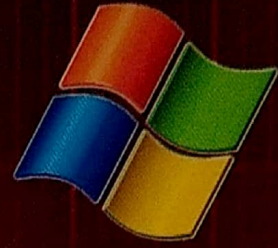
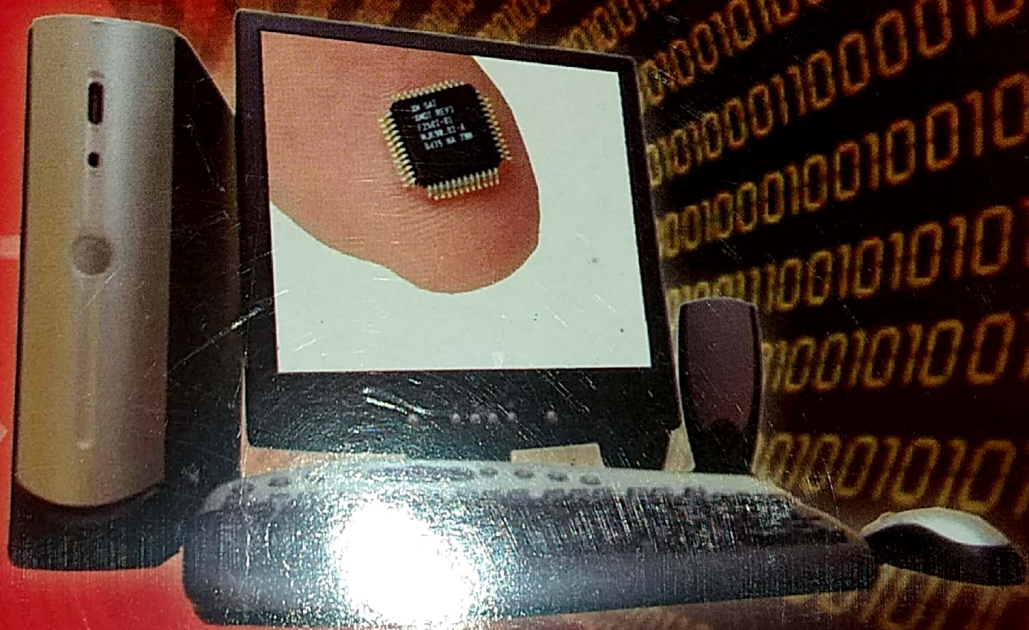


# Beyond Windows



Towards Understanding Computers



3

Navdeep Publications



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# All about a Computer

## Input and Output Concept

While working with machines in our daily life, we feed an Input in machines to get the necessary output.



Every machine needs an **input** by a user and it gives the user the **output**.

A correct input gives the right output.

### Example

- The CD of a movie which we insert in the CD player is an Input.
- The movie which we see on the television is the output.

**Input:** The CD in the CD Player



CD Player



CD Pack

**Output:** The Movie



## INPUT in a Computer

The Input fed to a computer is the facts and instructions which you give to the computer.

### Example

1. Entering the facts like numbers 4,6,2,1,12 into the computer.
2. Entering the instructions into the computer to arrange these numbers in ascending order.

The numbers and instructions which we enter into the computer are called the INPUT .

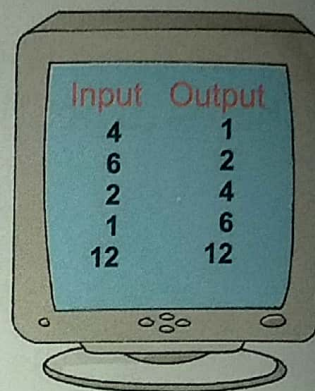


## OUTPUT from a Computer

The output from a computer is the result which the computer gives to you after working on the input.

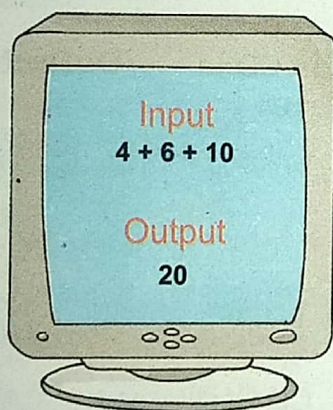
### Example

1. The numbers 4,6,2,1,12 and the instructions to arrange them in ascending order, which you have entered into the computer is the 'input'.
2. The 'output' will be 1,2,4,6,12, which are the numbers arranged in ascending order.

