

# Introduction to Computers

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With thanks to Dr. Haipeng Guo  
Lecture 1

# Introductory Stuff

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- ◆ Have Fun!
- ◆ Please turn off your phones!



# Introductory Stuff

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- ◆ This will be a relatively interactive course. Feel free to stop me, shout at me, argue,... etc.
- ◆ If you have trouble understanding me (I expect that you will),  
**TELL ME!**
- ◆ I will try to speak more clearly and slowly.

# Outline of this Lecture

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- ◆ Introduction
- ◆ What is a Computer?
- ◆ The Components of a Computer
- ◆ What Makes a Computer So Powerful?
- ◆ Networks and the Internet
- ◆ Computer Software
- ◆ Types of Computers
- ◆ Information System Element
- ◆ Computer Usages and Computer Applications <sup>4</sup>

# Using Computers



- ◆ Checking email
- ◆ ATM
- ◆ Instant Messaging
- ◆ Doing homework
- ◆ Research
- ◆ Blogging
- ◆ Playing games
- ◆ ...



# Computer Literacy

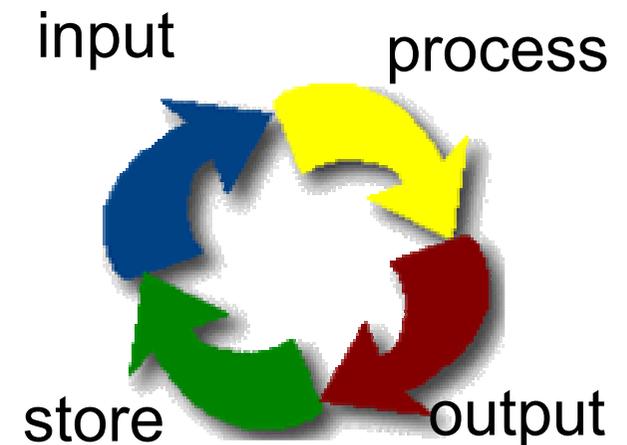
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- ◆ What is computer literacy?
  - having knowledge and understanding of computers and their uses
  - refers to the ability to use applications rather than to program
- ◆ Why is computer literacy important?
  - Computers are everywhere nowadays
  - One study alleges that "...those with less access to technology are less successful!"

# What is a Computer?

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- ◆ A computer is  
is an electronic machine or device  
executing the instructions in a program
- ◆ A computer can  
accept data,  
manipulate or process the data,  
produce results,  
and store the results



# Data and Information

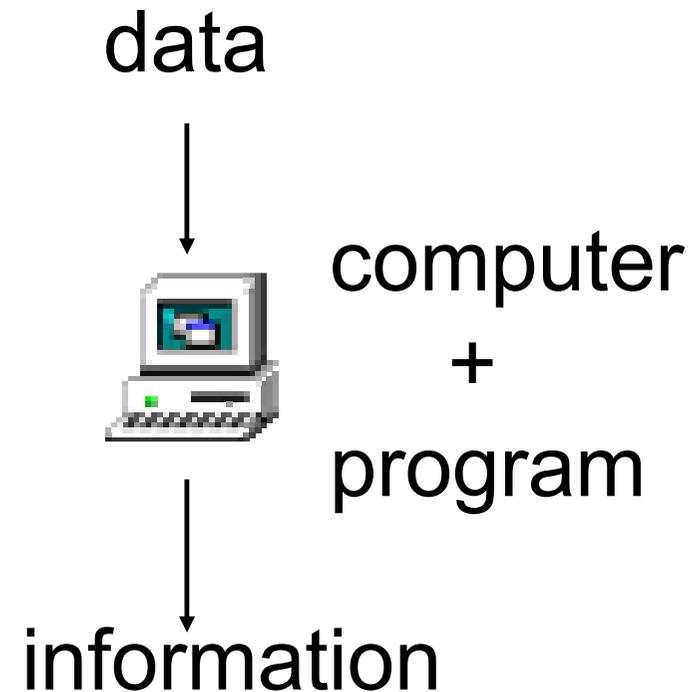
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## ◆ Data

