



**Dr./ Ahmed Mohamed Rabie Sayed**

Introductory

# COMPUTERS Are Your Future

12th  
EDITION

Catherine LaBerta

# Introduction

# Data

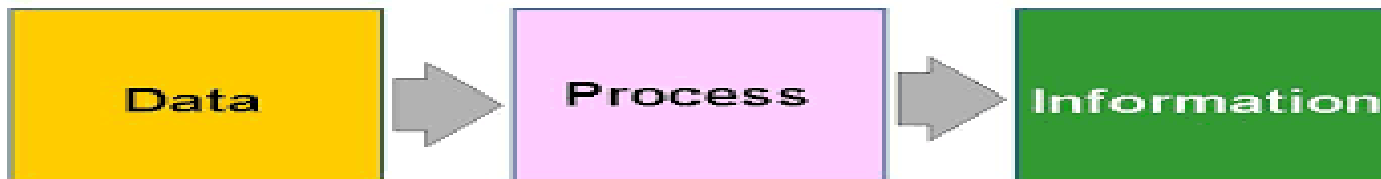
Raw, unorganized facts. Can be in the form of text, graphics, audio, or video.

# Information

Data that has been processed into a meaningful form.

# Information processing

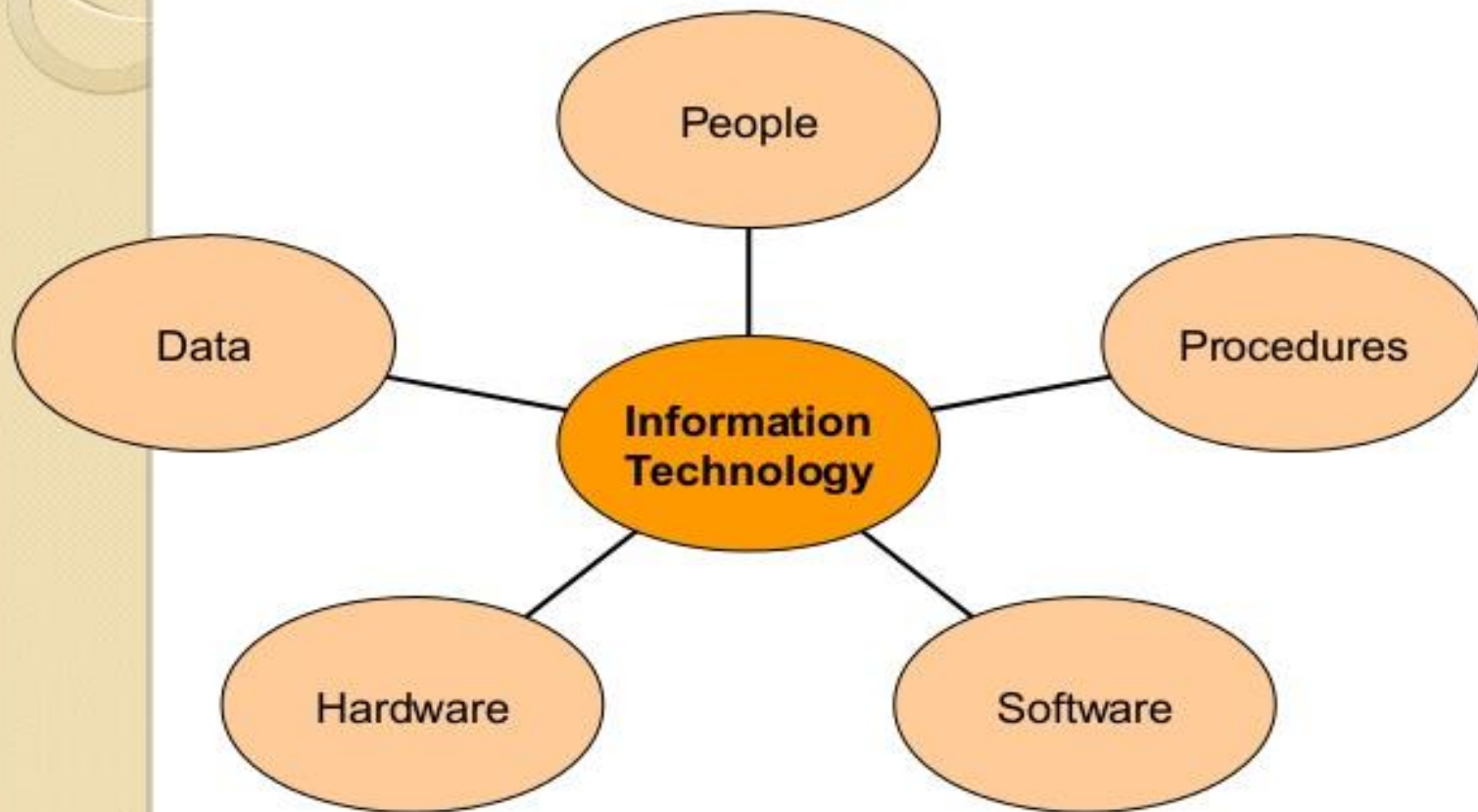
Converting data into information



**Information Technology (IT)** means all the technology including computers and telecommunications that is used to deal with data and information.



