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In this chapter

- Input/Output Devices
- Memory and Storage Devices
- Software of a Computer



Rewind



Computer and its Main Parts

A computer is an electronic machine that accepts data, stores and processes data into information. The parts of the computer that we can see and touch, such as the keyboard, monitor, mouse and the printer are called the **hardware**.



Let us recall!

We have already learnt in our previous classes that the hardware devices which accept data are called Input devices. Hardware that gives information to the user after processing are called the Output devices.

Central Processing Unit (CPU) is the heart and the brain of the computer which processes the data. It contains all the electronic components of any computer system.

Now let us classify the given components in a tabular form.

Scanner	Dot matrix	Speakers	InkJet	LCD	Microphone
CRT	Laser Jet	LED	ALU	Mouse	Flash drive
Hard disk	Web Camera	Keyboard	Control Unit	Microprocessor	CD

Input Devices	Output Devices	Storage Devices	Processing Devices



The data we enter in the computer gets converted into **bit and bytes**. A Bit (binary digit) is the smallest unit of data in a computer. A bit has a single binary value, either 0 or 1. This is also called the Binary language. 1 byte = 8 bits.



Find out another name for Binary language. Is it the Machine language?

Software of a Computer

Software is a set of instructions also called **programs** which make the hardware work. Software cannot be seen, it can only be used. It is what forms the basic application of a computer, for e.g., MS Word, MS PowerPoint, MS Excel and many more. We know that software of a computer can be either System software or Application software. Let us recall the difference between these software.

System Software	Application Software
It is a set of programs that control the Operation of Computer systems.	It is a set of programs that complete user specific tasks.
It is essential for a computer to work. Without system software computer is useless.	It is not essential for a computer to have application software, For e.g., We can play a game directly from Internet.
These provide a platform for the application software.	It is dependent on System software.
Number of system software is less than application software.	Number of application software is much more than system software.

Now find examples of both the kinds and write them in the space provided above.



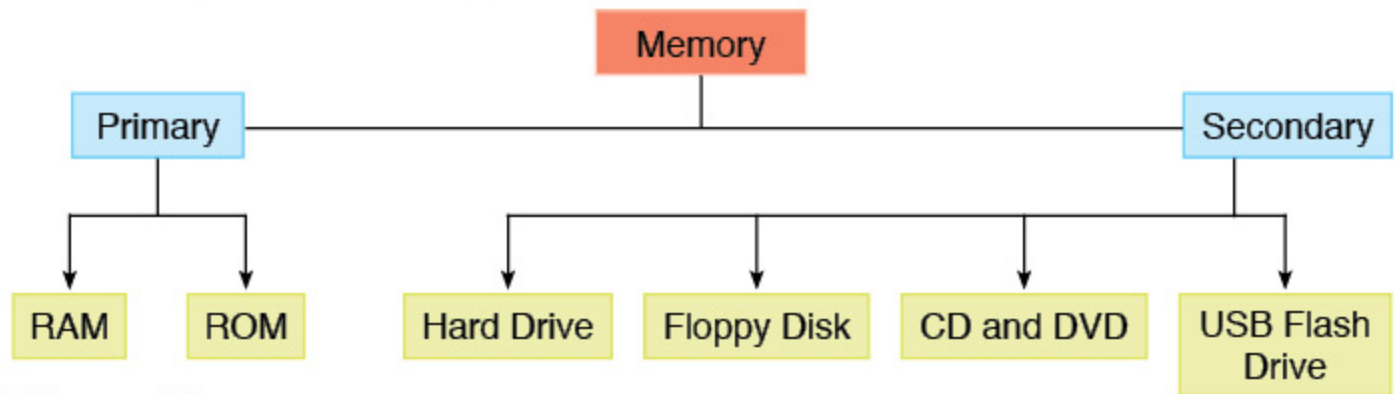
Which of these is not an Application software?

- a. DOS b. MS Word c. MS Excel d. Media Software

The elements of software are stored in the computer using various **memory or the storage devices**. The memory or the storage devices keeps data, information and instructions for use in the future.

Memory

The memory can be of two types.



Primary Memory

It is also called the **main memory** of the computer. **RAM** stands for **Random Access Memory** and **ROM** stands for **Read Only Memory**. But both these memory differ from each other in the following ways:

RAM	ROM
RAM is a volatile memory.	ROM is a non-volatile memory.
The memory gets lost once the power is turned off.	The memory is permanent and will not be erased once the power is turned off.
Both the read and write operations can be performed on the information that is stored in the RAM.	It allows the user to only read the information. User cannot make any changes to the information.
The accessing speed of RAM is faster.	The accessing speed is slower in comparison with RAM.

