AL MUSTAQBAL UNIVERSITY

COLLEGE OF DENTISTRY

COMPUTER SCIENCE

Lecture 3

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Main Memory

-Random access memory (RAM)

-Read only memory (ROM)

	RAM	ROM
1	It is volatile memory	It is non-volatile memory
2	The contents are temporary; data is lost when electricity supply is lost.	The contents are permanent; data is not lost even when power is switched off.
3	Available in small storage capacity.	Available in high storage capacity.
4	Processing speed is high.	Processing speed is low.
5	User-defined programs can be stored.	Generally, operating system supporting programs can be stored.
6	Cost is very high.	Cost effective.
7	It is of two types, SRAM and DRAM.	It comes in different types such as PROM, EPROM, EEPROM and flash memory.

Secondary Memory

Secondary memory is a type of computer memory that is used to store data and programs that can be accessed or retrieved even after the computer is turned off.

Unlike primary memory, which is volatile and temporary, secondary memory is **non-volatile** and can store data and programs for extended periods of time.
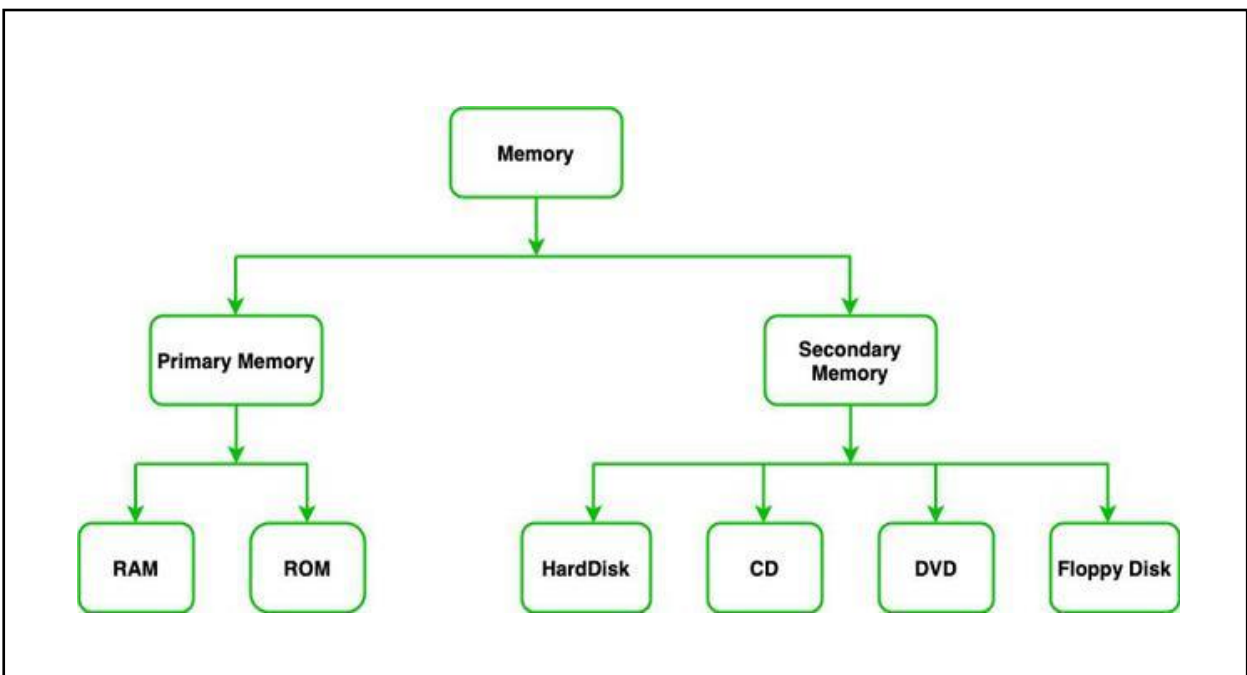
(Fig.1) Memory

Some examples of secondary memory

1-Hard drive (HD): A hard disk is part of a unit, often called a

 "**Disk drive**," "**Hard drive**," or "**Hard disk drive**," that store and provides relatively quick access to large amounts of data on an electromagnetically charged surface or set of surfaces.

2-Optical Disk: an optical disc drive (ODD) is a disk drive that uses laser light as part of the process of reading or writing data to or from optical discs

3-Flash Disk: A storage module made of flash memory chips.

(Fig .2)

Secondary Memory

Hard drive (HD)

Optical Disk

Flash Disk

Units of Measurement

1- Storage measurements:

The basic unit used in computer data storage is called a (bit)

(Binary Digit).

Computers use these little bits, which are composed of **ones** and **zeros**, to do things and talk to other computers. This two number system, is called **a "binary number system"** since it has only two numbers in it.

Because storage is expressed in terms of bytes, all greater units are typically referred to by their shortened names.

Above **terabyte**, we have **Petabyte (PB), Exabyte (EB), Zettabyte(ZB), and Yottabyte (YB).**

Data Storage Units of Measurement Chart

Unit	Shortened	Capacity
Bit	b	1 or 0 (on or off)
Byte	B	8 bits
Kilobyte	KB	1024 bytes
Megabyte	MB	1024 kilobytes
Gigabyte	GB	1024 megabytes
Terabyte	TB	1024 gigabytes
Petabyte	PB	1024 terabytes
Exabyte	EB	1024 petabytes
Zettabyte	ZB	1024 exabytes
Yottabyte	YB	1024 zettabytes

(Fig .3) Storage measurement Units

Units of Measurement

2- Speed measurement:

 The speed of Central Processing Unit (CPU) is measured by

Hertz (Hz).

Which represent a CPU cycle. The speed of CPU is known as **Computer Speed.**

CPU SPEED MEASURES	
1 hertz or Hz	1 cycle per second
1 MHz	1 million cycles per second or 1000 Hz
1 GHz	1 billion cycles per second or 1000 MHz

(Fig .4) Speed measurement