- Raw facts, figures, and symbols

## ◆ Information

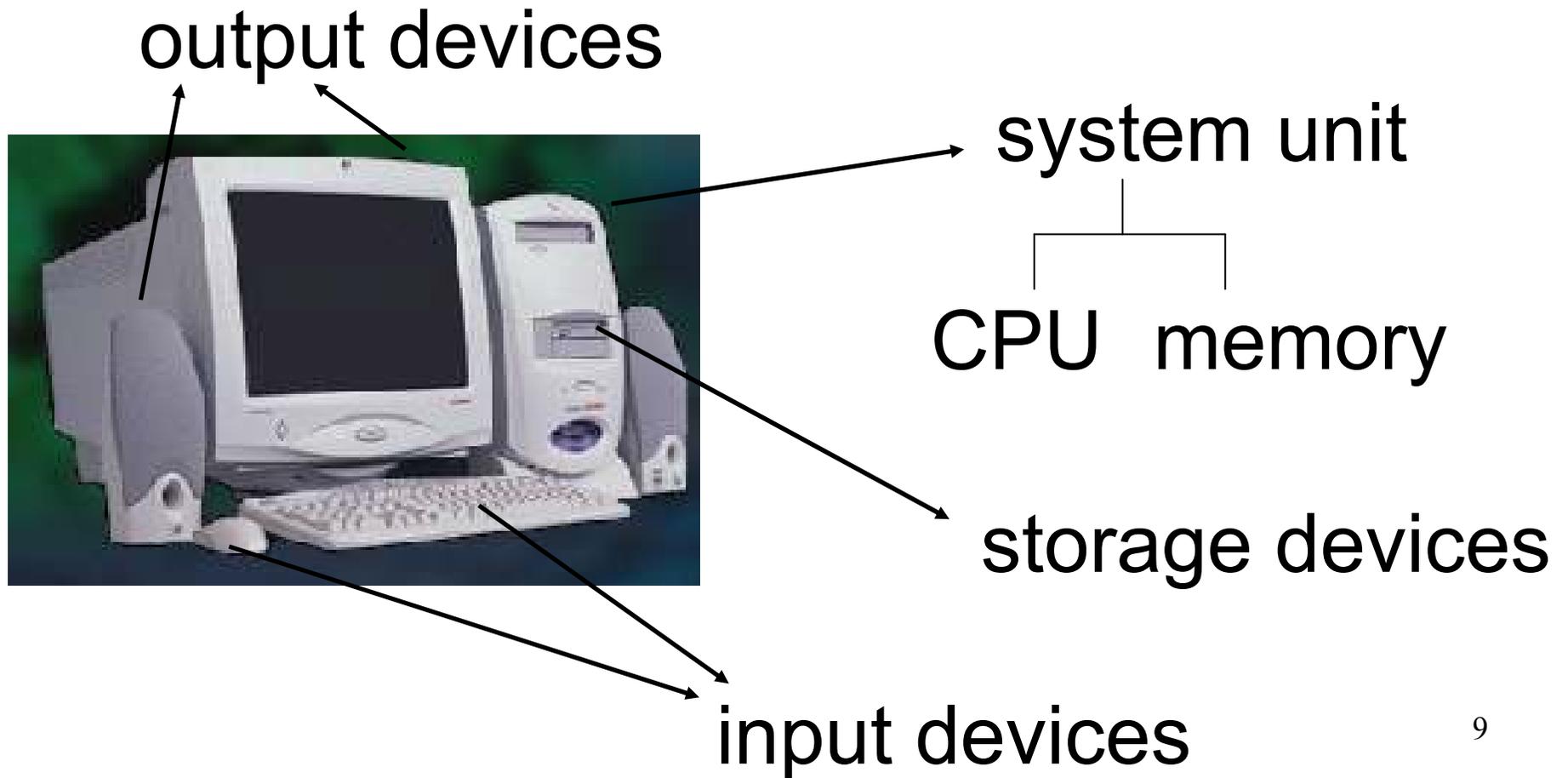
- organized, meaningful, and more useful  
(to people)