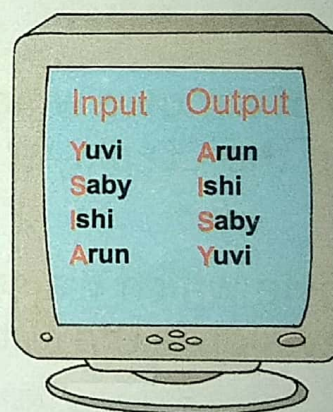


Input	Output
4	1
6	2
2	4
1	6
12	12

Below you can see some more examples of input and output.



Input
$4 + 6 + 10$
Output
20



Input	Output
Yuvi	Arun
Saby	Ishi
Ishi	Saby
Arun	Yuvi

**Remember** Instructions are required to convert the facts as input into the output.

**Activity** Fill in the 'input' and 'output'

1. If the problem given to a computer is  $4 \times 5 = 20$ , the input is \_\_\_\_\_ and the output is \_\_\_\_\_.
2. If the problem given to a computer is  $9 - 5 = 4$ , the input is \_\_\_\_\_ and the output is \_\_\_\_\_.



## Defining a Computer

A computer is a multipurpose machine which works as follows:

1. It accepts the input (as the task and instruction),
2. It works on the input (according to the instructions). The instructions are given in the computer language.
3. It provides the output which is useful to people.



A **computer language** is a language, which a computer understands. Logo, QBasic, C, C++, Java are names of some computer languages.

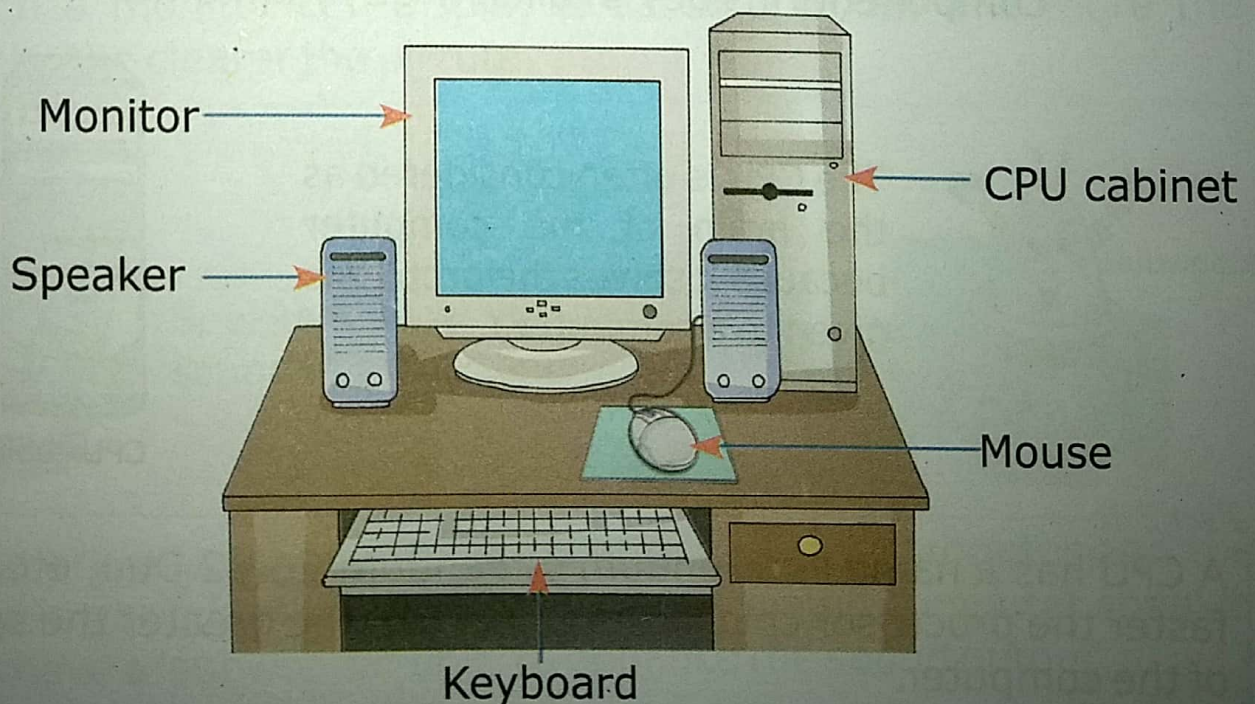


A **computer program** is the set of instructions given to the computer, in a computer language to solve a problem.

