



جامعة المستقبل
AL-MUSTAQBAL UNIVERSITY



قسم الامن السيبراني

DEPARTMENT OF CYBER SECURITY

SUBJECT:

COMPUTER ORGANIZATION & LOGIC DESIGN

CLASS:

FIRST

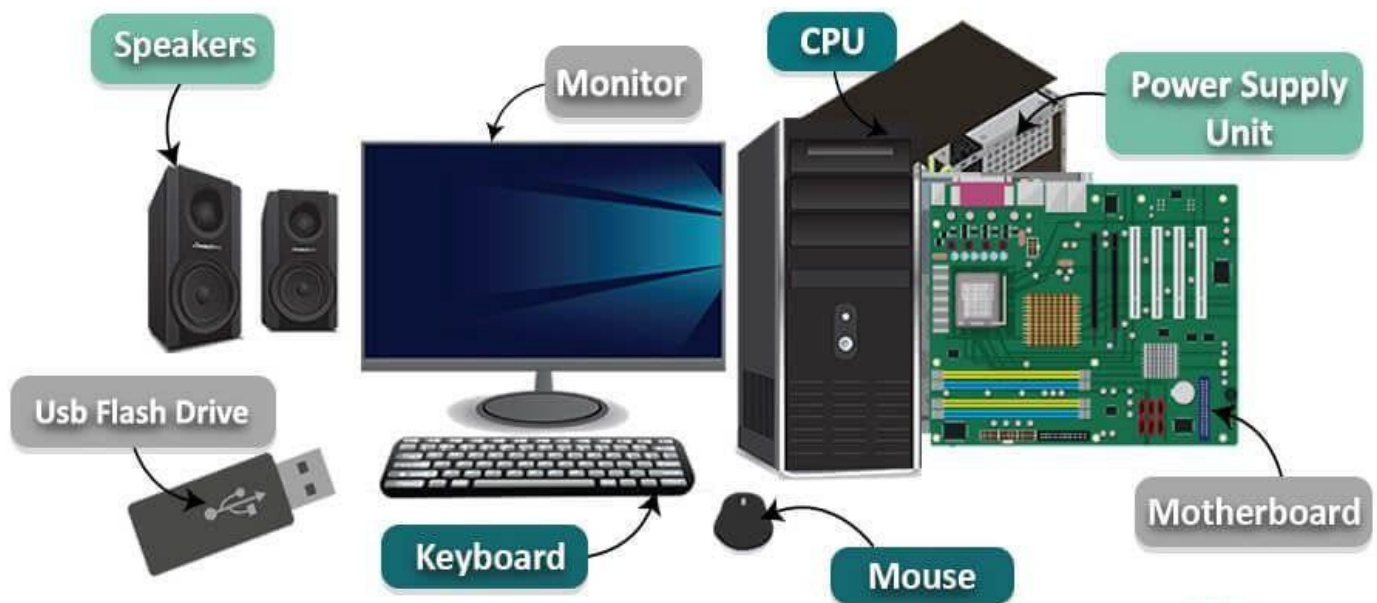
LECTURE: (1)

INTRODUCTION TO COMPUTER ARCHITECTURE

MSC :MUNTATHER AL-MUSSAWEE

- Evolution of Computers,
- Generation of Computers,
- Super Computers,
- Mainframe Computers,
- Personal Computers (Different Types)

