Chapter One
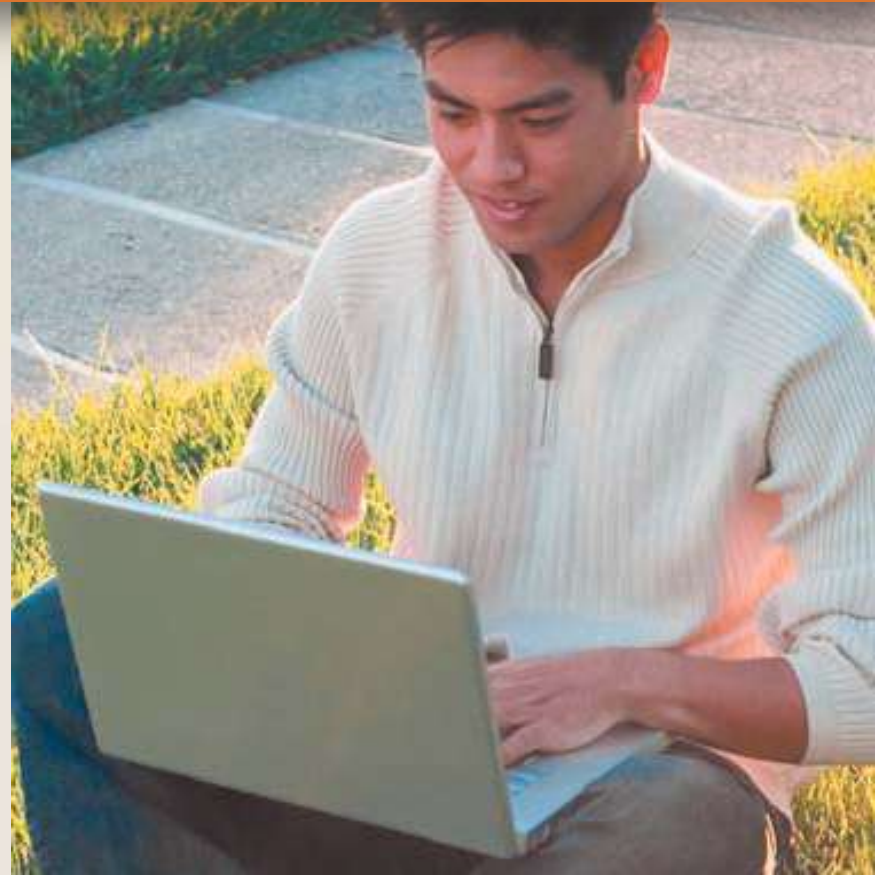
Introduction to Computers

Discovering Computers & Microsoft Office 2010

Discovering Computers Chapter 1

Objectives Overview

Explain why computer literacy is vital to success in today's world

Describe the five components of a computer

Discuss the advantages and disadvantages that users experience when working with computers

Discuss the uses of the Internet and World Wide Web

Distinguish between system software and application software

Objectives Overview

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

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, health care, science, publishing, travel, and manufacturing
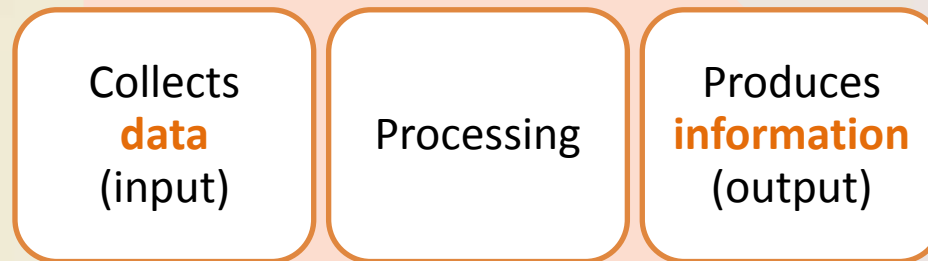
A World of Computers

