AL-Zahraa College of Medicine

Computer Essentials

Lecture 1

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Objectives

اهداف المحاضرة

- To understand the term computer, Software and Hardware.
- To familiarize students with computer components

What is a Computer?

COMPUTER

- A **computer** is an electronic device used to process data, converting data into information that is useful to people.

Types of Computers

- **Personal Computer**

  - In General, the term **Personal Computer** PC is used for any small computer.

  - **Standard PC** comprises a Casing/Box, a monitor, a keyboard and a mouse.

  - **PC** is cheap and easy to use.

  - **PC** is normally used by students, families and in small businesses.

Types of Computers

- **Laptop Computer**

  - A **laptop** is a small computer which can be easily carried in a small bag/case.
  - In **laptop**, batteries are used for power.
  - **Laptop** has keyboard and a touchpad.
  - It is **expensive** than PC.
  - **Laptop** is almost equal in speed of a PC.

Types of Computers

- **Handheld Devices**

A **piece** of **computing equipment** that can be used in the hand, such as a smartphone or tablet computer

- Mobile phones & Smart Phones
  - These are advanced phones with latest functions.
  - We can use them as a phone and as a computer to use some software.

Types of Computers

- **Multimedia Players**
  - These players can play and view many types of media files e.g. **video, music and photos**.
  - Example is **Apple iPod**
  - We can connect these players to internet or other network.

Types of Computers

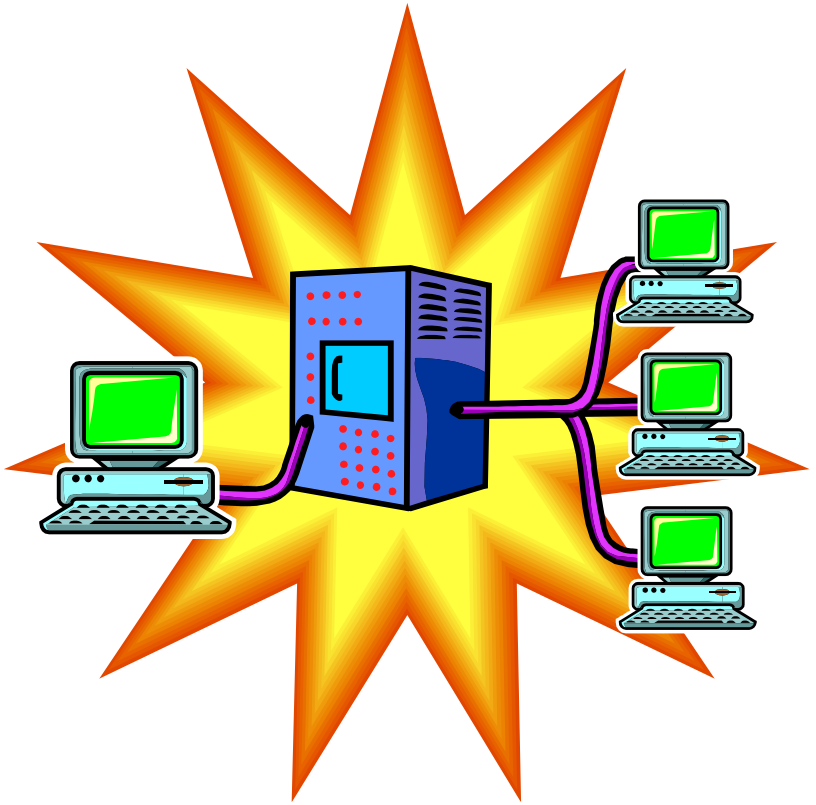
- **Network Computers**

  - **A network** is a collection or group of computers connected with each other via cables or wireless.
  - A network is used to **share resources** and **information**.
  - Network is used in **large organisations**, **schools**, **hotels** and **offices**.

Types of Computers

Server

- Purpose is to “**serve.**”
- A computer that has the purpose of supplying its users with data; usually through the use of a LAN (local area network).



Types of Computers

- **Mainframe Computers**
  - These are **very big**, **powerful** and **very high speed** computers.
  - They can do multiple tasks at high speed.
  - These are used by large organisations such an banks to control the entire business operation.
  - These are very expensive.
  - They are placed in a big room.

Types of Computers

Microcomputer

- A **personal computer**; designed to meet the computer needs of **an individual**.
- Provides **access** to a **wide variety** of computing applications, such as word processing, photo editing, e-mail, and internet.

Types of Computers

Supercomputer

- A computer that was the fastest in the world at the time it was constructed.
- Can tackle tasks that would not be practical for other computers.
  - Typical uses
    - Breaking codes
    - Modeling weather systems

Main Parts of a PC

- Keyboard
- Monitor
- Mouse
- Case/Box
  - CPU
  - HDD
  - CD-ROM Drive
- Speakers
- Modem

Main Parts of a PC

Keyboard

- It is used to enter information in the computer.
- Its like a board having Keys (buttons)

Mouse

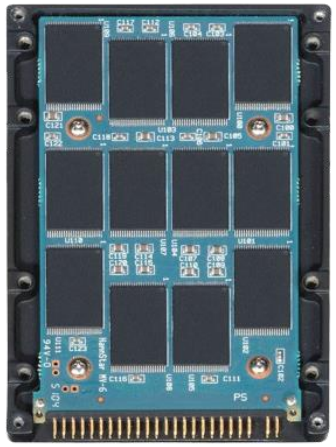
- It is used to operate or control the computer.
- When mouse is moved then a cursor is moved on the computer screen.
- With mouse we can select menu options, drag & drop and point & click.

