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## Preparation of Computer Specifications

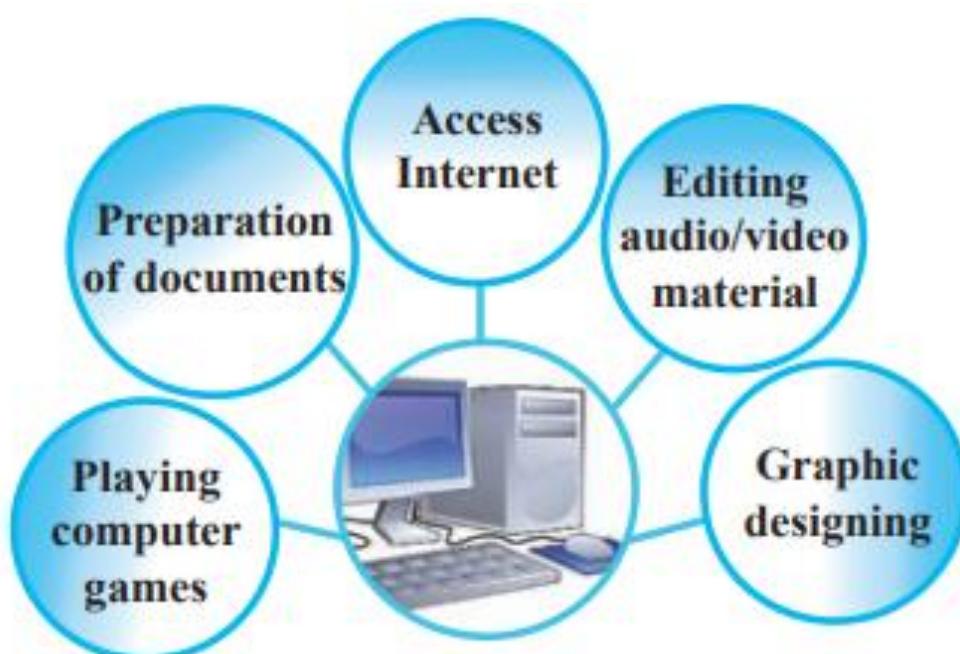
# Identifying the user

The one who uses a computer is generally referred to as a user. Different users working in different areas in communication Technologies have different designations.

User name	Task
Programmer	Develops computer programs
Network Administrator	Manages and maintains computer networks
System Analyst	Designs information systems
Software Engineer	Develops software
Computer Application Assistant	Uses office application packages for office related tasks
Web Developer	Develops and maintains websites

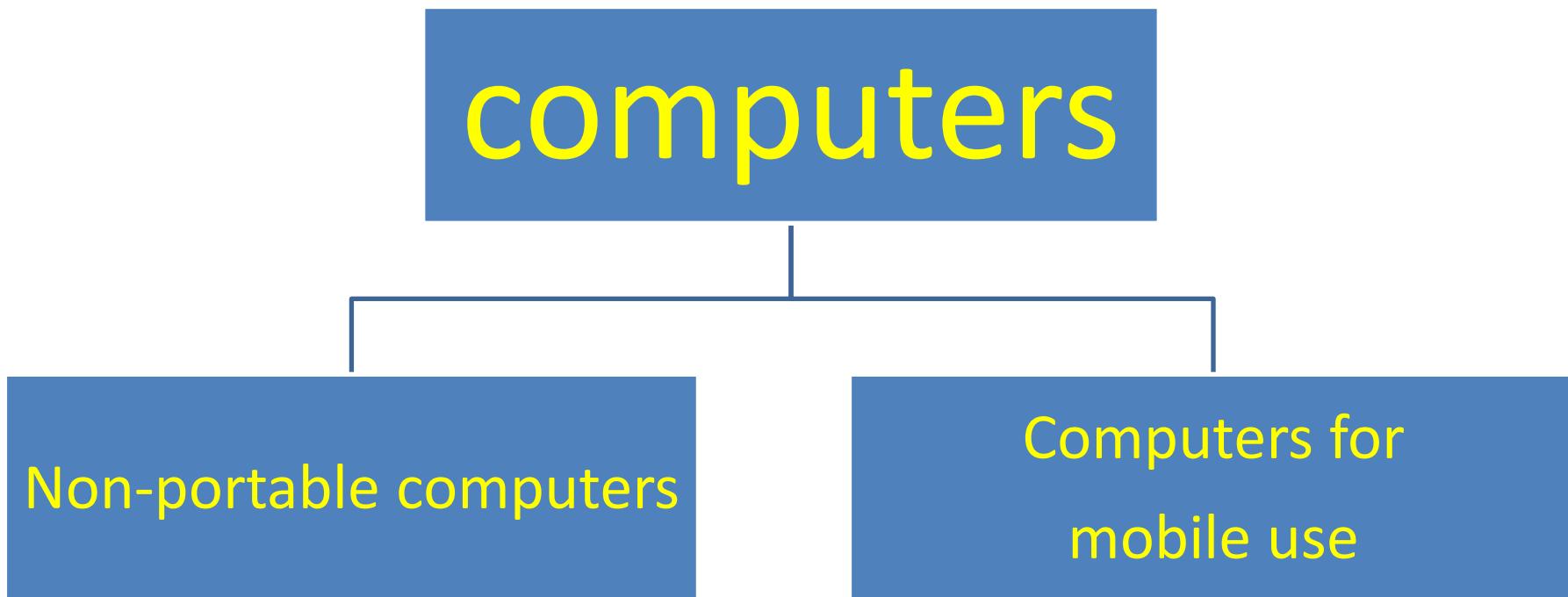
# Selection of a computer to suit user requirements