# Computer Components

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Hardware: the physical parts of the computer



# Input Devices

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- ◆ To get data and instructions into the computer
  - keyboard
  - mouse
  - Microphone (audio data)
  - PC camera (video data)
  - Scanner (image input)



# Output Devices

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- Monitor



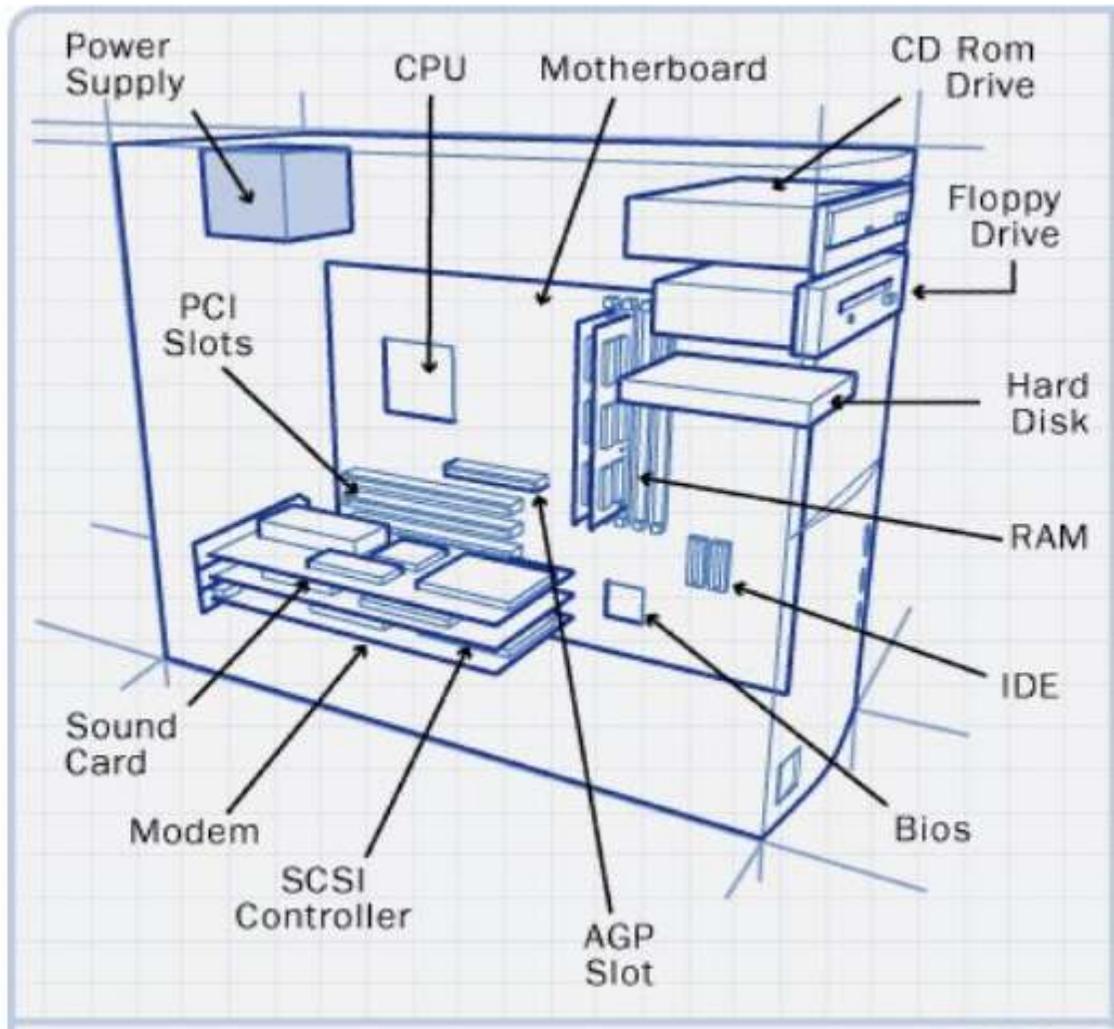
- Printer



- speaker



# System Unit: Inside the Case



The motherboard



CPU



Memory

# Storage Devices

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Hard disk



USB flash disk



floppy disk



CD/VCD/DVD drive



# Why is a Computer Powerful?

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## 1) Speed

A computer can do billions of actions per second



## 2) Reliability and Accuracy

Failures are usually due to human error, one way or another

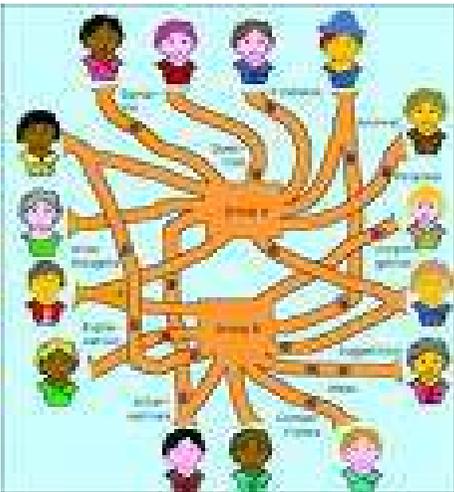
# Why is a Computer Powerful?

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## 3) Storage

A computer can keep huge amounts of data



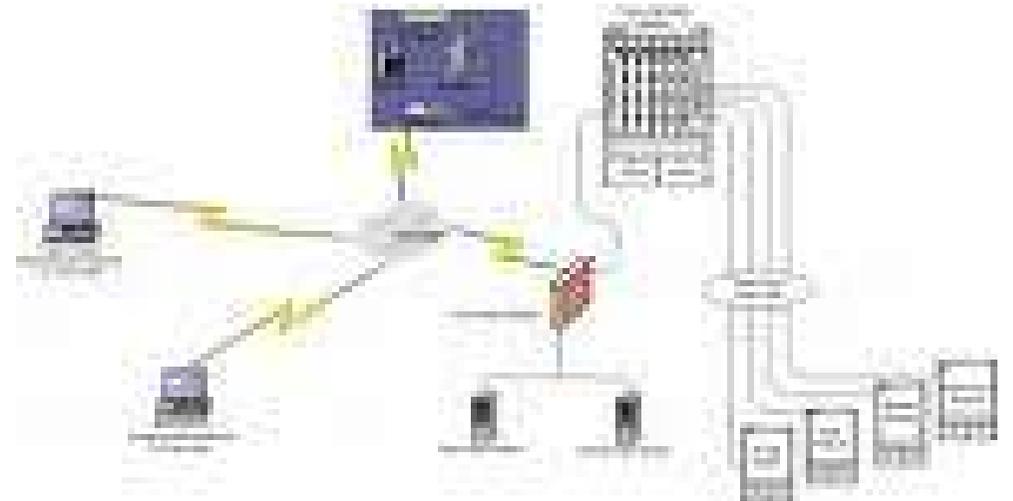
## 4) Communications

Computers connected with each other can share resources

# Network and Internet

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- ◆ A network is a collection of computers and devices
- ◆ Networks allow users to share resources



# What is a LAN?

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- ◆ Local Area Network
- ◆ A group of computers and devices
- ◆ In a limited geographic area



# What is the Internet?

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- ◆ Worldwide connection of networks



# Inter- and Intra-

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- ◆ Definition for: **inter-**
  - A prefix meaning between or among
  - An **internet** (The Internet) is a network between networks
- ◆ Definition for: **intra-**
  - A prefix meaning within
  - An **intranet** is a network within a building or organisation

# World Wide Web (WWW)?

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- ◆ The WWW, or the Web, is one application that runs on the Internet
- ◆ It is made up of billions of documents called Web pages
- ◆ These pages can contain text, graphics, sound, video and are connected together by links



# Computer Software

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- ◆ Programs that give instructions to the hardware about what to do and how to do it
- ◆ System Software
  - Programs that perform system tasks
  - For example: Operating Systems (WinXP, Linux, MacOS)

# Computer Software

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- ◆ Application Software
  - Programs that perform user-specific tasks
  - E.g. word processing, spreadsheets, databases, web applications ...
- ◆ Software is (usually) written by programmers
  - Why "usually"?

# Types of Computers

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- ◆ Personal Computers (**PCs**)
  - Desktop computers
  - Laptop or notebook computers
  - handheld computer
  - personal digital assistant (**PDA**)
- ◆ Servers
  - Workstations
  - Mainframes
  - Supercomputers

# Personal Computers

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**PC and compatibles use the Windows operating system**



**Apple Macintosh uses the Macintosh operating system (Mac OS)**

# Notebook & Handheld Computers

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## ◆ Notebook



## ◆ Handheld Computers

- Fit in your hand
- Also called pocket computers



# PDA

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- ◆ Personal Digital Assistant (PDA)



- ◆ Web-enabled PDA



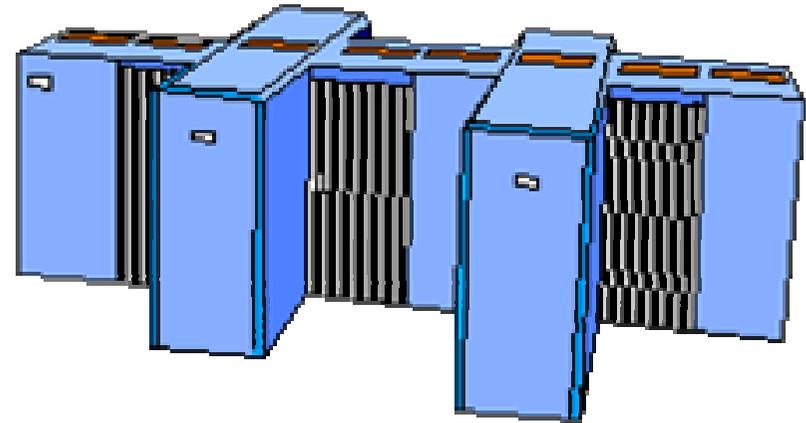
# Workstations, Mainframes, Supercomputers

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Workstation



Mainframe



Supercomputer



# An Information System

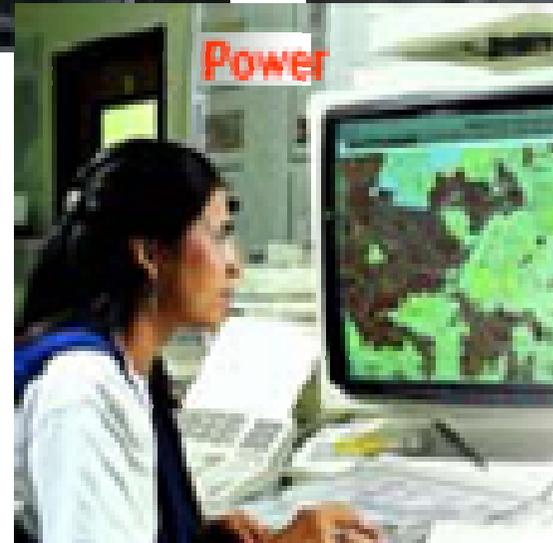
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- ◆ Besides computer hardware and computer programs, an information system also includes the procedures, documentation, and management to make a computer system run smoothly
  - Hardware
  - Software
  - Data
  - People
  - Procedures



# Examples of Computer Usage

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# Applications for Home Users

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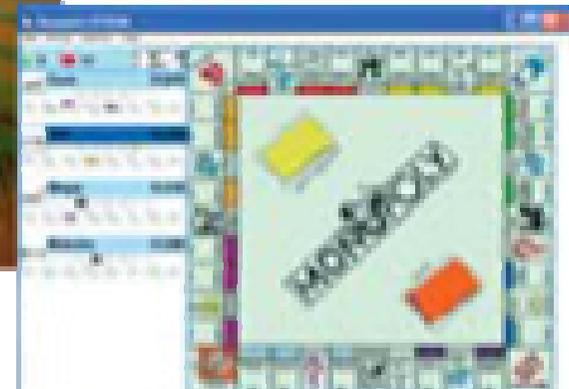
communications