# COMPONENTS OF INFORMATION TECHNOLOGY



**The world has become  
a global village due to  
advancement in IT**

**Computer is a very important  
component  
of information technology**



# Chapter 1

## Computers and You

# Computer Applications

- **Word-processor:** an application that automatically checks spelling and grammar in a document.
- **Internet :** a connected system of computers that enables users to obtain information quicker than from a library and perform such communication activities as video conferencing.
- **Online Banking:** the ability to use the Internet to open a new account, transfer your own money from one account to another, or pay a mortgage, all from the comfort of your own home.

# Computer Applications

- **Online classes:** classes offered using applications such as Blackboard and Angel via the Internet that enable students and teachers to communicate outside of the physical classroom.
- **GPS systems:** computing devices that are either portable or embedded within the dashboard of many vehicles and provide driving directions from your current location to the entered destination as well as help you locate restaurants, gas stations, and fast food chains, even the phone number for your favorite pizza place.
-

The **real power of the use of computers** comes when you begin to relate the tasks, understand the technology used to perform them, use that technology to **collect information, share that information** with others locally and globally, and then singularly **or collectively use the information to make decisions.**

A **computer** is an electronic device that performs four basic operations: **input, processing, output, and storage.**

# Computer System

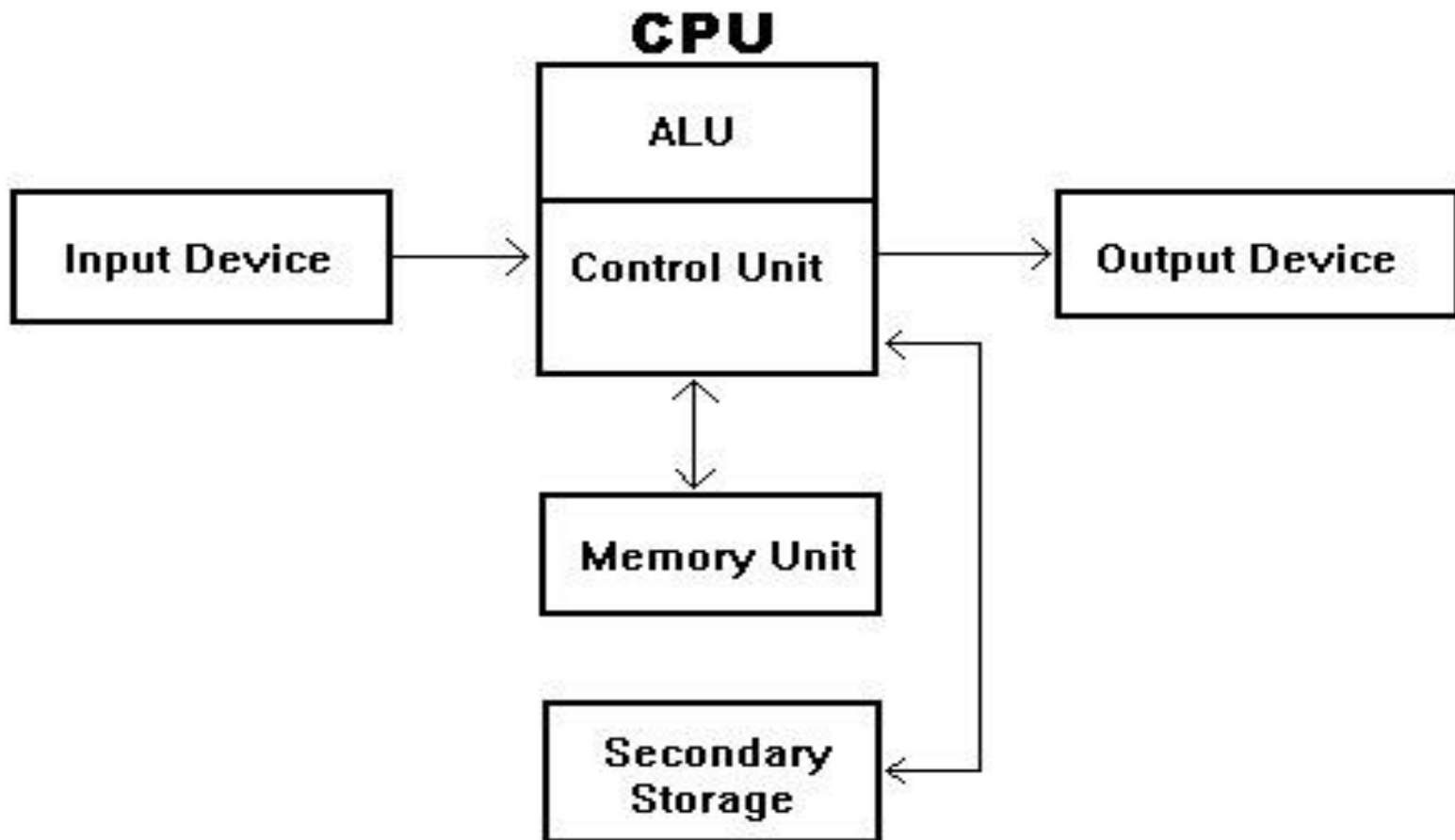
```
graph TD; A[Computer System] --> B[Software]; A --> C[Hardware]
```