- Computers are everywhere

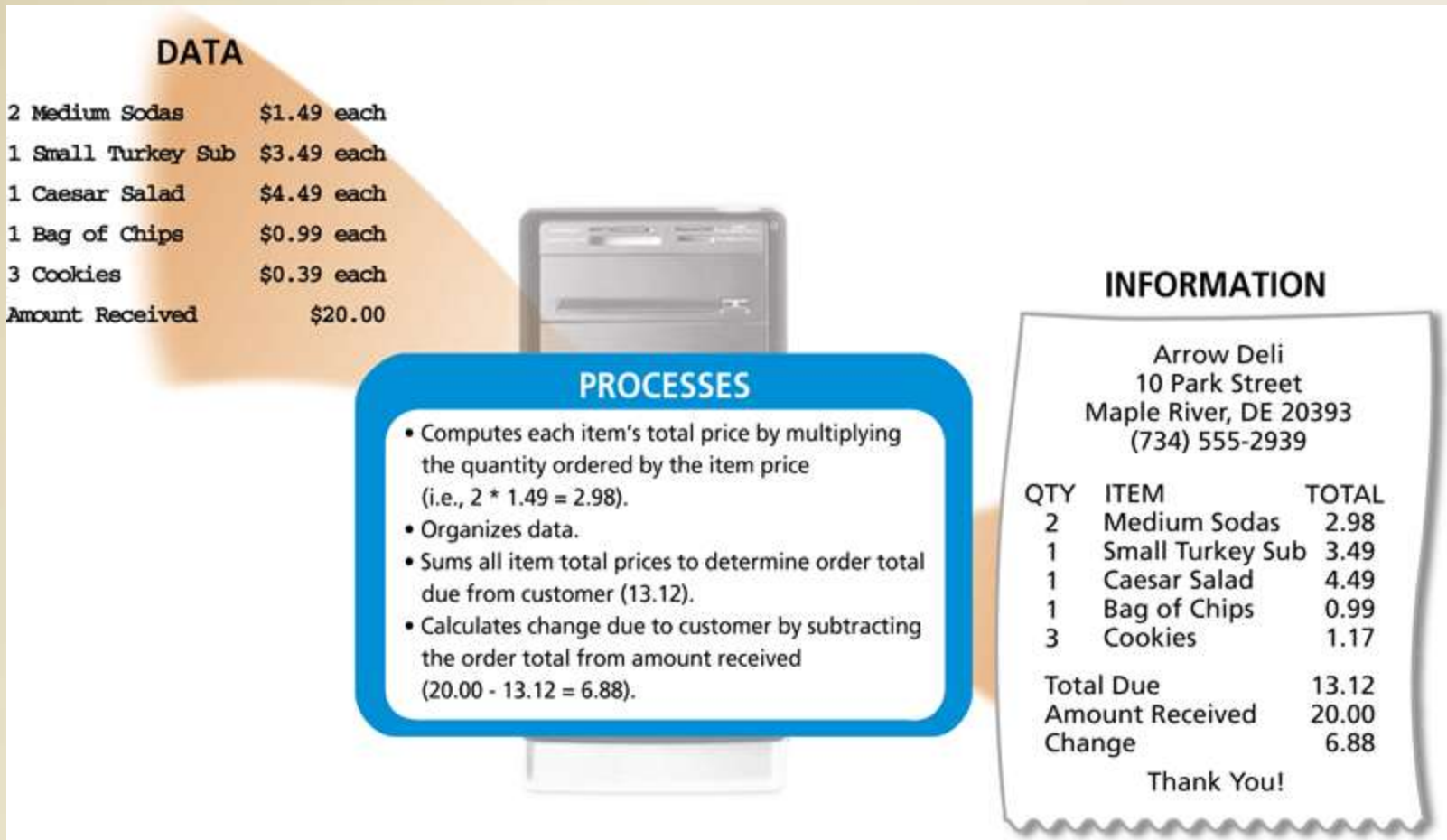# What Is a Computer?

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

| Collects **data** (input) | Processing | Produces **information** (output) |

Information Processing Cycle

What Is a Computer?

DATA

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

PROCESSES

- 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).

INFORMATION

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!

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

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Advantages and Disadvantages of Using Computers

Advantages of Using Computers

Speed
Reliability
Consistency
Storage
Communications

Disadvantages of Using Computers

Violation of Privacy
Public Safety
Impact on Labor Force
Health Risks
Impact on Environment

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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

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

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Networks and the Internet

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Networks and the Internet

- People use the Internet for a variety of reasons:

Communicate

Research and Access Information

Shop

Bank and Invest

Online Trading

Entertainment

Share Information

Download Videos

Web Application

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
  - Also called an **online social network**

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

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.