Components of Computers

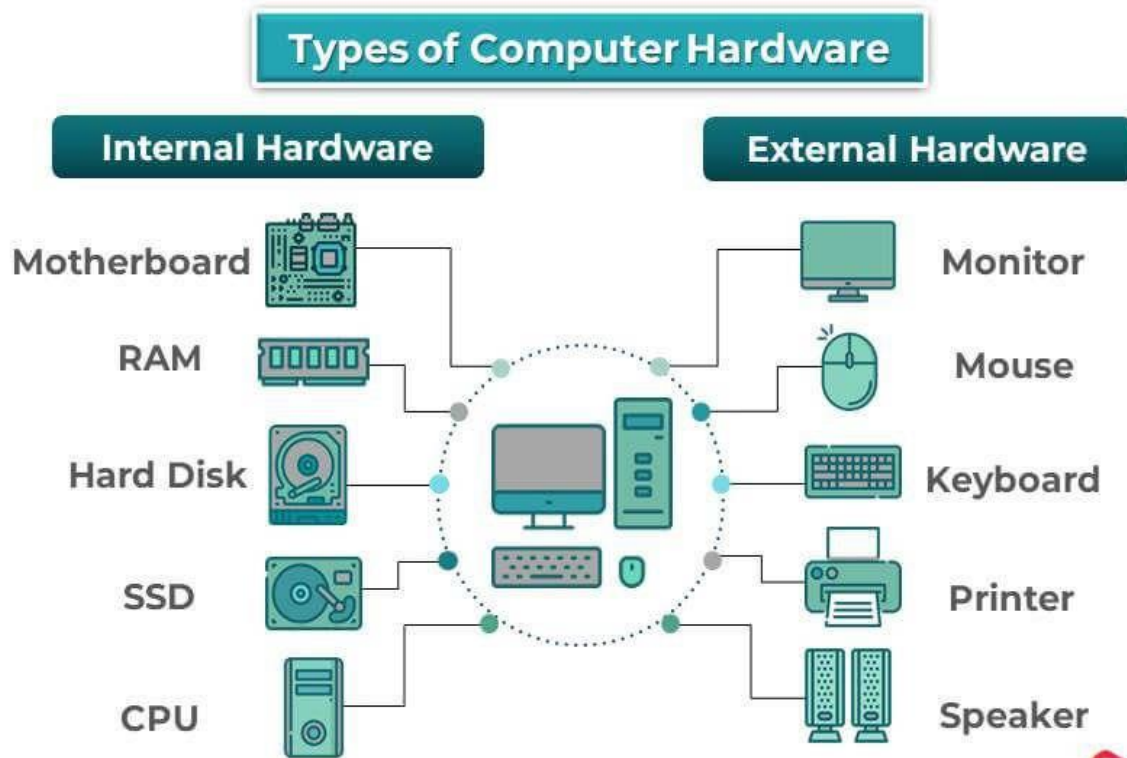


1) Hardware, Software, Information Technology

Understand the terms hardware, software, Information Technology.

1.1 Hardware

Hardware refers to the physical components of a computer. These are the parts that you can see, feel and hear. Examples are the CPU, the keyboard, the monitor, memory, cables, mouse, printer and power supply.



1.2 Software

Software refers to the programs that control the computer and make it function.

A program is a set of instructions that the computer obeys. Computer programs can be extremely long and complex sets of instructions. It is quite common for computer programs to be tens of thousands of lines long.

1.3 Information Technology

Information Technology is a broad term which covers all aspects of the use of computer technology. It includes not only hardware and software, but also communication technology applied to linking computer systems, software engineering, and the administration and use of computer systems.

2) Types of Computer

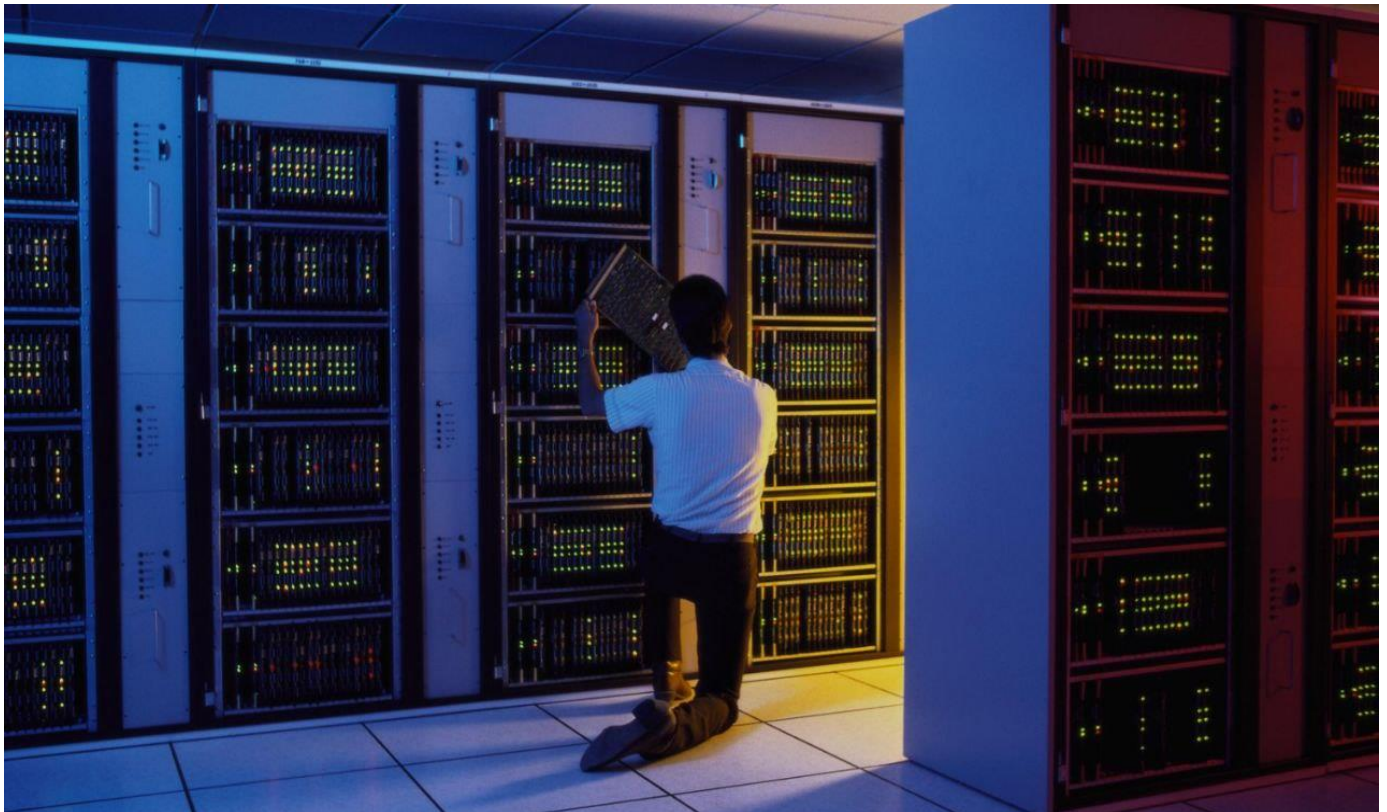
Understand and distinguish between mainframe computer, network computer, personal computer, laptop, in terms of capacity, speed, cost.