**Software**

**Hardware**

# Hardware

Hardware includes all the physical components of the computer and its related devices.



# Input Devices



**joystick**



**mouse**



**mic**

**camera**



**touch tablet**



**hand-held scanner**



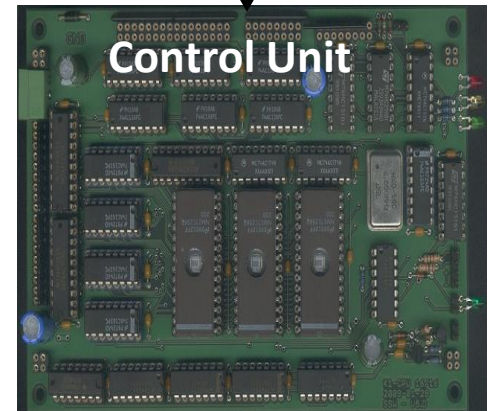
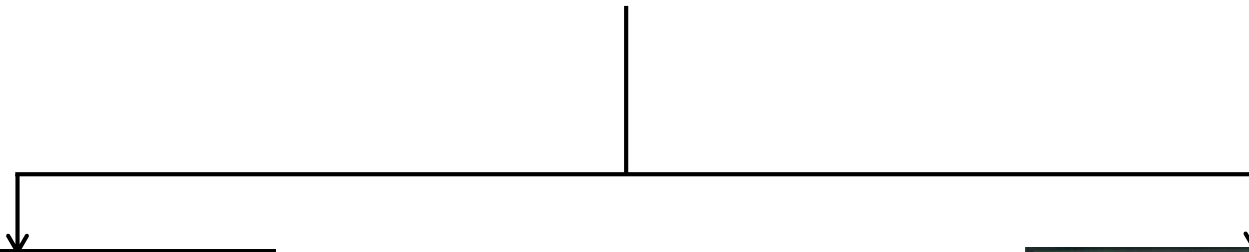
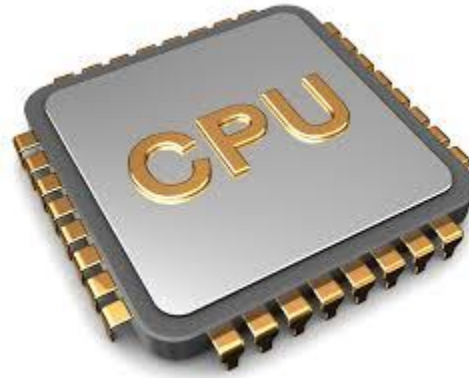
**keyboard**



**flatbed scanner**

[ComputersProfessor.com](http://ComputersProfessor.com)

