amount Received	$20.00

Step 2
The computer receives the entered data, stores it, processes the data into information (the receipt), and stores the resulting information.

STORAGE and PROCESSES

- Stores entered data.
- Computes each item's total price by multiplying the quantity ordered by the item price (i.e., 2 * 1.49 = 2.98).
- Organizes data.
- Sums all item total prices to determine order total due from customer (13.12).
- Calculates change due to customer by subtracting the order total from amount received (20.00 - 13.12 = 6.88).
- Stores resulting information.

Step 3
The resulting information (the cash register receipt) is printed for the customer.

Arrow Deli
10 Park Street
Maple River, DE 20393
(734) 555-2939

QTY	ITEM	TOTAL
2	Medium Sodas	2.98
1	Small Turkey Sub	3.49
1	Caesar Salad	4.49
1	Bag of Chips	0.99
3	Cookies	1.17
	Total Due	13.12
	Amount Received	20.00
	Change	6.88

Thank You!

INFORMATION (output)

Data and Information

- A keyboard contains keys you press to enter data and instructions into a computer or mobile device

desktop keyboard

laptop keyboard

on-screen keyboard

mini keyboard

virtual keyboard

Data and Information

- A pointing device is an input device that allows a user to control a small symbol on the screen called the pointer

- Some mobile devices and computers enable you to speak data instructions using voice input and to capture live full-motion images using video input

mouse

touchpad

microphone built into phone

webcam

wireless headset
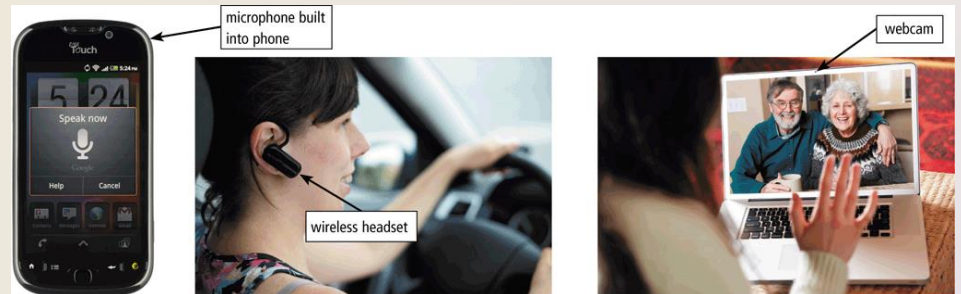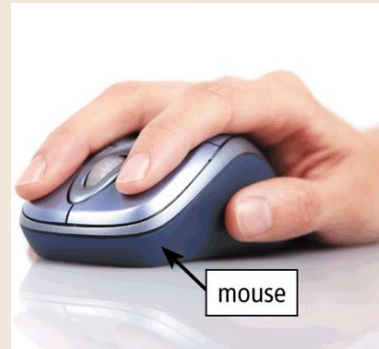
Data and Information

- A scanner is a light-sensing input device that converts printed text and images into a form the computer can process

Data and Information

- An **output device** is any hardware component that conveys information from a computer or mobile device to one or more people

- A **printer** is an output device that produces text and graphics on a physical medium, such as paper or other material

  – A 3-D printer can print solid objects, such as clothing, prosthetics, eyewear, implants, toys, parts, prototypes, and more

Data and Information

printed photo

printed 3-D model

Leonardo 3D Printer
300 Cube

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Data and Information

- A display is an output device that visually conveys text, graphics, and video information

smartphone display

digital camera display

tablet display

laptop display

monitor display

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Data and Information

- Speakers allow you to hear audio such as music, voice, and other sounds
  - Earbuds
  - Headphones

headphones

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Data and Information

Memory consists of electronic components that store instructions waiting to be executed and the data needed by those instructions

A computer keeps data, instructions, and information on storage media

A storage device records (writes) and/or retrieves (reads) items to and from storage media

Data and Information

Hard Disk
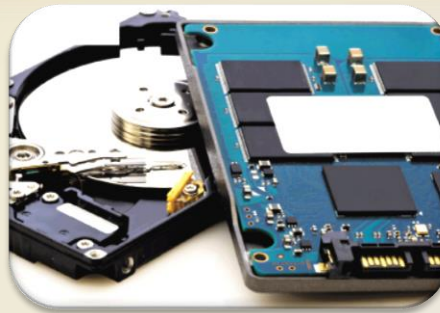
Solid-State Drive

USB Flash Drive

Memory Card

Optical Disc

Cloud Storage

The Web

- The **Internet** is a worldwide collection of computer networks that connects millions of businesses, government agencies, educational institutions, and individuals

The Web

The World Wide Web (or web, for short) is a global library of information available to anyone connected to the Internet

The **web** consists of a worldwide collection of electronic documents, each of which is called a **webpage**