User requirements relate to tasks that are carried out by using a computer



A computer to suit user requirements can be selected from those **available in the market**, or a computer can be **assembled** to suit user requirements.

## Classification of the computers



# Non – portable computers

Examples	Special characters of the computer	Used in places
<ul style="list-style-type: none"><li>• Server computer</li><li>• Workstations</li><li>• Desktop computers</li><li>• All -in -one computers</li></ul>	<ul style="list-style-type: none"><li>• use the main electricity power supply</li><li>• Computers are large in size</li><li>• Relatively heavy</li></ul>	<ul style="list-style-type: none"><li>• Houses</li><li>• Schools</li><li>• offices</li></ul>

# Computers for mobile use

Examples	Special characters of the computer	Used in places
<ul style="list-style-type: none"><li>• Laptops</li><li>• Notebooks</li><li>• Tablet computers</li><li>• Smart phones</li><li>• Palmtop computers</li></ul>	<ul style="list-style-type: none"><li>• They are operated with rechargeable batteries</li><li>• Computers are small in size</li><li>• They can be used for mobile use</li></ul>	<ul style="list-style-type: none"><li>• They can be used when travelling in buses, trains, aeroplanes or from any convenient place.</li></ul>



# Computer peripherals devices

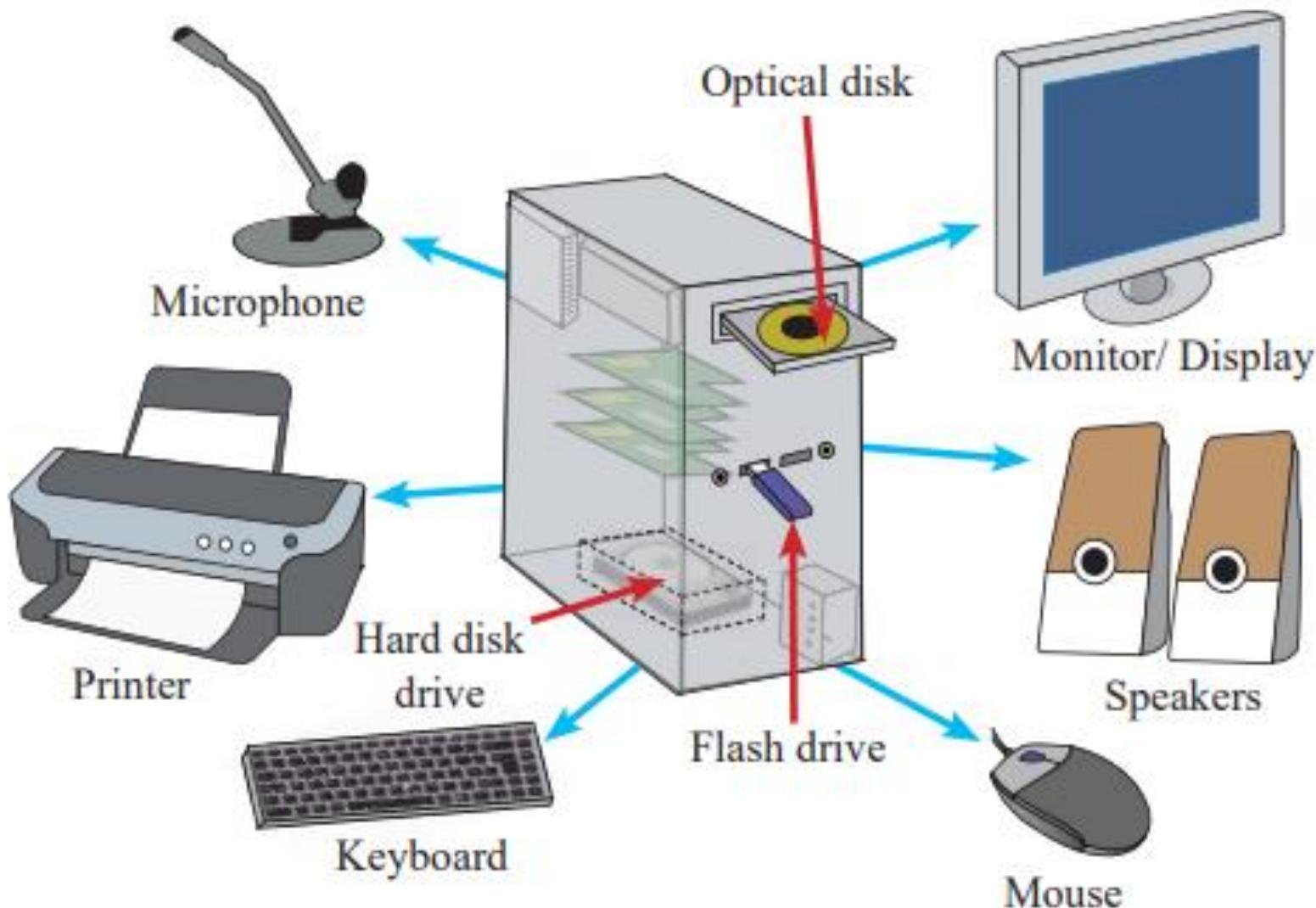
## What are peripheral devices?

Input devices - used to feed data and instructions into a computer.

Storage devices – used to store data