# Central Processing Unit (Processor)





# Output Devices



Monitor



Printer



Speakers



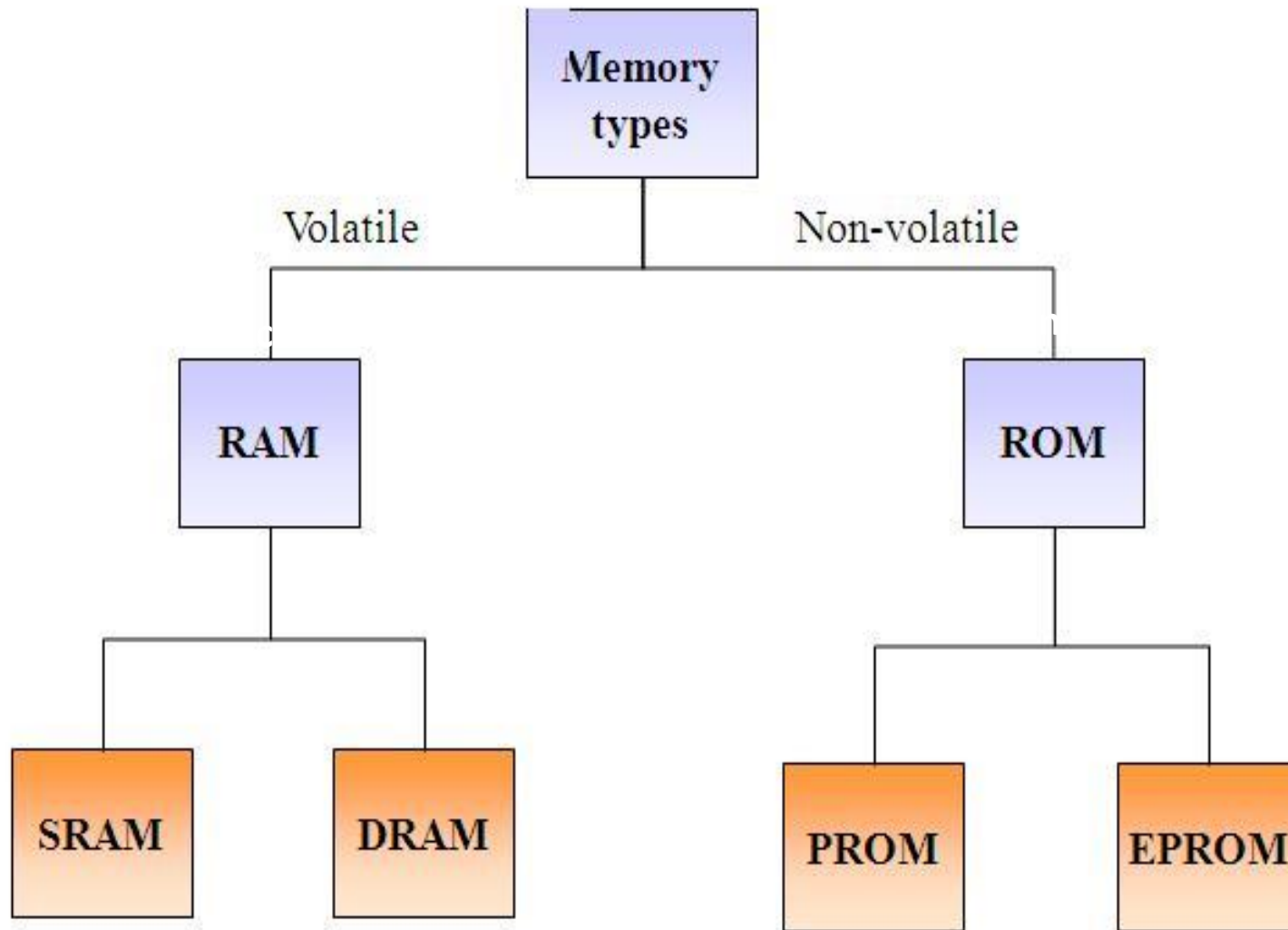
Head Set



Projector



Plotter





## Difference between RAM & ROM

RAM	ROM
VOLATILE MEMORY	NON VOLATILE
Data in ram is not permanently written when power off, data deleted	Permanently, not erased
Ram: DRAM & SRAM	ROM: PROM & EPROM
It requires flow of electricity to retain data	It does not requires electricity to retain data
Ram is the memory available for the operating system programs and process to use when the computer is running	Rom is the memory that comes with your computer that is pre-written to hold the instructions for booting up the computer