A **website** is a collection of related webpages

A **web server** is a computer that delivers requested webpages to your computer
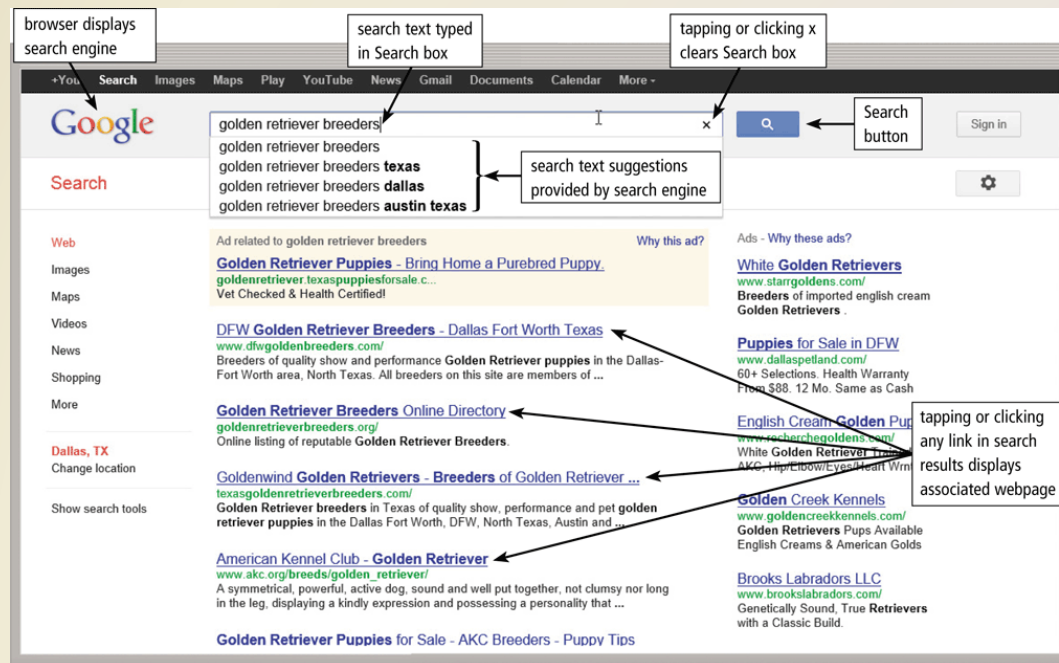
The Web

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The Web

- A **browser** is software that enables users with an Internet connection to access and view webpages on a computer or mobile device
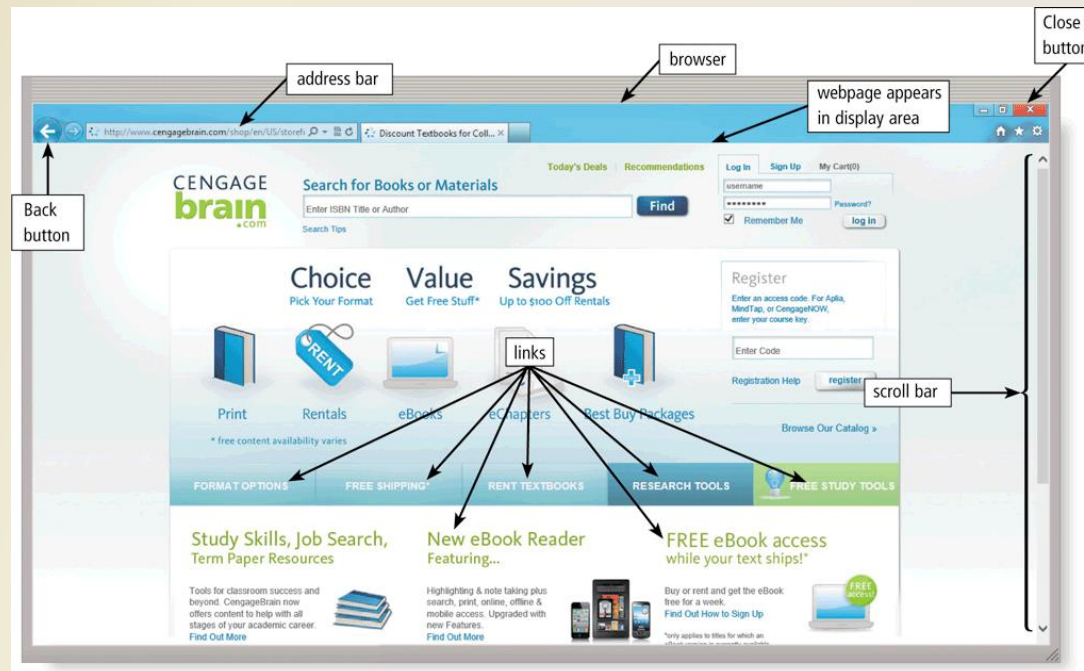
The Web