Output devices – used to provide the information processed with the input data.

input , storage and output devices are called peripheral devices.



Above peripherals can be classified as input ,output and storage devices

Input	Output	Storage
Keyboard	Monitor	Hard disk drive
Mouse	Printer	Optical disk drive
Microphone	Speaker	Flash drive
Touch screen		Magnetic tape drive

# Computer specifications

- What are computer specifications?

Before purchasing an item , it is important to be aware of the **value and the quality** of the item. Specifications are generally about the **common features of an item**.

# Basic specifications for an exercise book



Features	
Brand Name	Atlas
Length	210mm
Width	297mm
Number of pages	200
Thickness of paper	60GSM
Type	Single ruled

# Basic specifications for an exercise book

Features	Specifications	Specifications
Brand name	Atlas	Weerodara
		
Length	210 mm	210mm
Width	297mm	297mm
Number of pages	200	200
Thickness of paper	70 GSM	60 GSM
Type	Square ruled	Single ruled
Price	RS. 260.00	Rs. 240.00

# Specifications of computers and peripheral devices

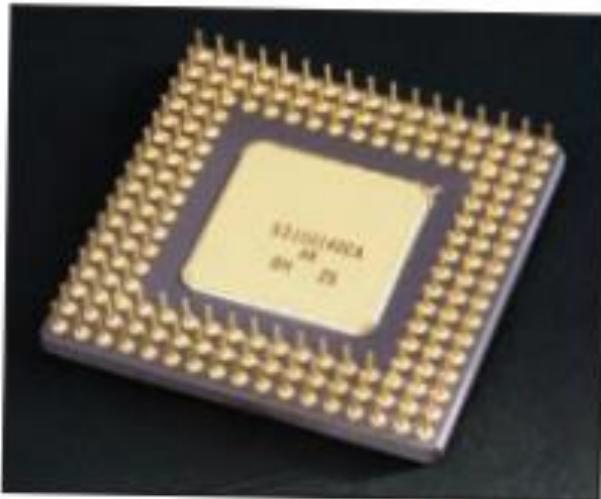
- The processor
- Hard disk
- Monitor
- Main memory
- Video Graphic Adapter(VGA)
- Sound cards
- Pre- Installed software

# The processor



Much as the brain is most important for humans , the processor is the most important part of the computer. **The processor processes data swiftly.** As such, the processor is considered the “**Brain**” of the computer.