# Storage Devices



**Flash**



**Floppy Disk**



**Zip Disk**



**CD + RW**



**CD + R**



**DVD + RW**



**DVD + R**



**Storage Tape**



**Smart Media**



**Removable  
Hard - Drive**



**Micro Drive**



**Memory Stick**



**Smart Cards**



**Online Storage Site**



**PC Card**

# Storage Devices

Internal hard drive



External hard drive



CD & DVD drives



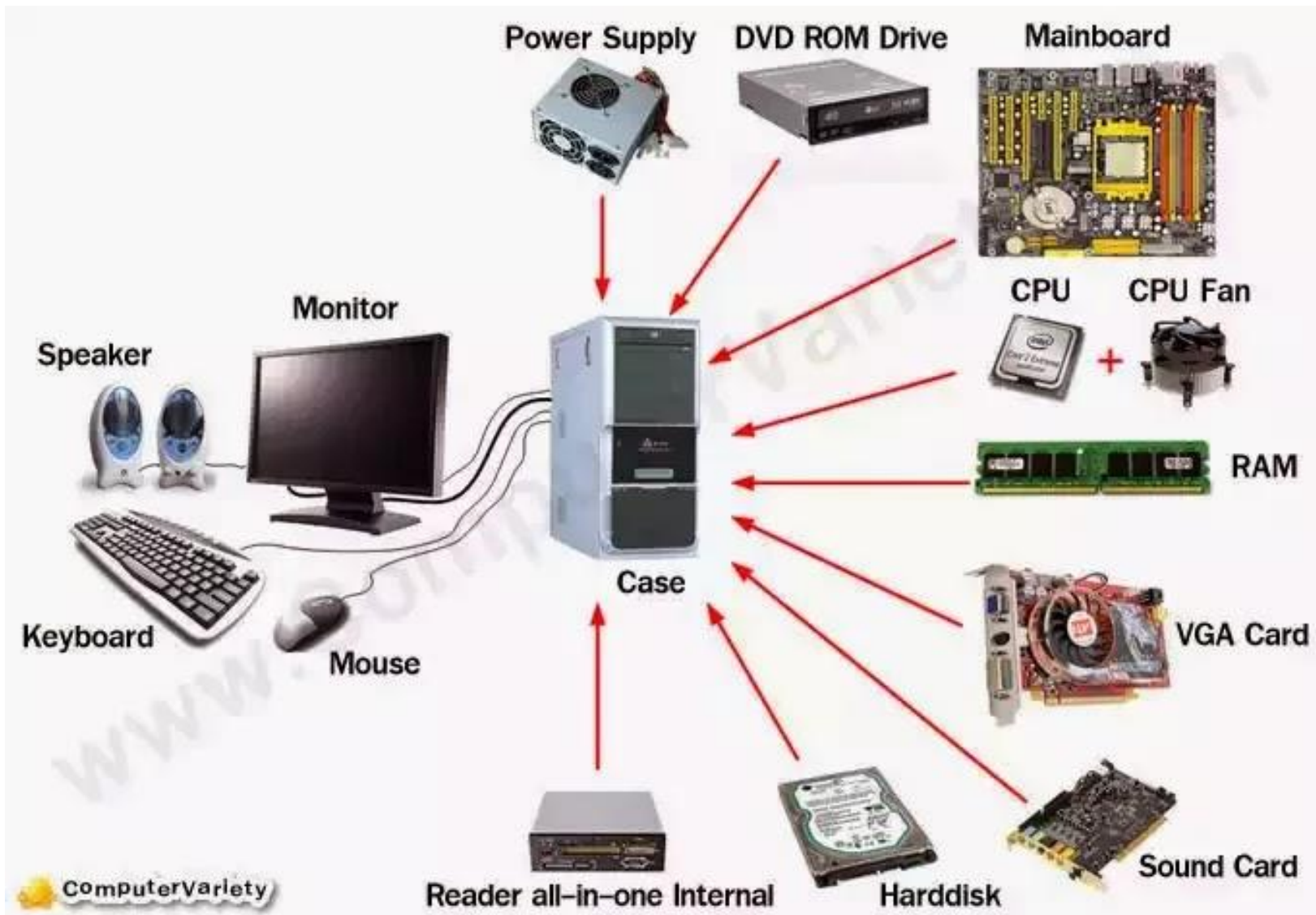
Media card reader



Flash drive



# Computer Components



**The motherboard** is the circuit board that connects the central processing unit(s) anchored on the board and other system components.

**Integrated peripherals** are the devices embedded within the system unit case and generally include the power supply, cooling fans, memory, CD drive, DVD drive, and internal hard drive.

**Peripheral devices:** components located outside the system unit housing that are connected physically or wirelessly to the system unit and motherboard. Examples include keyboards, mice, monitors, speakers, external webcams, external modems, and external storage devices.

