

Chapter One

Introduction to Computers

Discovering Computers 2011

Living in a Digital World



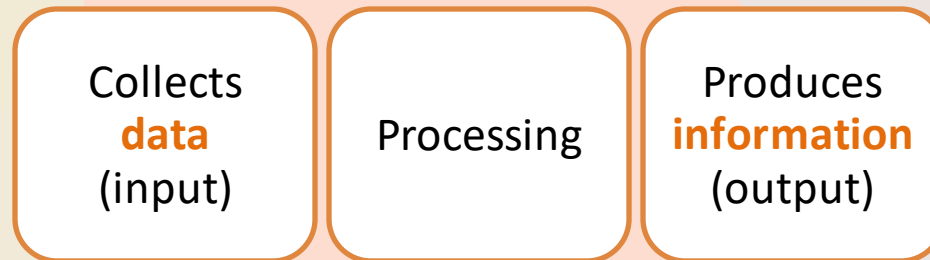
A World of Computers

- Computers are everywhere



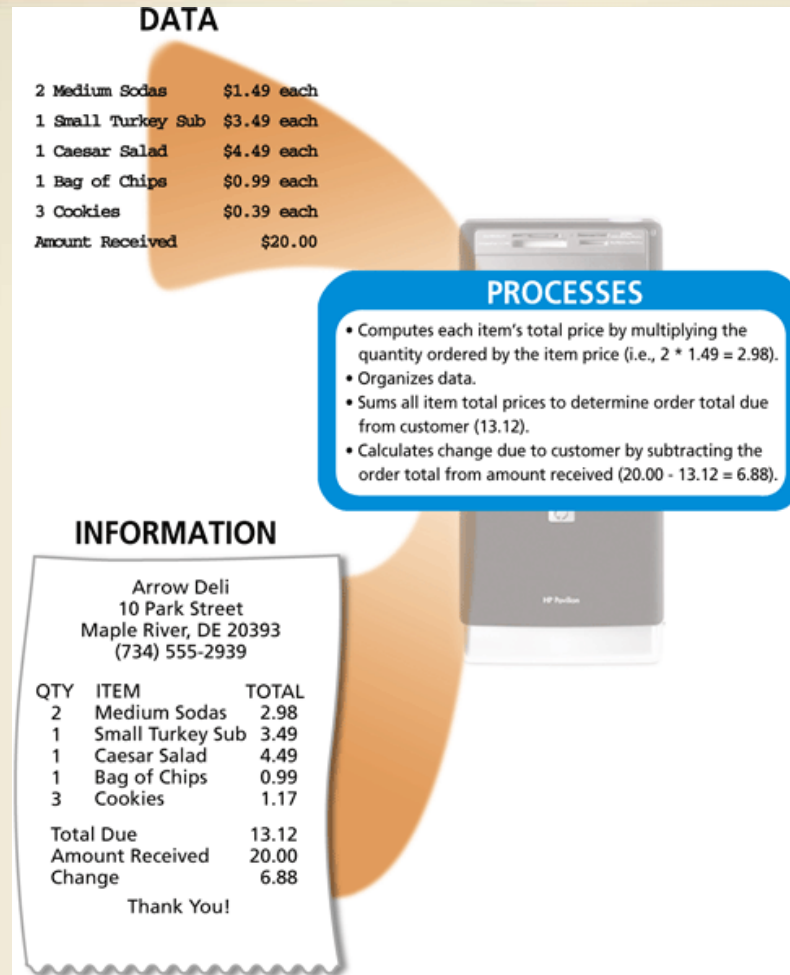
What Is a Computer?

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



Information Processing Cycle

What Is a Computer?



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



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click Chapter 1, Click Web
Link from left navigation,
then click Green Computing
below Chapter 1

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



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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