# Central Processing Unit



The side that connects to the mother board



View from above

# Speed of the processor

The performance of a computer depends on the speed of the processor. A processor running at high speed is able to process more data during a unit time. That is, the performance of the computer increases. Then the software can be run faster. Therefore, when selecting a processor, it is advisable to select one with a greater speed.

The speed of the processor is measured by the number of instructions executed per second.



**Important** - The speed of a computer is determined by the number of instructions execute per second.

The speed is measured in Hertz (units such as MHz or GHz).

$$1000 \text{ MHz} = 1 \text{ GHz}$$

# Processor manufacturers

Several processor manufacturing companies,

- Apple
- Intel
- AMD
- IBM
- Acer Inc
- Dell
- Asus



# Type of processors

Generally, the number of processors in a central processing unit is used to classify the Center Processing Unit.

No. of CPUs	Type
1	Single Core
2	Dual Core
4	Quad Core



When the number of processors in a central processing unit increases its capacity also increases. Table 1.4 shows examples for Intel processors.

Table 1.4 : Different processors and their names

Type	Name	Examples
Single Core	<i>Pentium I, II, III, IV</i>	
Dual Core	<i>Dual Core/Core 2 Duo</i>	
Quad Core	<i>Core i3, i5, i7, i9</i>	

# Hard disk

The hard disk provides permanent storage space for **storing data** and to **installing all software**. The hard disk is the **main secondary storage device** in a computer.

We can show two type of hard disk

1. internal hard disk
2. external hard disk



Internal hard disk



External hard disk

# Inside of hard disk





drobo



SimpleTech  
by Pico

**BUFFALO**

**FUJITSU**

**HITACHI**

**IBM**

**LACIE**



## **List of Those Best Hard Drive Brands Which I Prefer the Most**

# Different capacities of the hard disk



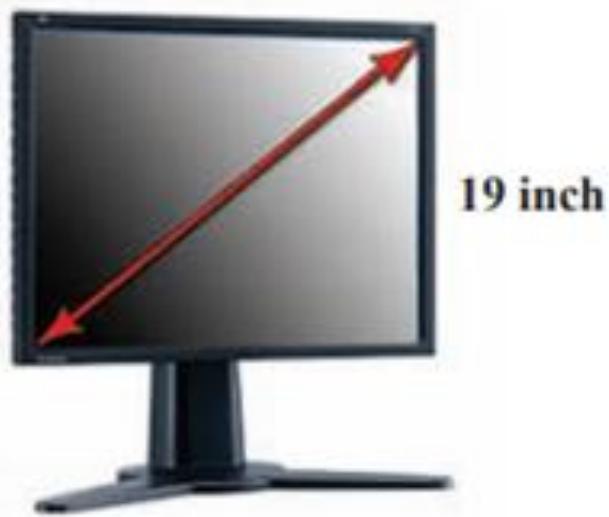
# Monitor display

The main output device of a computer is its monitor display.



# Monitor size

A larger monitor size is useful in viewing a large picture. The monitor size measured in term of its diagonal length in inches.



# Monitor technology

Monitors can be classified into the following types according to the technology used by them:

- CRT (Cathode Ray Tube) Monitor
- LCD (Liquid Crystal Display) Monitor
- LED (Light Emitting Diode) Monitor



CRT monitor



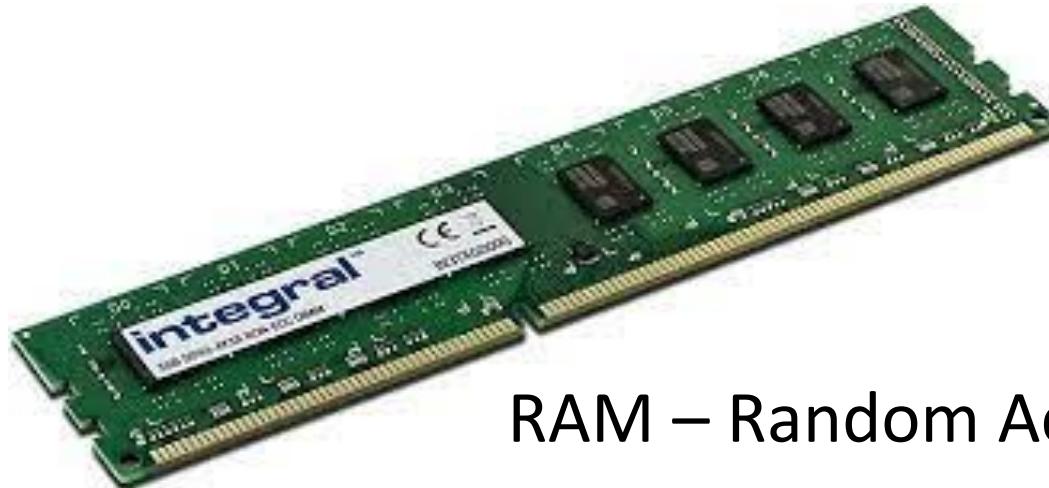
LED monitor

CRT monitors **consume more electricity** than other two types.