**Communications device** which is a hardware component that moves data into and out of a computer.



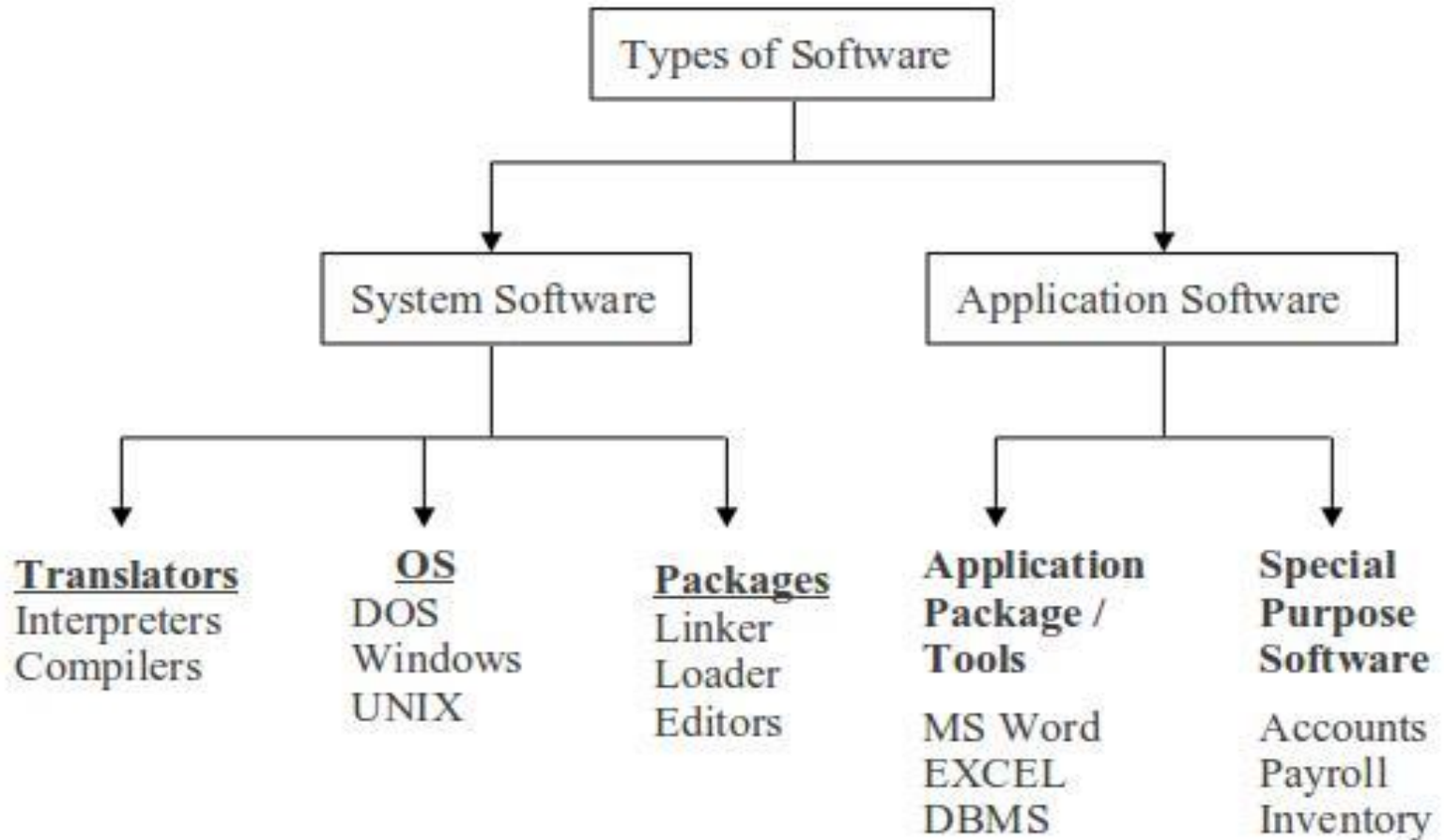
**Modem** a communications device that converts data from one form into another. It enables the computer, a digital device, to access data through non digital media, such as telephone lines, cable, satellite, and cellular connections.



**Network interface card (NIC), is a hardware element located in the system unit that houses the electronic components used to connect a computer to a network.**