Download Videos



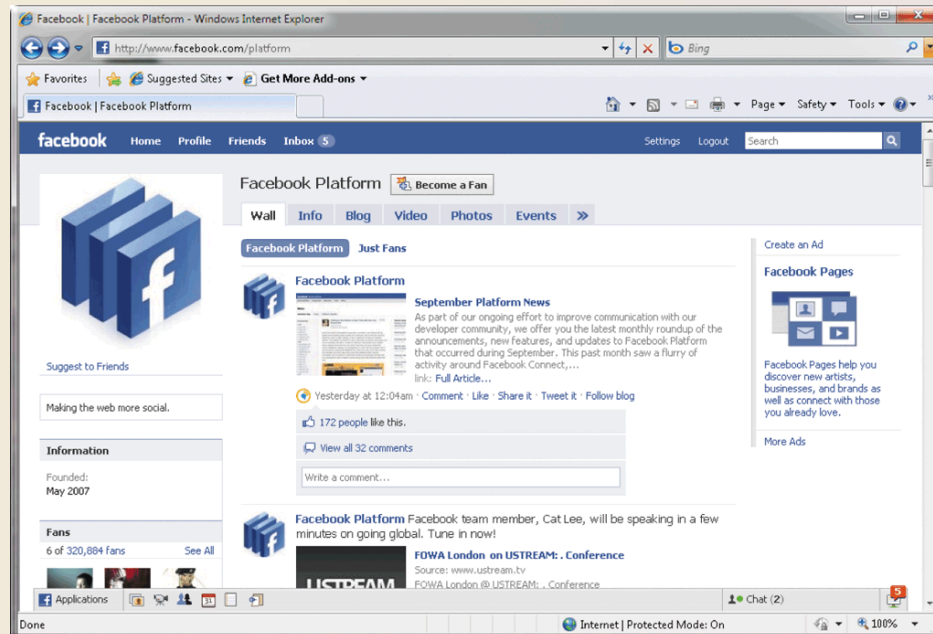
Share Information



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



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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