optical disc

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

instructions transfer 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
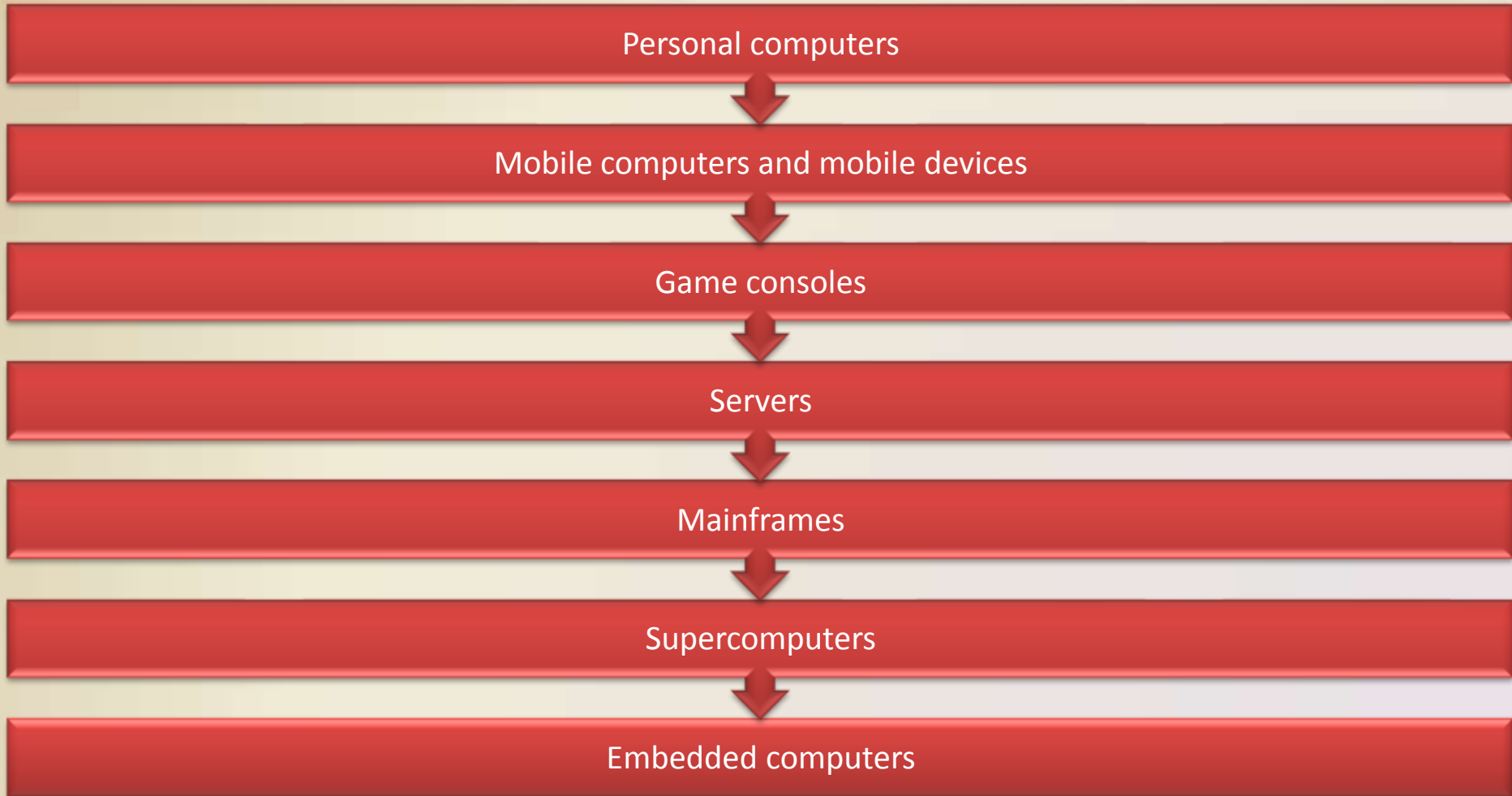
```
Public Class frmPayrollInformation

    Private Sub btnCalculatePay_Click(ByVal sender As System.Object, ByVal e As System.
    EventArgs) Handles btnCalculatePay.Click
        'This procedure executes when the user clicks the
        'Calculate Pay button. It calculates regular
        'and overtime pay and displays it in the window.

        ' Declare variables
        Dim strHoursWorked As String
        Dim strHourlyRate As String
        Dim decHoursWorked As Decimal
        Dim decHourlyRate As Decimal
        Dim decRegularPay As Decimal
        Dim decOvertimeHours As Decimal
        Dim decOvertimePay As Decimal
        Dim decTotalPay As Decimal

        ' Calculate and display payroll information
        strHoursWorked = Me.txtHoursWorked.Text
        strHourlyRate = Me.txtHourlyRate.Text
        decHoursWorked = Convert.ToDecimal(strHoursWorked)
        decHourlyRate = Convert.ToDecimal(strHourlyRate)

        If decHoursWorked > 40 Then
            decRegularPay = 40 * decHourlyRate
            Me.txtRegularPay.Text = decRegularPay.ToString("C")
            decOvertimeHours = decHoursWorked - 40
            decOvertimePay = (1.5 * decOvertimeHours) * decHourlyRate
            Me.txtOvertimePay.Text = decOvertimePay.ToString("C")
            decTotalPay = decRegularPay + decOvertimePay
            Me.txtTotalPay.Text = decTotalPay.ToString("C")
        Else
            decRegularPay = decHoursWorked * decHourlyRate
            Me.txtRegularPay.Text = decRegularPay.ToString("C")
            Me.txtOvertimePay.Text = "$0.00"
            Me.txtTotalPay.Text = decRegularPay.ToString("C")
        End If
    End Sub
End Class
```

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**, and **Tablet PCs**

Mobile Device

Computing device small enough to hold in your hand

Examples include **smart phones** and, **PDAs, e-book readers**, **handheld computers**, **portable media players**, and **digital cameras**

Mobile Computers and Mobile Devices

Notebook computer

Tablet PC

Smart phones and PDAs

E-book reader

Mobile Computers and Mobile Devices

Handheld computer

Portable media player

Digital camera

Game Consoles

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

handheld game console

game console

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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

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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

Consumer Electronics

Home Automation Devices

Automobiles

Process Controllers and Robotics

Computer Devices and Office Machines

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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.

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

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

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

Computer Applications in Society

 Education

 Finance

 Government

 Health Care

Computer Applications in Society

 Science

 Publishing

 Travel

 Manufacturing

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

Introduction to Computers

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Discovering Computers Chapter 1 Complete