- A **search engine** is software that finds websites, webpages, images, videos, news, maps, and other information related to a specific topic

The Web

- An **online social network** encourages members to share their interests, ideas, stories, photos, music, and videos with other registered users

Digital Safety and Security

- It is important that users protect their computers and mobile devices

Viruses and Other Malware	Privacy
Health Concerns	Environmental Issues

Digital Safety and Security

- **Green computing** involves reducing the electricity consumed and environmental waste generated when using a computer

- Strategies include:
  - Recycling
  - Using energy efficient hardware and energy saving features
  - Regulating manufacturing processes
  - Extending the life of computers
  - Immediately donating or properly disposing of replaced computers

Programs and Apps

- **Software**, also called a **program**, tells the computer what tasks to perform and how to perform them

**System Software**

- Operating system
- Tools

Applications

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Programs and Apps

- Installing a program is the process of setting up the program to work with the computer, mobile device, printer, and/or other hardware

- Once installed, you can run a program so that you can interact with it

- You interact with a program through its user interface
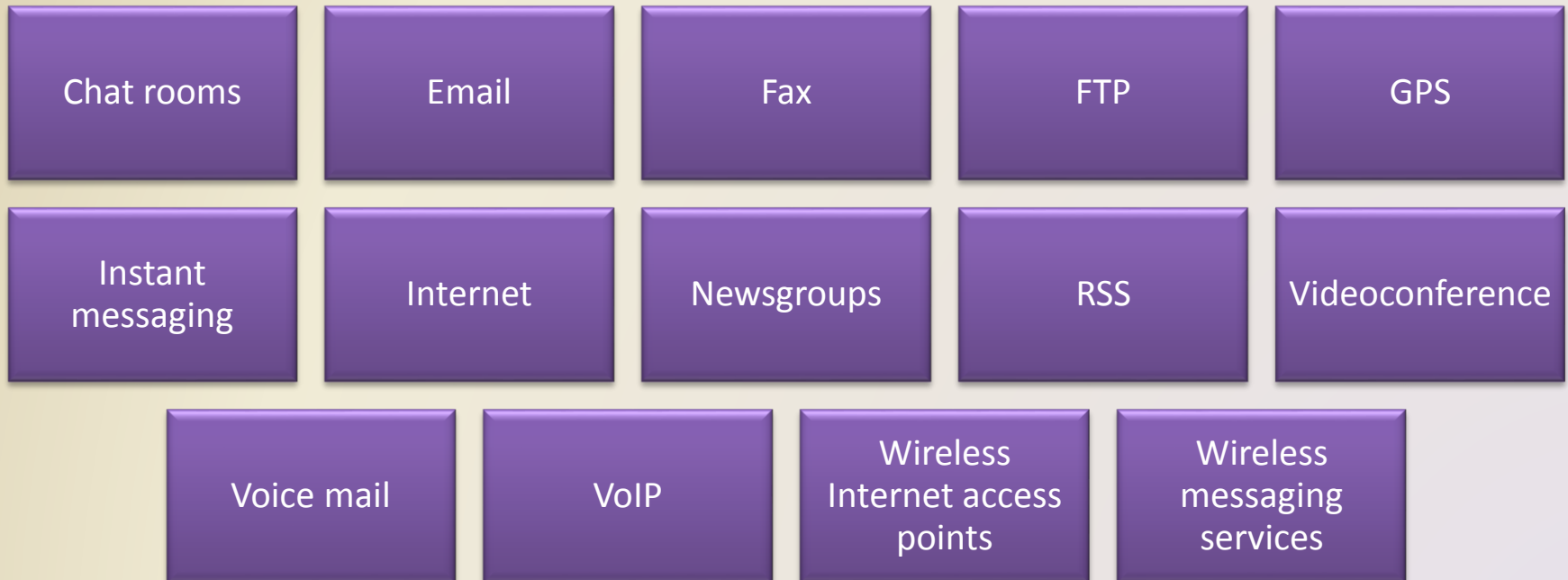
Programs and Apps

- A software developer, sometimes called a developer or programmer, is someone who develops programs and apps or writes the instructions that direct the computer or mobile device to process data into information