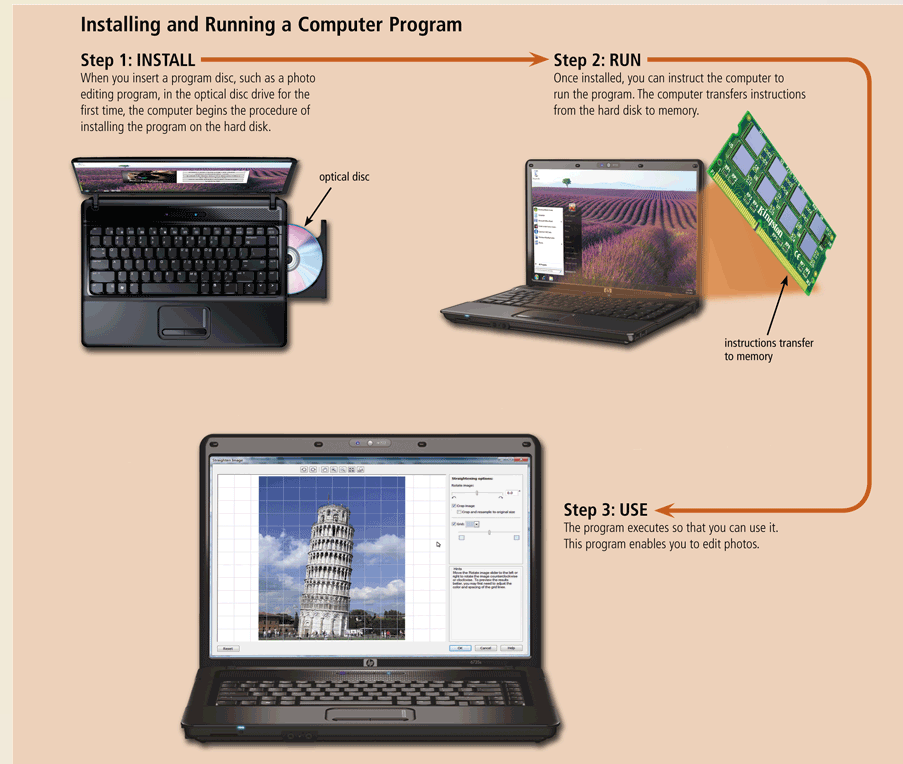
Application Software



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Computer Software

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



Computer Software

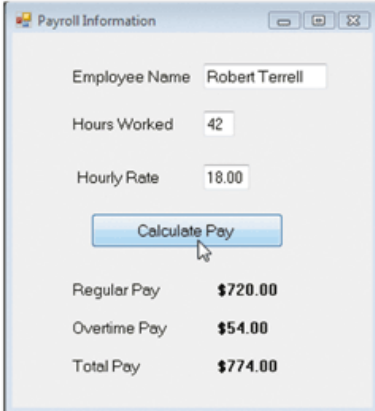
- A programmer develops software or writes the instructions that direct the computer to process data into information

```
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

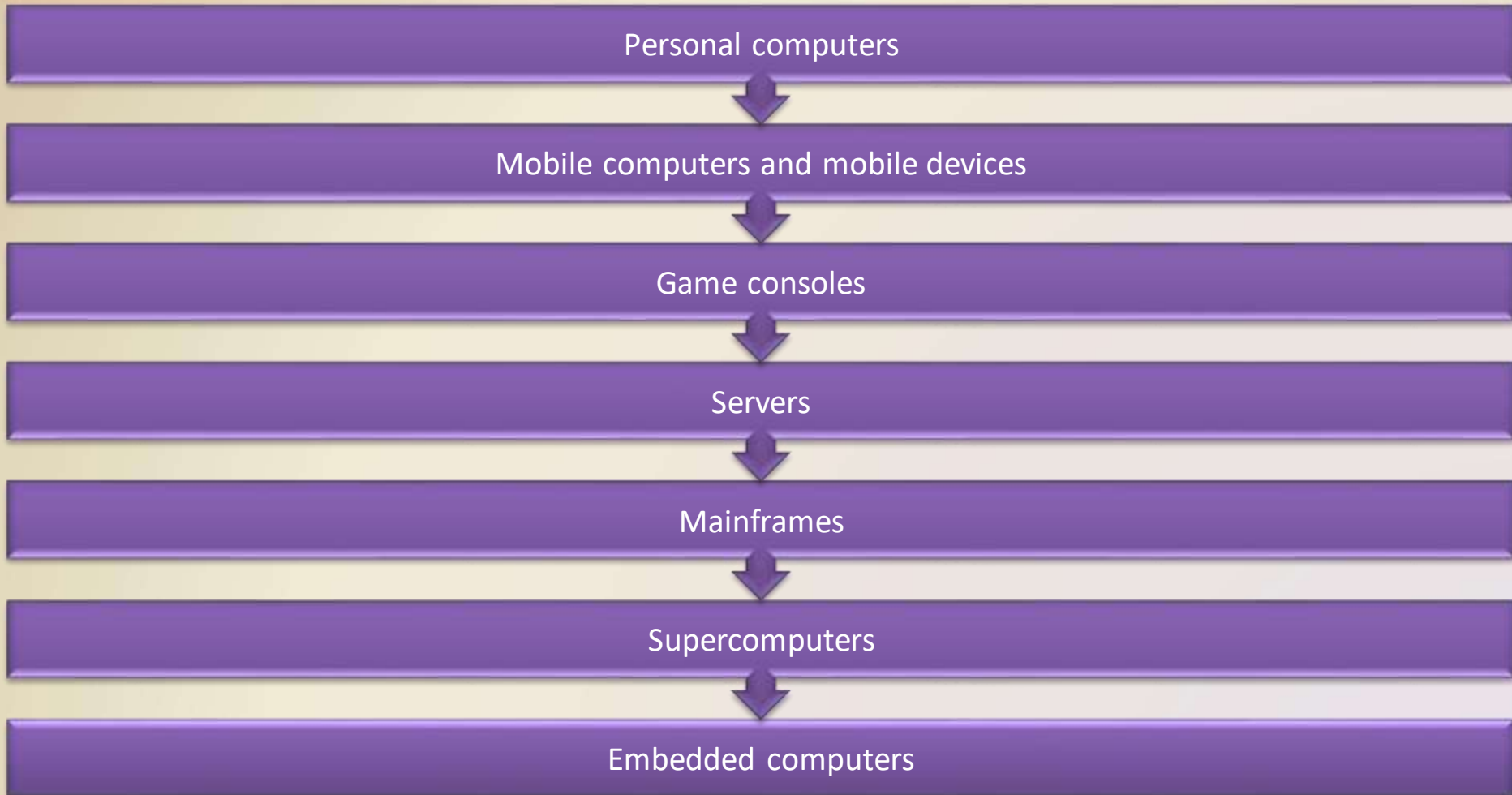
        ' Calculate and display payroll information
        strHoursWorked = Me.txtHoursWorked.Text
        strHourlyRate = Me.txtHourlyRate.Text
        decHoursWorked = Convert.ToDecimal(strHoursWorked)
        decHourlyRate = Convert.ToDecimal(strHourlyRate)

        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
```



Employee Name	Robert Terrell
Hours Worked	42
Hourly Rate	18.00
Calculate Pay	
Regular Pay	\$720.00
Overtime Pay	\$54.00
Total Pay	\$774.00

Categories of 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**, **PDA**s, **handheld computers**, **portable media players**, and **digital cameras**

Mobile Computers and Mobile Devices



Notebook computer



Tablet PC



Smart phone



PDA



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Mobile Computers and Mobile Devices



Handheld computer



Portable media player



Digital camera



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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

Consumer Electronics

- Mobile and digital telephones
- Digital televisions
- Cameras
- Video recorders
- DVD players and recorders
- Answering machines

Home Automation Devices

- Thermostats
- Sprinkling systems
- Security monitoring systems
- Appliances
- Lights