# Software



# Operating System



Mac



UNIX

# Programming Languages



# Application Software



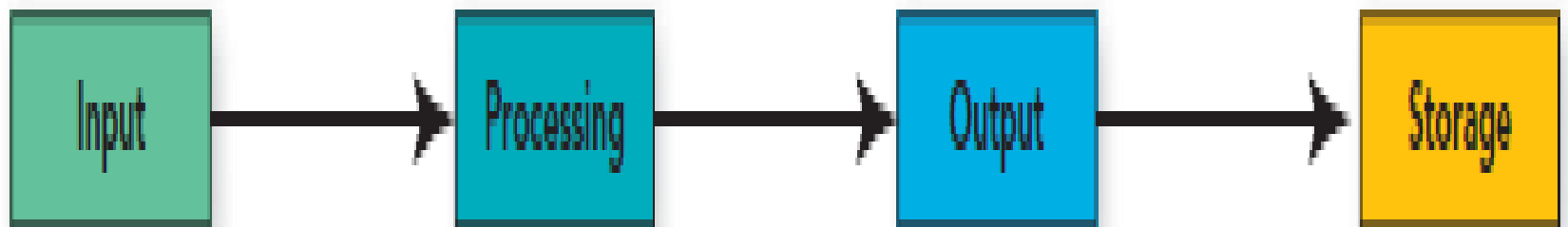
Hardware =  
fish tank

Operating system =  
water

Software  
applications = fish

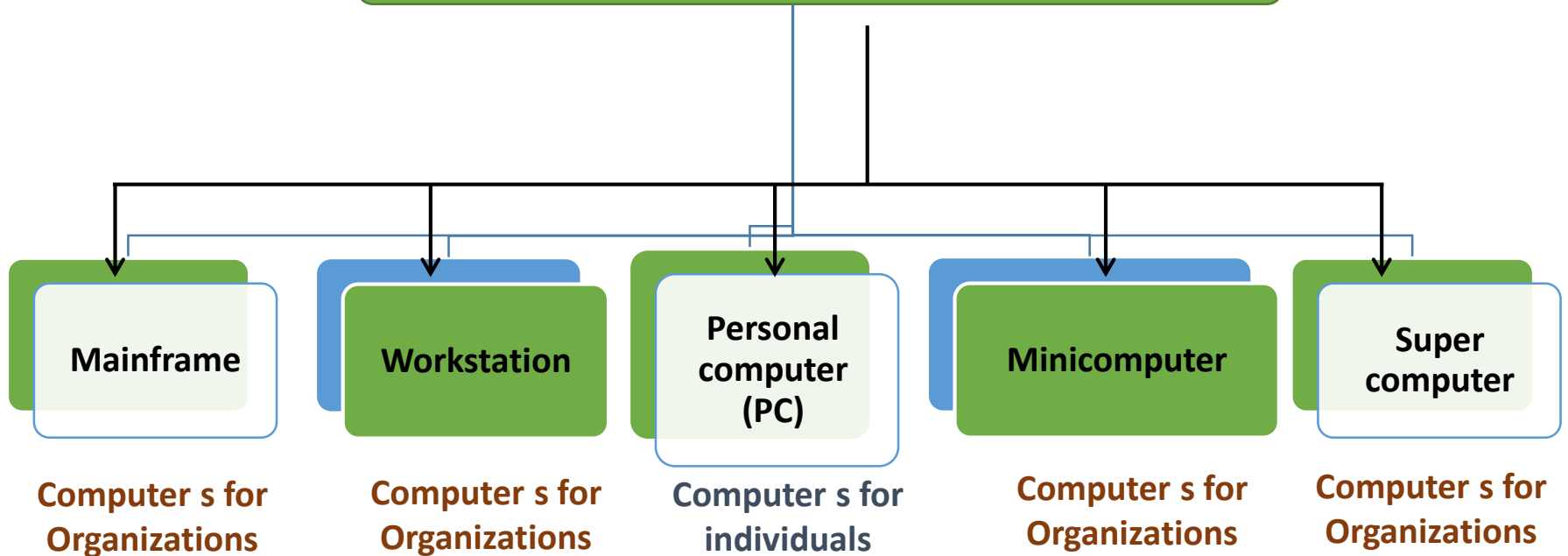


# Information Processing Cycle





# Types of Computer



# Personal Computer

## **Desktop**

Manufacturers:  
Dell, Gateway,  
Sony, Hewlett-  
Packard, Apple



## **All-in-one**

Manufacturers:  
Apple iMac (trend  
leader), Lenovo,  
Hewlett-Packard,  
Dell, Sony



## **Notebook (laptop)**

Manufacturers:  
Dell, Sony,  
Gateway



## **Subnotebook**

Manufacturers:  
Apple, Dell, Sony,  
and Asus



## **Tablet PC (convertible notebook)**

Manufacturers:  
Hewlett-Packard,  
Fujitsu, Lenovo,  
Dell



# Personal Computer

The two most commonly used types of personal computers are **Apple's Macintosh (Mac) systems** and the more numerous **IBM compatible systems**, which are made by manufacturers such as **Dell, Gateway, Sony, Hewlett-Packard (HP)**, and many others. These PCs are called **IBM-compatible** because the first such computer was made by IBM.

### **Netbook**

Manufacturer:  
Acer, Asus, Dell,  
HP, and Lenovo



### **iPad**

Manufacturer:  
Apple



### **Handheld computers or personal digital assistants**

Manufacturers:  
Asus, Dell, HP,  
Palm, and Sony



### **Smartphone**

Manufacturers:  
Apple iPhone,  
BlackBerry Curve,  
HP iPAQ,  
Motorola Droid,  
Palm Pre, and  
Treo Pro



### **Dedicated Devices**

Example: Kindle  
DX Reader by  
Amazon, the Nook  
by Barnes and  
Noble, and the  
Sony Reader



**Workstations** are high-end desktop computers with system units designed for technical or scientific applications, requiring a moderate amount of computing power and relatively high quality graphics capabilities.



**Mainframes** are powerful servers that are part of a networked system designed to handle hundreds of thousands of clients at the same time.



**Supercomputers** are ultrafast systems that process large amounts of scientific data, often to search for underlying patterns. A supercomputer can be a single computer or a series of computers working in parallel as a single computer.



**Minicomputer:** a midsize computer. A minicomputer is a multiprocessing system capable of supporting from up to many users simultaneously.