*Remember* 'Work' refers to doing something on the input for the purpose of getting some output.

## The Main Parts of a Computer

These days, many attachments can be added to a computer to make it more useful. But there are a few basic components which you will find in almost every computer.





## Keyboard



The keyboard is used to feed the input to a computer.



Keyboard

- The keyboard is an arrangement of many rectangular buttons called keys.
- The keyboard has keys marked for characters (A,B,C...), numbers (1,2,3...) and signs marks (! @ # \$ % ...).
- Pressing the keys tells the computer what to do or what to write.

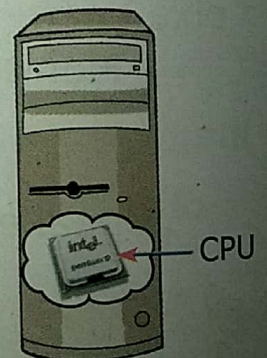
## CPU cabinet

The full form of CPU is the Central Processing Unit. The CPU is a very small microchip inside the CPU cabinet. The CPU cabinet is often referred to as the CPU.

*Remember* The complete unit (CPU cabinet with all other components inside) is called the System Unit.



The CPU is often considered as the brain of the computer because it solves the problems given to a computer.



CPU cabinet

### Fact File

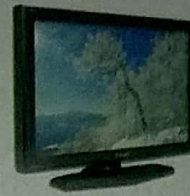
A CPU has a name like Pentium 4, Pentium Core2 Duo, etc. The faster the processor chip in the computer, the greater the speed of the computer.



## Monitor



The Monitor is used to display the output.



LCD Monitor



CRT Monitor

Monitors come in different sizes like 15", 17, 19 and 21". We get monitors of the following types:

### CRT Monitors

- The term CRT stands for Cathode-Ray Tube.
- CRT monitors are bigger, bulkier and consume more power.
- They are prone to screen flicker.

### LCD Flat Panel Monitors

- The term LCD stands for Liquid Crystal Display.
- The LCD has advantages of lower weight and less power consumption.
- They have a crisp, flicker-free display.

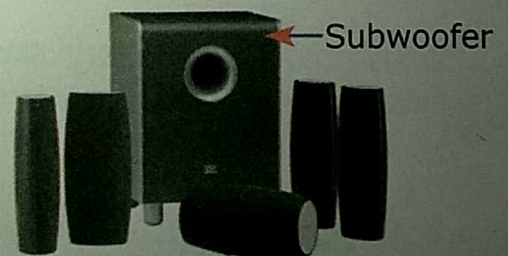
### Fact File

Each image on the monitor consists of dots. The smallest dot which a monitor can display is called a **pixel**. The more the pixels, the clearer the picture.

## Speakers



Speakers allow you to hear sound from the computer.



Subwoofer

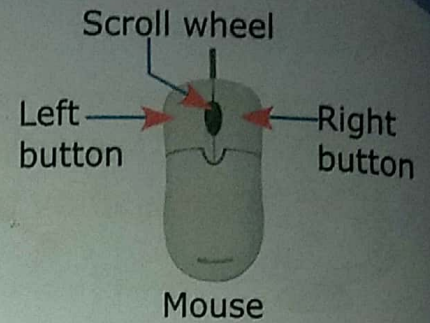
There are usually two speakers attached in a computer and they come in various sizes. The more sophisticated computer speakers may have a 'subwoofer' unit, to enhance the sound output.



## Mouse



The mouse is a pointing device used to instruct a computer by pointing and clicking.



- By clicking on the buttons on the mouse, you give the computer directions on what is to be done.
- In whichever direction you move the mouse, the mouse pointer (🖱️) moves in the same direction.

### Inside the Mouse

- The mouse normally has two buttons with a scroll wheel in-between.
- At the bottom of the mouse, either there could be a ball or a type of light.

### Fact File

A computer mouse is named because of its resemblance to a real mouse.



**Activity** Fill in the missing letters to name the computer parts. Connect them to the correct picture by drawing lines.