They are **heavier** and **occupy more space** due to its size.

**Light weight** LED and LCD monitors which **consume less electricity** are commonly use today.

# Main Memory



RAM – Random Access Memory





Rack of school bags

Data and instructions are **stored temporarily** in the main memory when the computer functions. A bigger rack for storage in library can hold more school bags. Similarly a **higher capacity in the main memory stores more data and instructions.**

Therefore , a computer with a **higher main memory capacity** is better.

The capacity of the main memory is measured in units of bits.

Mega Bite (MB)

Giga Bite (GB)

1024 MB = 1 GB

# Vedio Graphic Adapter(VGA)

The monitor is the main output device of a computer. The output is fed to the monitor via the Video Graphic Adapter(VGA). There are two types of VGA.

1. On board VGA
2. separate VGA card



Separate VGA card



On board VGA

- On board VGA – fix to the mother board
- Separate VGA - Separate VGA card can be fixed to the mother board manually.

The separate VGA card has a **separate video memory** and **a processor**. Separate VGA cards useful for playing computer games.

Modern computers use DVI or HDMI ports instead of VGA port



When HDMI cables are connected to a computer , a television screen or multi media projector , **both sound and video signals are transmitted** . When a VGA is used for the same purpose, **only images are transmitted and a separate cable is required for sound**.

# Sound Cards

A sound card is required for listening to music and recording audio. A **microphone connected** to the sound card can be used to **record (input) sounds**