An example of a mini computer





**The main difference between a supercomputer and a mainframe is that a supercomputer focuses on performing a few sets of instruction as fast as possible, whereas a mainframe executes many instructions concurrently.**

# Computer Performance

**The amount of work accomplished by a computer system.**



# **Factors of computer performance:-**

**1- The speed of CPU.**

**2- The size of RAM.**

**3- Data bus width.**

**4- The Speed and storage capacity of hard disks**

**5-The number of applications open on  
computer at one time.**

# Social Networking

**Facebook:** the largest of such social networking sites, allows anyone over the age of 13 with a valid e-mail account, residing in a country where it has not been banned, to become a Facebook user.

**Twitter** the newest phenomenon, is a free, real-time social messaging utility that allows postings of up to 140 characters.

**Collaboration software:** the collection of programs that help people share ideas, create documents, and conduct meetings, regardless of location or time zone, are making their move into the academic and business worlds.

**Google Docs** a free Web-based word processor and spreadsheet, allows project members to share and edit documents online.

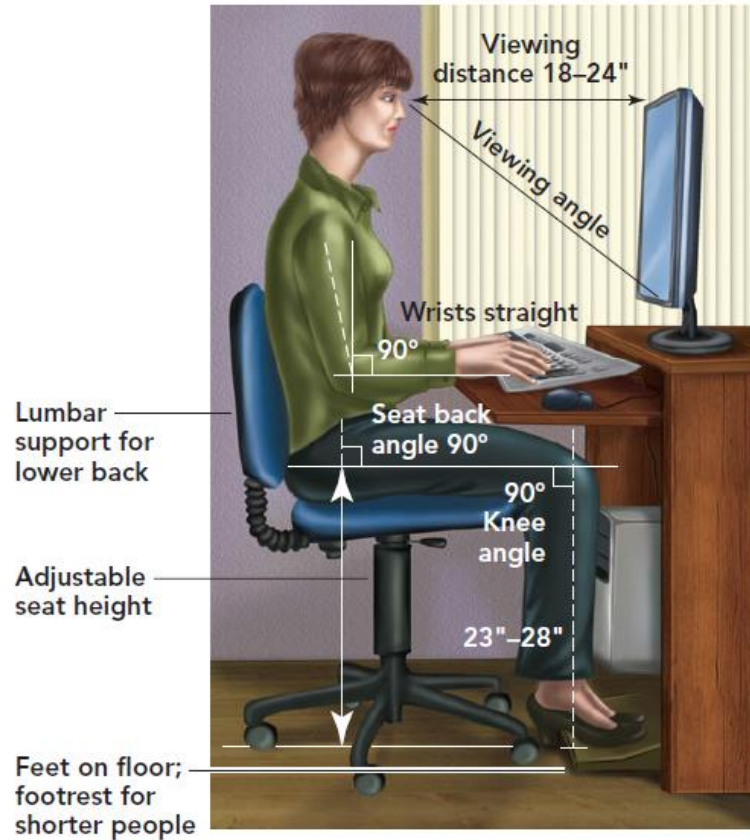
**A wiki** is a collection of Web pages designed to let anyone with access contribute or modify content. Wikis are often used to create collaborative or community Web sites.

**Google Groups** is a free service provided by Google to help users connect, share information, and communicate effectively over the Internet.

# Advantages and Disadvantages of Computer Use

Advantages	Disadvantages
Speed	Information overload
Memory	Cost
Storage	Data inaccuracy
Hardware reliability and accuracy	Software unreliability

**Ergonomics** is the field of study that is concerned with the fit between people, their equipment, and their work.





**Computer ethics** a branch of philosophy that continues to evolve, deals with computer-related moral dilemmas and defines ethical principles for computer use.

**Digital piracy** the unauthorized reproduction and distribution of computer-based media.

# PC OR MAC

## ▶ PC

COST	SETUP	HARDWARE	OPERATING SYSTEM	SECURITY AND STABILITY	APPLICATIONS
Usually <b>less expensive</b> initially, but might require more hardware to run advanced programs.	Usually requires <b>some configuration</b> with external devices.	Intel processor.	Vista and Windows 7 both have <b>over 5 versions</b> from which to choose, each with different options. The key here is <b>familiarity</b> . A lot of individuals have used previous versions of a PC operating system and feel more comfortable with it.	PCs are <b>subject to viruses</b> and will require the purchase of additional antivirus software.	Most (95%) of the world uses PCs. So to share files in the <b>business world</b> , a PC is the better choice. A PC is <b>better suited for gaming</b> , but a special gaming machine is probably better for the serious gamer.

## ▶ MAC

More expensive out of the box, but comes with more hardware and rarely needs any upgrades.	Little to <b>no set up</b> required.	Intel processor.	The Mac OS has only <b>one version</b> and an extremely appealing and graphic interface.	The Mac is <b>more stable</b> and has seldom been compromised by a virus.	Mac is more used in the <b>graphics community</b> . Microsoft makes applications for the Mac but does not upgrade them as frequently as they do for the PC. Mac is <b>better suited for working with graphics</b> , photo editing, and video creating.
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