Web access



personal finance  
management

entertainment



# Applications for a SOHO user

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# Applications for Mobile User

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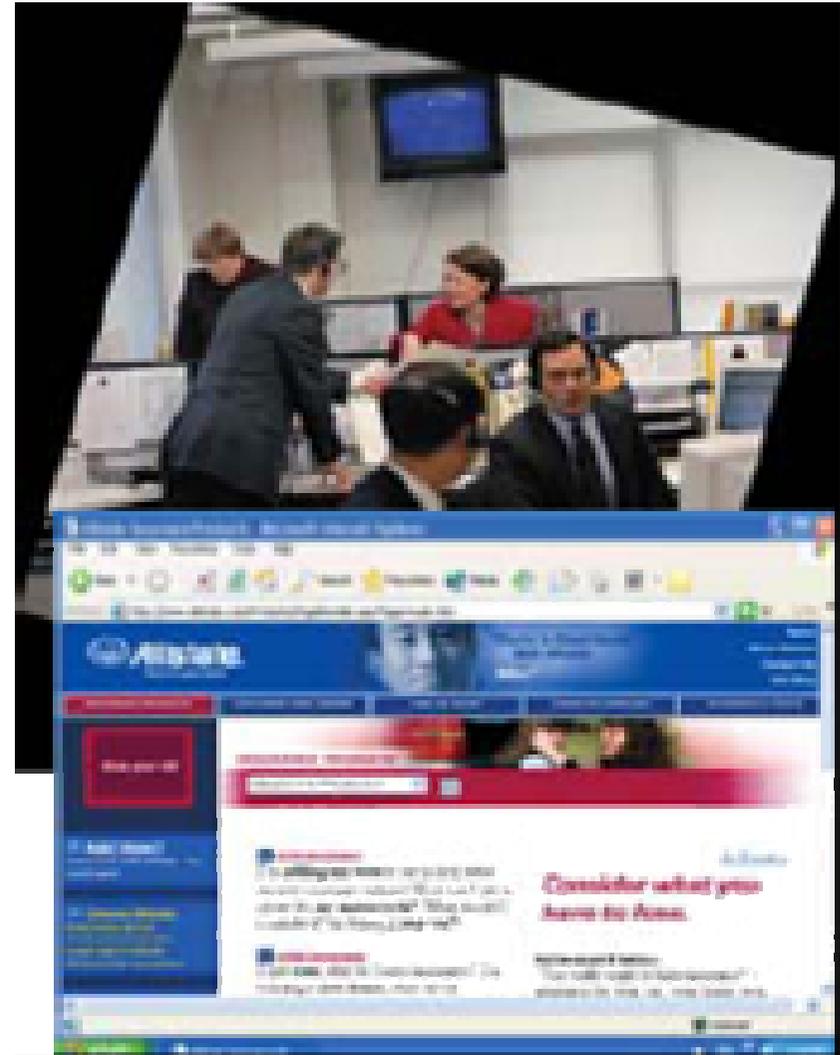
- ◆ Wireless network
- ◆ Notebook or PDA
- ◆ Productivity software
- ◆ Presentation software



# Large Business Applications

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- ◆ Network
- ◆ Desktop publishing
- ◆ Accounting
- ◆ Telecommunication
- ◆ Sales management
- ◆ Scheduling



# Computer Applications in Society

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- ◆ Learning
- ◆ Online banking
- ◆ Online investing
- ◆ Health care
- ◆ Research
- ◆ Publishing
- ◆ Travel arrangements
- ◆ Computer-aided Design (CAD)
- ◆ Computer-aided Manufacturing (CAM)
- ◆ .....

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