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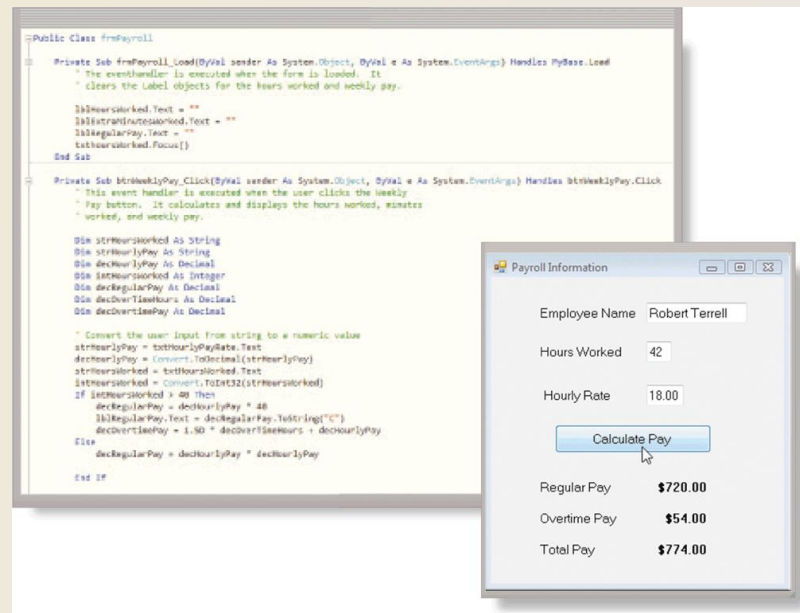
Communications and Networks

- In the course of a day, it is likely you use, or use information generated by, one or more of these communications technologies

Chat rooms	Email	Fax	FTP	GPS
Instant messaging	Internet	Newsgroups	RSS	Videoconference
Voice mail	VoIP	Wireless Internet access points	Wireless messaging services	

Communications and Networks

- A **communications device** is hardware capable of transferring items from computers and devices to transmission media and vice versa

Communications and Networks

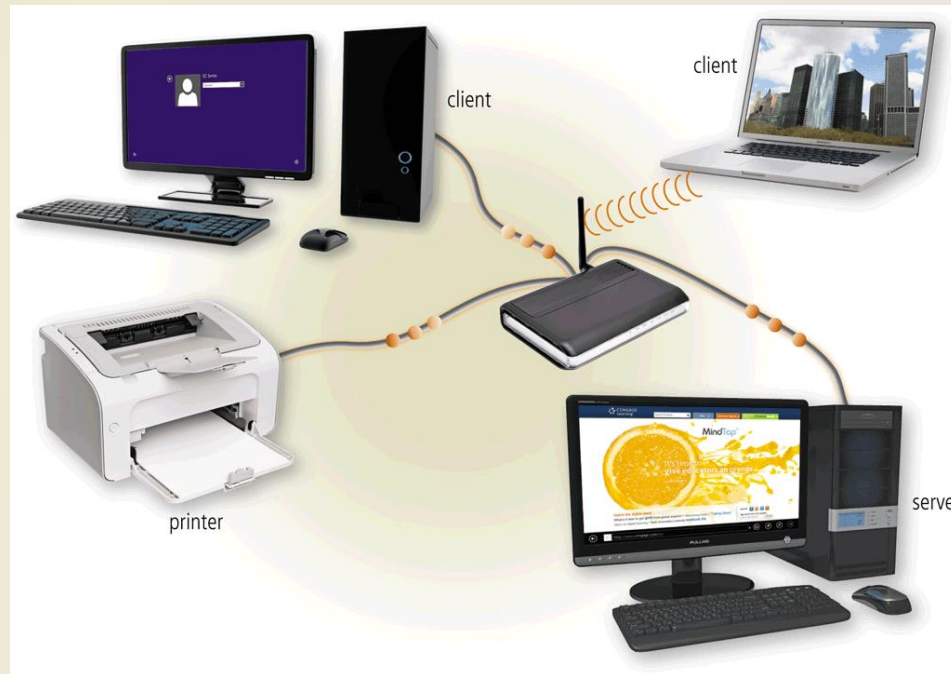- Examples of wireless communications technologies include:

Wi-Fi

Bluetooth

Cellular radio

Communications and Networks

- A **network** is a collection of computers and devices connected together, often wirelessly, via communications devices and transmission media

Communications and Networks

Home Networks

- Connect to the Internet
- Share a single high-speed Internet connection
- Access photos, music, videos, and other content
- Share devices
- Play multiplayer games
- Connect game consoles to the Internet
- Subscribe to and use VoIP
- Interact with other devices in a smart home

Business Networks

- Facilitate communications
- Share hardware
- Share data, information, and software

Technology Uses

Education

Government

Finance

Retail

Entertainment

Health Care

Science

Travel

Publishing

Manufacturing

Technology Users

Home User

Small/Home
Office User

Mobile User

Power User

Enterprise User

Chapter Summary

Basic computer concepts

Various methods for input, output, memory, and storage

The Internet

Digital security and safety risks and precautions

Uses of technology applications in society

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Chapter 1

Introducing Today's Technologies

Chapter 1 Complete