In the early days of computer technology, it was easy to categorize computers. Today, even the basic desktop machines are extremely powerful by the standards of a few years ago and rival the early mainframes in computing power.

2.1 Mainframes

These are the largest and most powerful of computers. The biggest of these are sometimes called Supercomputers. Mainframes are usually only found in large corporate institutions, research organizations, government ministries and tertiary academic institutions.

They provide centralized processing and storage of data. They are usually used for large database systems such as the accounts of a municipality, patient information at a large hospital or student records at a university.



Capacity and speed: Mainframes have the largest capacity in terms of data storage and processing speed. The capacity of a modern mainframe can be hundreds or even thousands of times that of a modern personal computer.

Cost: Mainframes are also the most expensive machines in terms of both initial cost and maintenance. A mainframe can cost millions of Dollars.

2.2 Network computer

Network computers are also sometimes known as thin clients or dumb terminals. They provide access to a mainframe via a network and have little, if any, computing capacity of their own. Network computers provide remote access to a mainframe. They allow the user to input data or commands and receive output. The actual processing would be done on the mainframe.



Capacity and speed:

Network computers do not have any processing capacity of their own.

Their speed will depend on

- 1) the speed and capacity of the mainframe;
- 2) the speed of the network to which they are attached;
- 3) the number of users accessing the mainframe.

Thus in periods of low demand, they will appear to function very quickly but would appear to slow down when the demand on the system is high.

Cost: Network computers are relatively simple devices, hence they are fairly cheap.

2.3 Personal computers

Personal computers or PCs for short are the type of computer that most users are familiar with. Because they are usually found on users desks, they are also sometimes called desktop computers. Operating systems such as Linux and Windows were designed specifically for personal computers. The same applies to the thousands of application packages that are available including OpenOffice.org and Microsoft Office.

Capacity and speed:

Because of the rapid advances in technology, the PC of today is more powerful than many mainframes of a few years ago.

2.4 Laptop

Laptops are similar to personal computers except that they comprise an integrated unit. Instead of a separate monitor, the lid contains a screen. The keyboard is built into the base. Usually they make use of a touchpad instead of a mouse. The term notebook computer is often used instead of laptop computer.

The main feature of a laptop is its portability. This is possible, not only because of the reduced size and weight, but also through the use of a built-in battery which is able to power the computer for a few hours without being connected to a mains power supply.

Capacity and speed:

These are the same as for personal computers.

Cost:

Because of the more expensive components and the smaller market for laptops, these are usually quite a bit more expensive than personal computers. Increased volumes and improvements in manufacturing techniques will bring the price of laptops down in the future.