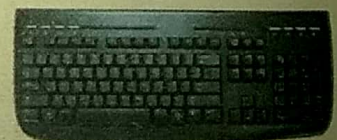


MO \_ I \_ O \_

K \_ YB \_ A \_ D

M \_ U \_ E






S \_ E \_ K \_ RS





## Additional Parts of a Computer








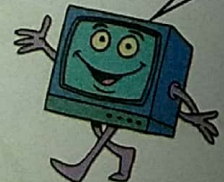

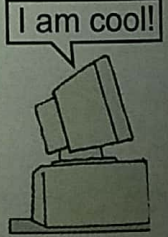
In addition to the essential computer parts, you can also attach many other parts with a computer so that it can do more variety of work. Let us learn about some such commonly used parts.

Device Name/Picture	Use
<p>Printer</p> 	<ul style="list-style-type: none"><li>○ A printer prints information and pictures on paper.</li><li>○ There are various types of printers available like laser printers and Inkjet printers.</li></ul>
<p>Headphone</p> 	<ul style="list-style-type: none"><li>○ A headphone is a device used for listening to music or sound coming from the computer in your ears only. This is to make sure that no one else is disturbed.</li></ul>
<p>Microphone</p> 	<ul style="list-style-type: none"><li>○ A microphone (also called a mike) is a device that allows you to record sound into the computer.</li></ul>
<p>Scanner</p> 	<ul style="list-style-type: none"><li>○ A scanner copies a picture or text into the computer in a way that the computer understands.</li><li>○ This is done by first changing the picture or the text into the computer-readable form and then inserting it into your computer.</li></ul>
<p>Web Camera</p> 	<ul style="list-style-type: none"><li>○ A web camera (also called Webcam) is a camera which is connected with your PC to capture the images in its view.</li><li>○ The images can be either saved or used over the Internet.</li></ul>



## Difference between You and a Computer

Computers have many other advantages over humans. These are given in the following table.

Property	You		Computer	
<b>Speed</b>	A human is slow in working and calculating.		A computer can do thousands of actions per second.	
<b>Accuracy</b>	A human can make mistakes due to lack of knowledge and concentration.		A computer is a 100% accurate machine.	
<b>Storage</b>	The storage capacity of a human is limited.		A computer can keep huge amounts of data in its memory.	
<b>Diligence</b>	A human gets tired and bored easily.		A computer never gets tired or board.	
<b>Emotions</b>	Humans are emotional. These emotions also affect their work.		A computer has no emotions.	

**Remember** We humans can guess and work even if something is missing, but a computer needs each and every step of instructions given to it for completing the task.



### Latest Trends

Computer engineers and programmers are trying to make the computer intelligent by developing programs that allow a computer to take decisions based on the past experiences. For example, a computer playing a chess game can improve its performance in the next round by analyzing its weak moves in the previous game.

## Quick Recap

- A computer is a machine that accepts the input fed in, works on it according to the instructions given and provides the output.
- The basic components of a computer are the Keyboard, the CPU, the Monitor and Speakers.
- Additional parts like Printer, Headphone, Microphone, Scanner and Web Camera can be attached with a computer so that it can do more variety of work.
- Humans can guess and work when instructions are not there, but a computer needs all the instructions to be given to it to work.

## Exercise Time

### 1. Write (T) for True and (F) for False statements.

1. A computer accepts the input and gives out the output. ☐
2. Some instructions are required to change the input into the output. ☐
3. The full form of LCD is Living Crystal Display. ☐
4. At the bottom of the mouse, either there could be a ball or a type of light. ☐
5. A web camera is a camera which is connected with your PC to capture the images in its view. ☐



## 2. Select the suitable words and fill in the blanks.

Mouse

Headphone

CPU

Monitor

Microphone

Speakers

1. The \_\_\_\_\_ is used to display the output.
2. The \_\_\_\_\_ is used to instruct a computer by pointing and clicking.
3. The \_\_\_\_\_ is a chip located inside the CPU cabinet which performs all calculations.
4. \_\_\_\_\_ allow you to hear the sound from your computer.
5. The \_\_\_\_\_ is a device used for listening to music or sounds from your computer without disturbing others.
6. The \_\_\_\_\_ is a device which allows you to record voices or sound.

## 3. Answer the following in 2-3 lines.

1. What is a computer?

---

---

2. What are input and output?

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---

3. What is a CPU?

---

---

4. How does a Scanner work?

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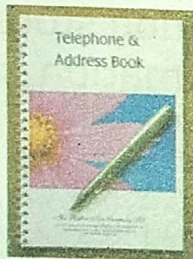
## Storing the Computer Work

### The Importance of Storage

Storage plays an important part in our lives. In our daily life we store many things.