Automobiles

- Antilock brakes
- Engine control modules
- Airbag controller
- Cruise control

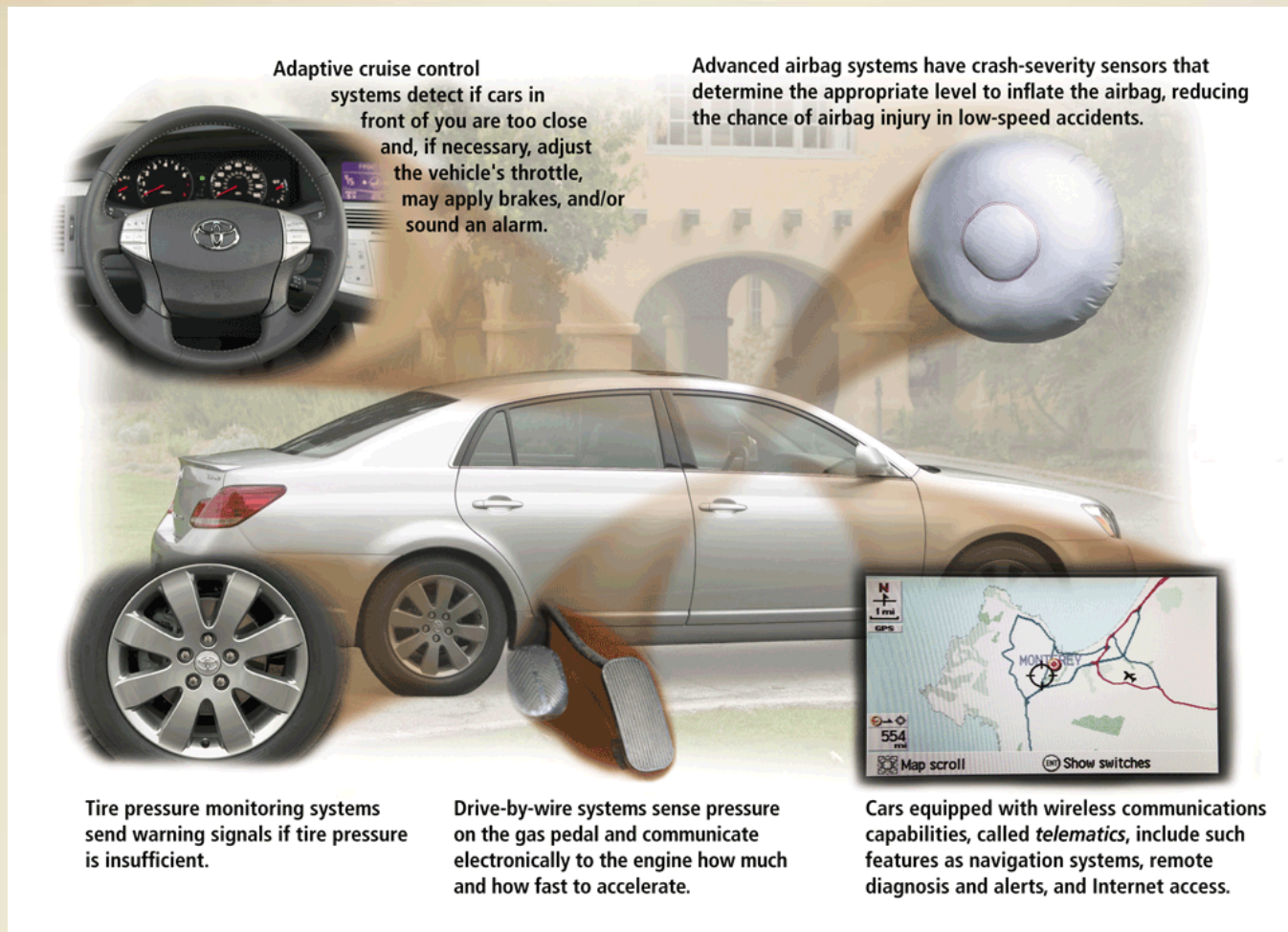
Process Controllers and Robotics

- Remote monitoring systems
- Power monitors
- Machine controllers
- Medical devices

Computer Devices and Office Machines

- Keyboards
- Printers
- Faxes
- Copiers

Embedded Computers



Elements of an Information System

Hardware

Software

Data

People

Procedures



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Technology below Chapter 1

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



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Examples of Computer Usage



Power User

- Work with multimedia
- Use industry-specific software



Enterprise User

- Communicate among employees
- Process high volumes of transactions
- Blog



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Computing below Chapter 1

Computer Applications in Society



Education



Finance



Government



Health Care

Computer Applications in Society



Science



Publishing



Travel



Manufacturing



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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

Chapter One

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Chapter 1 Complete

