Objectives Overview

- Explain why computer literacy is vital to success in today’s world
- Define the term, computer, and describe the relationship between data and information
- Describe the five components of a computer
- Discuss the advantages and disadvantages that users experience when working with computers
- Define the term, network, and identify benefits of sharing resources on a network
- Discuss the uses of the Internet and World Wide Web

See Page 3 for Detailed Objectives
Objectives Overview

Distinguish between system software and application software

Differentiate among types, sizes, and functions of computers in each category

Describe the role of each element in an information system

Explain how home users, small office/home office users, mobile users, power users, and enterprise users each interact with computers

Discuss how society uses computers in education, finance, government, healthcare, science, publishing, travel, and manufacturing

See Page 3 for Detailed Objectives
A World of Computers

• Computers are everywhere
What Is a Computer?

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

Information Processing Cycle:

1. Collects data (input)
2. Processing
3. Produces information (output)
What Is a Computer?

DATA

<table>
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<tr>
<th>Item</th>
<th>Price</th>
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<tbody>
<tr>
<td>2 Medium Sodas</td>
<td>$1.49</td>
</tr>
<tr>
<td>1 Small Turkey Sub</td>
<td>$3.49</td>
</tr>
<tr>
<td>1 Caesar Salad</td>
<td>$4.49</td>
</tr>
<tr>
<td>1 Bag of Chips</td>
<td>$0.99</td>
</tr>
<tr>
<td>3 Cookies</td>
<td>$0.39</td>
</tr>
<tr>
<td>Total</td>
<td>$20.00</td>
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INFORMATION

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

<table>
<thead>
<tr>
<th>Item</th>
<th>Quantity</th>
<th>Total</th>
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</thead>
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<tr>
<td>Medium Sodas</td>
<td>2</td>
<td>2.98</td>
</tr>
<tr>
<td>Small Turkey Sub</td>
<td>1</td>
<td>3.49</td>
</tr>
<tr>
<td>Caesar Salad</td>
<td>1</td>
<td>4.49</td>
</tr>
<tr>
<td>Bag of Chips</td>
<td>1</td>
<td>0.99</td>
</tr>
<tr>
<td>Cookies</td>
<td>3</td>
<td>1.17</td>
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<tr>
<td><strong>Total</strong></td>
<td></td>
<td>13.12</td>
</tr>
<tr>
<td><strong>Amount Received</strong></td>
<td></td>
<td>20.00</td>
</tr>
<tr>
<td><strong>Change</strong></td>
<td></td>
<td>6.88</td>
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</table>

Thank You!

- 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).
The Components of a Computer

- A computer contains many electric, electronic, and mechanical components known as **hardware**

**Input Device** • Allows you to enter data and instructions into a computer

**Output Device** • Hardware component that conveys information to one or more people

**System Unit** • Case that contains the electronic components of the computer that are used to process data

**Storage Device** • Holds data, instructions, and information for future use

**Communications Device** • Enables a computer to send and receive data, instructions, and information to and from one or more computers or mobile devices
The Components of a Computer
Advantages and Disadvantages of Using Computers

**Advantages of Using Computers**
- Speed
- Reliability
- Consistency
- Storage
- Communications

**Disadvantages of Using Computers**
- Health Risks
- Violation of Privacy
- Public Safety
- Impact on Labor Force
- Impact on Environment
Advantages and Disadvantages of Using Computers

- **Green computing** involves reducing the electricity consumed and environmental waste generated when using a computer
- **Strategies include:**
  - Recycling
  - Regulating manufacturing processes
  - Extending the life of computers
  - Immediately donating or properly disposing of replaced computers
Networks and the Internet

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

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

- People use the Internet for a variety of reasons:
Networks and the Internet

• A social networking Web site encourages members to share their interests, ideas, stories, photos, music, and videos with other registered users.
Computer Software

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

**System Software**
- Operating system
- Utility program

**Application Software**
Computer Software

- **Installing** is the process of setting up software to work with the computer, printer, and other hardware.

![Diagram of installing and running a computer program]

- **Step 1: INSTALL**
  - When you insert a program disc, such as a photo editing program, in the optical disc drive for the first time, the computer begins the procedure of installing the program on the hard disk.

- **Step 2: RUN**
  - Once installed, you can instruct the computer to run the program. The computer transfers instructions from the hard disk to memory.