**while a speaker connected** to the sound card can be use to **play (output) sound.**

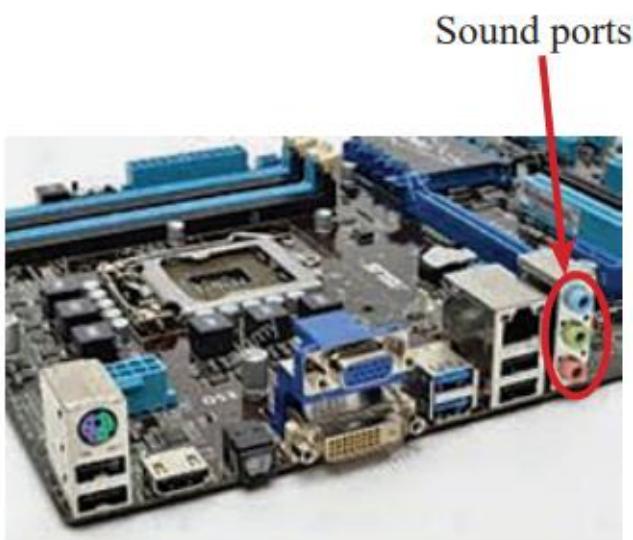


Figure 1.15 : Built in sound card on mother board

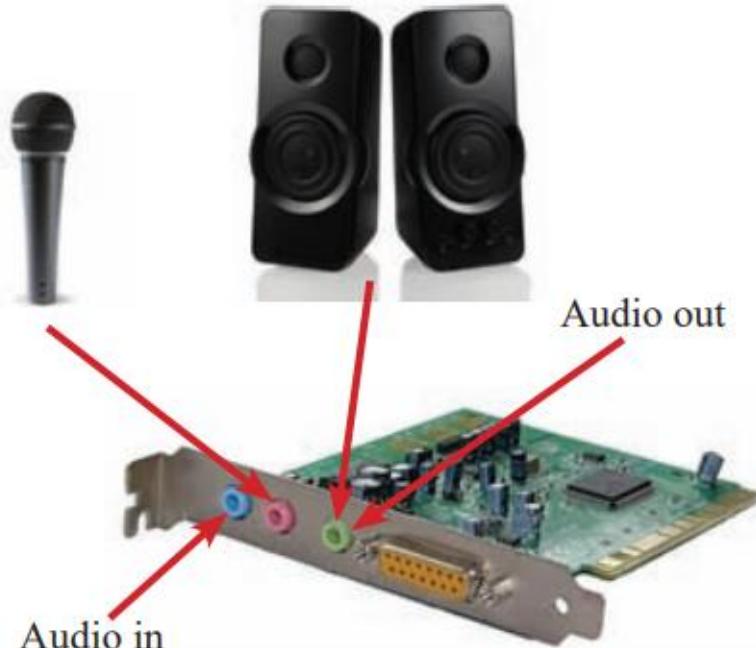


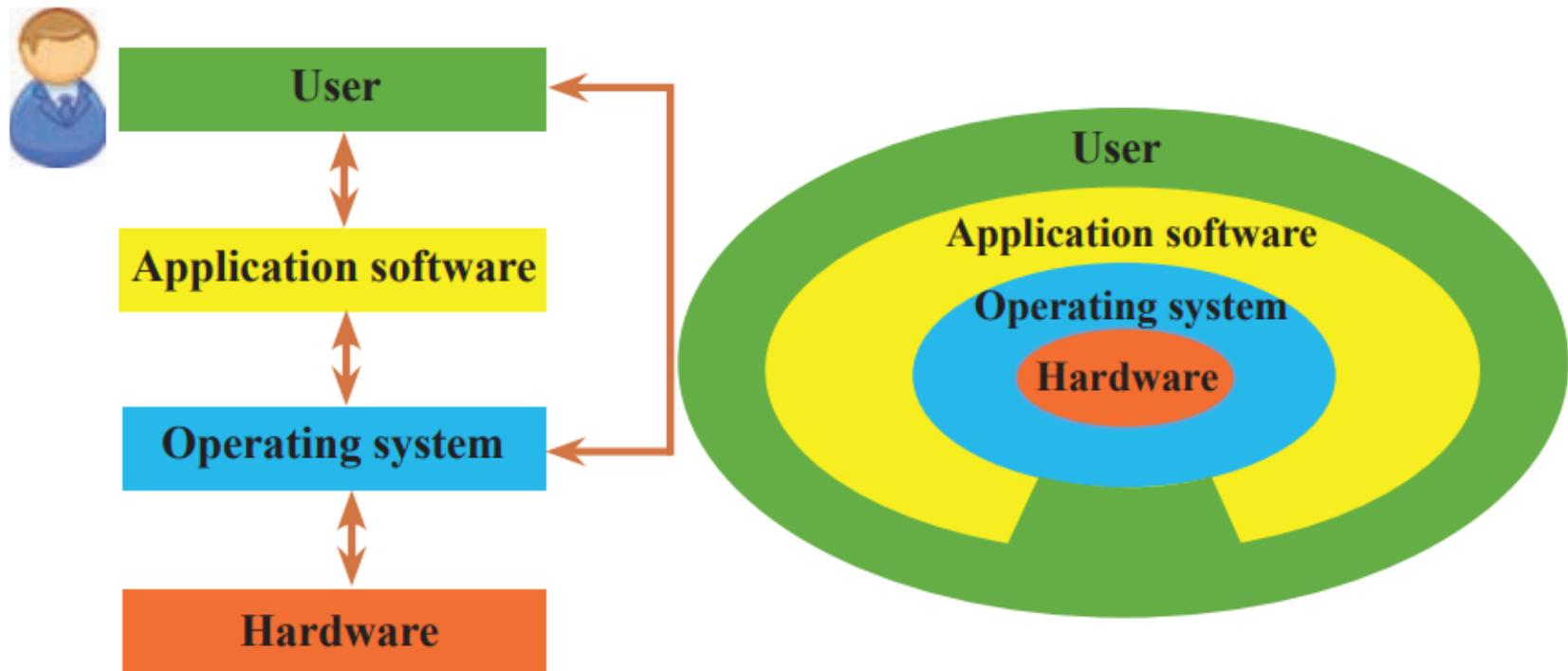
Figure 1.16 : External sound card

The ports of a sound cards use standard colour scheme for identification purpose.

Light green	-	Audio out (to connect speaker or headphone)
Light pink	-	Mic in (to connect microphone)
Light blue	-	Line in (to feed sound with external devices)

# Pre – Installed software

An operating system provides the interface between the user and the hardware. The operating system is essential to run application software. Once the operating system is installed in a computer, the necessary application software can be installed.



- Free and open source operating systems  
Ex – Linux , