

# Computers Are Your Future

## Chapter 1

### Computers & You

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### What You Will Learn . . .

- Define “computer”
- Name the 4 basic operations
- Describe the main components of a computer
  - Hardware
  - Software
- Provide examples of hardware devices
- Explore the information-processing cycle

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### What You Will Learn . . .

- Major categories of computers
- Advantages of computers
- Ethical issues related to using computers
- How computers affect employment
- How to be a responsible computer user

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## Basic Definitions

**Computer** – A machine that performs the four basic operations of the information-processing cycle:

1. input
2. processing
3. output
4. storage



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## Basic Definitions



**Computer system** – A collection of components designed to work together  
A computer system includes hardware and software.

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## Basic Definitions

**Computer Program** – A list of instructions that tell the computer how to perform a given task.

Computer programs are written by people called “programmers”.

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## Basic Definitions

**Software** – All the programs that give the computer its instructions

Two categories of software:

1. System software
2. Application software



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## Input: Getting Data into the Computer

- **Data** – made up of words, numbers, images, or sounds
- The first operation: input
  - [Input devices](#) enable the user to enter data into the computer.



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## Input Devices

**Keyboard**



**Mouse – pointing device**



**Microphone**



**Digital Cameras**



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## Ergonomics

Help to prevent injuries from computer use:

- Ergonomic keyboards can prevent carpal tunnel syndrome.



- Anti-glare screens can be used on computer monitors.

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## Processing: Transforming Data into Information

The second operation: processing

- Computers transform data into information.
- Hardware components:
  - Central processing unit (CPU)
  - Random access memory (RAM)

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## Output: Displaying Information

The third operation: output

- The computer shows the results of the processing operation in a way people can understand.
- **Output devices** show the results of processing operations.

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# Output Devices


**Printer**



**Monitor**



**Speakers**



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# Storage: Holding Programs and Data for Future Use

The fourth operation: storage

- The computer saves data or output so that it can be used again later.
- **Storage devices** hold all programs and data that the computer uses.

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# Storage Devices


**CD/DVD Drive**




**Hard Drive**



**Floppy Disk Drive**



**USB or Flash Drive**



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## Communications: Moving Data between Computers

A fifth operation: communications

- **Communications devices** – Enable computers to connect to a computer network
- **Network** – Two or more computer systems that are connected
- **Modem** – A device that enables the computer to connect to a telephone line

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## The Information Processing Cycle In Action

### Creating a Word Processing Document

- **Input** – You enter text in a word processing program.
- **Processing** – The computer receives your text as input and formats the characters into words and paragraphs.
- **Output** – The computer displays the words on the screen.
- **Storage** – You save the document to the hard drive or USB drive.

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## Categories of Computers

- **Computers for Individuals**
  - Desktops – PCs, Macs
  - Notebooks – small, portable, full capabilities
  - PDA – Personal Digital Assistant, handheld, limited capabilities
  - Internet Appliance – input device and display. Limited capabilities. Requires network connection.

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## Types of Computers

### Computers for Organizations

- **Servers** – Often the same size as PCs, but with more processing and storage capabilities. Not designed for individual users. They make programs and other resources available for network users.
- **Minicomputers** - handle the computing for small corporations.

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## Types of Computers

### Computers for Organizations

- **Mainframes** – capable of running hundreds of simultaneous programs. Allow access by thousands of users. Handle gigantic processing jobs for large corporations or agencies.
- **Supercomputers** - super-fast processing. Can handle huge amounts of scientific data.

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## Advantages of Computers

- Speed – much faster than doing the job “by hand”
- Memory – gigabytes of RAM now available on PCs
- Reliability and accuracy – computers always get the right answer
- Storage – massive amounts of data can be stored in a small space

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## Ethical Issues: Piracy

Digital piracy - using unlicensed software or illegally sharing copyrighted files such as music or movies.

- When you purchase software, you purchase a license, not the actual software.
- Most software licenses allow you to install the software on ONE computer.
- Installing it multiple computers is illegal and unethical.

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## Take Ethics Seriously

- Ethics is the behavior associated with moral beliefs.
- Computer ethics deals with computer-related moral dilemmas and principles for computer professionals.
- Responsible computing requires an understanding of both the benefits of computer use and the potential harm of computer misuse.

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## Being a Responsible Computer User

- Be considerate of others sharing the same lab area, network connections, and printers.
- Dispose of old computers properly.
- Limit unproductive behaviors such as gaming, instant messaging, or surfing.

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## The Effect of Computers on Employment

- Skilled workers earn more wages, but . . .
- Computer guided robots take over many manufacturing and repetitive jobs.
- Structural unemployment results when advancing technology makes an entire job category obsolete.

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## Maintain a Safe Working Environment

- Do not overload electrical outlets.
- Do not position hardware where it can fall.
- Leave space for proper ventilation.
- Keep liquids away from the computer.



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