#### WE SEE...

We store names and addresses of our friends in a diary so that we do not forget the details and can also carry it with us.



#### IN COMPUTERS...

We store our computer work in storage devices so that we can open it anytime later and can also carry it with us.



CD



Pen drive

### Storage Devices

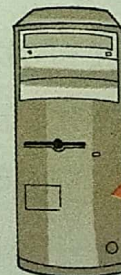


Storage devices store your computer work, so that it gets permanently stored and can be opened any time later.

There are various storage devices available to store the work done on your computer. Some of them are mentioned in the following sections.

### Hard Disk

- The hard disk drive (commonly known as Hard Disk) is the main device that a computer uses to store information.
- It is fixed inside the CPU cabinet.



Hard Disk



## Compact Disc (CD)

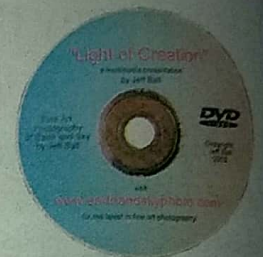
- A CD is a shiny, circular disk that stores information.
- You need a CD writer to transfer information on a CD.



CD

## Digital Versatile Disc (DVD)

- A DVD looks just like a CD, but it can hold much more information.
- You need a DVD Writer to transfer information on a DVD.



DVD

**Remember** A CD writer can also read the information stored on a CD. A DVD writer can also read the information stored on a CD and DVD.

## Pen Drive

- A Pen Drive is a small key-ring sized device that can be used to easily transfer files between computers.
- It is very easy to plug-in the CPU.



Pen Drive

## Fact File

Earlier floppy disks which were square in shape and could store very less data were used, but now they are obsolete.

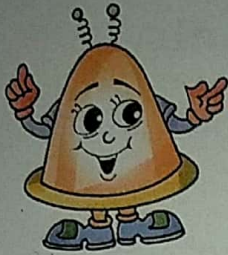


**Activity** Fill in the blank lines correctly:

1. The smallest storage device is a \_\_\_\_\_.
2. The round storage devices are \_\_\_\_\_.
3. The main storage device which is fixed inside the CPU cabinet is the \_\_\_\_\_.



## Memory of a Computer



The main memory of a computer is called Random Access Memory (RAM). It is a temporary memory which stores information inside a computer till it is not switched off.

### **WE SEE...**

We have a memory to store the thoughts and ideas. But this memory is temporary. We tend to forget the things very often after some time.



I forgot what my mother told me to bring, I should have noted it down on a piece of paper.

### **IN COMPUTERS...**

The Random Access Memory (RAM) is temporary like your brain memory. When you switch off the computer, the computer will not be able to remember what it was doing.

The electricity went off, my work is lost.



You need to save your computer work on some storage device (most commonly on the Hard Disk of the computer) from time to time. This is because if the computer suddenly gets switched off, your work is not lost.

## **Quick Recap**

- The storage devices like Hard disk, Floppy Disk, Compact Disc (CD), Digital Versatile Disc (DVD) and Pen Drive are used to store the computer work which you do on a computer.
- The main memory of a computer is called the Random Access Memory (RAM) and is a temporary memory which stores information inside a computer till it is not switched off.



## Exercise Time

### 1. Write (T) for True and (F) for False statements.

1. A Floppy disk is a shiny, circular disk that stores information. ☐
2. A Pen drive is a very large sized storage device. ☐
3. A DVD looks just like a CD, but it holds lesser information. ☐
4. You can play a DVD in a CD drive. ☐
5. You can play a CD in a DVD drive. ☐
6. The full form of RAM is Random Amitabh Movie. ☐

### 2. Select the suitable words and fill in the blanks.

Floppy      Temporary      RAM      Input  
Digital Versatile Disc      Pen Drive      Hard Disk

1. The \_\_\_\_\_ storage medium is inside the CPU cabinet and you cannot see it.
2. A \_\_\_\_\_ is square in shape and can store very less data.
3. The full form of DVD is \_\_\_\_\_
4. The \_\_\_\_\_ is a small key-ring sized device that can be used to easily transfer files between computers.
5. The Main memory of a computer is called the \_\_\_\_\_
6. The RAM is a \_\_\_\_\_ memory.



**3. Answer the following in 2-3 lines.**

1. What is a Hard Disk?

---

---

---

2. What is a CD?

---

---

---

3. What is a DVD?

---

---

---

4. Write about the Pen Drive.

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5. What is a RAM?

---

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