- **Step 3: USE**
  - The program executes so that you can use it. This program enables you to edit photos.
Computer Software

- A programmer develops software or writes the instructions that direct the computer to process data into information.
Categories of Computers

- Personal computers
- Mobile computers and mobile devices
- Game consoles
- Servers
- Mainframes
- Supercomputers
- Embedded computers
Personal Computers

- A **personal computer** can perform all of its input, processing, output, and storage activities by itself.
- Two popular architectures are the PC and the Apple.
  - **Desktop computer**
Mobile Computers and Mobile Devices

**Mobile Computer**

Personal computer you can carry from place to place

Examples include notebook computers, laptop computers, netbooks, ultra-thins, and **Tablet PCs**

**Mobile Device**

Computing device small enough to hold in your hand

Examples include smart phones, PDAs, handheld computers, portable media players, and digital cameras
Mobile Computers and Mobile Devices

- Notebook computer
- Tablet PC
- Smart phone
- PDA

Click to view Web Link, click Chapter 1, Click Web Link from left navigation, then click Camera Phone below Chapter 1.
Mobile Computers and Mobile Devices

Handheld computer

Portable media player

Digital camera

Click to view Web Link, click Chapter 1, Click Web Link from left navigation, then click Digital Cameras below Chapter 1.
Game Consoles

• A **game console** is a mobile computing device designed for single-player or multiplayer video games.
Servers

- A server controls access to the hardware, software, and other resources on a network
  - Provides a centralized storage area for programs, data, and information
Mainframes

- A **mainframe** is a large, expensive, powerful computer that can handle hundreds or thousands of connected users simultaneously.
Supercomputers

- A supercomputer is the fastest, most powerful computer
  - Fastest supercomputers are capable of processing more than one quadrillion instructions in a single second
**Embedded Computers**

- An **embedded computer** is a special-purpose computer that functions as a component in a larger product.

<table>
<thead>
<tr>
<th>Consumer Electronics</th>
<th>Home Automation Devices</th>
<th>Automobiles</th>
<th>Process Controllers and Robotics</th>
<th>Computer Devices and Office Machines</th>
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<td>Thermostats</td>
<td>Antilock brakes</td>
<td>Remote monitoring systems</td>
<td>Keyboards</td>
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<tr>
<td>Digital televisions</td>
<td>Sprinkling systems</td>
<td>Engine control modules</td>
<td>Power monitors</td>
<td>Printers</td>
</tr>
<tr>
<td>Cameras</td>
<td>Security monitoring systems</td>
<td>Airbag controller</td>
<td>Machine controllers</td>
<td>Faxes</td>
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<tr>
<td>Video recorders</td>
<td>Appliances</td>
<td>Cruise control</td>
<td>Medical devices</td>
<td>Copiers</td>
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<tr>
<td>DVD players and recorders</td>
<td>Lights</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>
Embedded Computers

Adaptive cruise control systems detect if cars in front of you are too close and, if necessary, adjust the vehicle’s throttle, may apply brakes, and/or sound an alarm.

Advanced airbag systems have crash-severity sensors that determine the appropriate level to inflate the airbag, reducing the chance of airbag injury in low-speed accidents.

Tire pressure monitoring systems send warning signals if tire pressure is insufficient.

Drive-by-wire systems sense pressure on the gas pedal and communicate electronically to the engine how much and how fast to accelerate.

Cars equipped with wireless communications capabilities, called telematics, include such features as navigation systems, remote diagnosis and alerts, and Internet access.
Elements of an Information System

- Hardware
- Software
- Data
- People
- Procedures
Elements of an Information System

How the Elements of an Information System in an Enterprise Might Interact

Step 1
IT staff (people) develop processes (procedures) for recording checks (data) received from customers.

Step 2
Employees (people) in the accounts receivable department use a program (software) to enter the checks (data) in the computer.

Step 3
The computer (hardware) performs calculations required to process the accounts receivable data and stores the results on storage media such as a hard disk (hardware).

Step 4
Customer statements, the information, print on a corporate printer (hardware).
Examples of Computer Usage

**Home User**
- Personal financial management
- Web access
- Communications
- Entertainment

**Small Office/Home Office User**
- Look up information
- Send and receive e-mail messages
- Make telephone calls

**Mobile User**
- Connect to other computers on a network or the Internet
- Transfer information
- Play video games
- Listen to music
- Watch movies
Examples of Computer Usage

**Power User**
- Work with multimedia
- Use industry-specific software

**Enterprise User**
- Communicate among employees
- Process high volumes of transactions
- Blog

[Click to view Web Link, click Chapter 1, Click Web Link from left navigation, then click Enterprise Computing below Chapter 1]
Computer Applications in Society

- Education
- Finance
- Government
- Health Care
Computer Applications in Society

Science

Publishing

Travel

Manufacturing

Click to view Web Link, click Chapter 1, Click Web Link from left navigation, then click OnStar below Chapter 1.
Video: Computer History in a Barn

CLICK TO START
Summary

- Basic computer concepts
- Components of a computer
- Networks, the Internet, and computer software
- Many different categories of computers, computer users, and computer applications in society