Main Parts of a PC

Hard Disk Drive (HDD)

- Hard disk is inside the computer box.
- It is used to store data and programs.
- Hard disk may be external or internal.

SSD Solid State Drive.



- It is the current technology this has begun to replace Hard Disk Drives (HDD).
- is a newer, faster type of device that stores data on instantly-accessible memory chips.

Main Parts of a PC

CD, DVD , Blu-ray Drives (CD-ROM)

- It is used to read information.
- It may contain computer software, data or music.
- We can also write data/information on Writeable CD, DVD and Blu-ray.

Speakers

- Speakers are used to play music or any audio.
- There are many types of speakers.

Main Parts of a PC

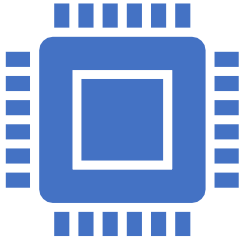
Memory stick/Flash driver

Modem

- Modem is used to connect to internet via a telephone line.
- Modem can be internal or external.

Hardware and Software

Hardware and Software



Hardware

The term **hardware** refers to the physical components of the computer such as the system unit, mouse, keyboard, monitor etc.

Software

The **software** is the instructions that makes the computer work.

Software is held either on your computers hard disk, CD-ROM, DVD or on a flash memory and is loaded from the disk into the computers RAM (**Random Access Memory**), as and when required.

Central Processing Unit

Central Processing Unit (CPU)

Central Processing Unit (CPU)

CPU is the main part of the computer that performs all the work.

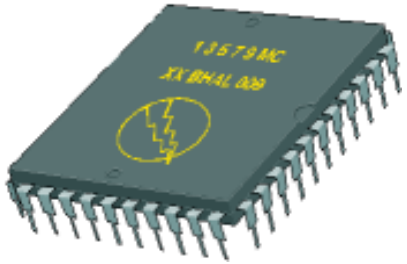
CPU is also called brain of the computer.

It performs processing, communication and all calculations of data.

CPU is normally an Intel or AMD.

It tells how fast your computer will run and its speed is measured in MHz or GHz.

CPU performs all the calculations within the computer.



Input devices

- Keyboard

- Mouse

- Touchpad
  - It senses the movement of the fingertip and moves the mouse pointer (cursor) on the computer screen.
  - It is used in laptops.

Input devices

- Joysticks
  - It is used to play games more quickly and efficiently.

- Graphic Tablet
  - It is touch sensitive pad. A Stylus (digital pen) is used for drawing or writing.

- Scanner
  - Scanner is used to convert any printed material to digital form and to import into the computer.
  - We can convert any printed text to a soft copy with a special computer software OCR.

Input devices

- Webcam
  - It is a small camera which is used to show live images over the internet.

- Digital Cameras
  - These cameras can store images in digital form on a memory card and transfer to computer.

- Microphone
  - Microphone is used to convert speech into text by using special software.

Output Devices

An output Device is any device that is used to show information or results of a PC.

Some Output devices are as follows:

- Monitors
- Speakers
- Speech Synthesiser
- Printers
- Touch screens

Output devices

- Monitors / Computer Screen/ VDU
  - This is the most common output device.
  - Picture quality of monitor is called Resolution.

- Speakers
  - Speakers are used to take any audio output or result from the computer.

- Speech Synthesiser
  - These are special software used to translate any written text into an audio speech.

Output devices

- Printers

  - Printers are used to print paper copies of the text, pictures or any other data.
  - We have Colour printers and Black & White Printers
  - Dot matrix printers, Inkjet printers, Laser printers.

Touch screens

- These are special monitors which are used not only to display information but also to take any input. These are used in ATM machines.

Output devices

Input and Output Ports

A port is a place where we can connect any external device to computer.

Some types are as follows:

- Serial Port
  - This port connects devices like mice and keyboard and transfers data in a single stream.

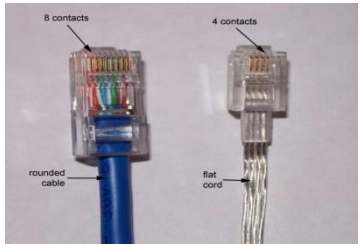
- Parallel Port
  - This port connects devices like printers and transfers data in multiple streams.

Output devices

- USB Port
  - This is most common port and widely used to connect many devices.
  - This is without pin.

- FireWire Port
  - It is used to connect digital cameras because it transfers data at a high speed.

- Network Port
  - This port is used to connect the PC to other PCs in a network.



Thank You For Listening