Progress Bar

Fill in the blanks:

1. A is the smallest unit of data in a computer.
2. A set of instructions also called a program which make the hardware work is called the
3. and are the examples of system software of a computer.
4. Memory devices are of two types, and
5., a volatile primary memory has a faster accessing speed than



What is the full form of ROM?

- a. Random Only Memory
- b. Read Only Memory
- c. Random Order Memory
- d. Read Order Memory



Go to the computer laboratory. Identify the CPU of the computer. Request your teacher to show you the RAM and ROM chips in the computer.

Secondary Memory

Sometimes there is much more information than a computer can save on its primary memory devices. Also, sometimes the data needs to be saved for later use; in that case, data is stored on the secondary memory devices which are outside the computer. Secondary memory is also known as **Auxiliary Memory**.

Now read about the various secondary memory devices and write their storage capacity in the space provided.

a. Hard Drive

The hard disk comes with the computer and is inside the computer. It stores all the programs that the computer needs to work. It also stores data and information given by the users. The storage capacity of a hard drive can go up to



250GB – 1TB

b. Floppy Disk

Floppy disk is a storage device which is a portable storage medium. It is composed of a disk of thin and flexible magnetic storage medium sealed in a rectangular plastic carrier. You can put it in the computer, save your information on it, take it out, and take it wherever you go. The average storage capacity of a floppy disk is



3.5 inch floppy disk
(1.44 MB)



Floppy disks were a ubiquitous form of data storage and data exchange from the mid-1970s well into the 2000s when they got superseded by data storage devices with much greater capacity, such as USB flash drives, portable external hard disk drives, etc.

c. CD and DVD

The Compact Disk is available in different forms like CDs, DVDs and CD-ROM. It is also a portable storage device and holds much more information than the Floppy Disk. We cannot erase information from the CD-ROM but some CDs and DVDs are rewritable and the data can also be erased. Apart from storing data of a user, these are used to keep different software, games and educational content also. The storage capacity of CD and DVD ranges from



Optical Disk
(700 MB – 4.7 GB)

d. Universal Serial Bus (USB) Flash Drive

Universal Serial Bus (USB) Flash Drive, also called as **Pen Drive** is a very useful portable storage device. It comes in various storage capacities like 1GB, 2GB, 4GB going up to 64GB. As you can see from the picture, it is very small when compared to other storage devices and very easy to carry around. You can easily read, write, delete or transfer data from the USB Flash Drive.



2 GB – 64 GB

Now let us see, how many CDs we can store on a 4 GB flash drive.

If 4 GB = 4096 MB and 1 CD = 700 MB

then 4096 MB =(approx.) x 700 MB

Geek Rule The CD/DVD drive is meant only for CDs and DVDs. Inserting any other object will damage it. The CD surface is very sensitive. Any scratch or damage to it can prevent the data on the CD from being read by the computer. So handle it with care.



In the computer laboratory, locate the part of the computer where the Hard drive is kept. Also locate the ports from where a CD, DVD and a Pen Drive get connected to the computer. Is there a port for a Floppy Disk too?



Show students various secondary memory devices in the computer laboratory. Also show the students the correct method to insert a CD or a USB Flash Drive in the computer.



In 1956, IBM shipped the first hard drive in the RAMAC 305 system. The drive held 5MB of data at \$10,000 a megabyte. The system was as big as two refrigerators and used 50 24-inch platters.



Which of these is a more useful device - a CD-ROM, DVD or a Pen drive? Why?



Megabytes

- ❖ Basic parts of a computer are Monitor, Keyboard, Mouse and the CPU.
- ❖ The hardware is all the input and output devices which we can see and touch.
- ❖ Central Processing Unit is the brain and the heart of the computer.
- ❖ There are primary and secondary memory/storage devices.
- ❖ Primary memory devices are the main memory of a computer and they are Random Access Memory (RAM) and Read Only Memory (ROM).
- ❖ Secondary memory devices can store large amounts of information and are the auxiliary memory devices. They include Hard disk, Floppy disk, USB Flash drive, CD and DVD.

Vocabulary: CPU - Central Processing Unit, RAM - Random Access Memory, ROM- Read Only Memory, Primary Memory, Secondary Memory, Hard Disk, Floppy Disk, USB Flash Drive.

EXERCISE

I. Answer the following questions:

1. What do you mean by computer hardware? Name at least five of them.

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2. What is a software? List down the differences between its types.

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3. Explain the two different types of memory devices. Give two examples for each.

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4. What are the differences between RAM and ROM?

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5. Compare the different secondary memory devices in terms of capacity, physical size and application?

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Project Work

1. Make a timeline of secondary storage devices from 1970's. Which companies pioneered in developing them?
2. Find out the storage capacity of the following and note it down in your notebooks:
 - a. Hard Drive
 - b. RAM

Now compare the two memories. Which has a larger capacity?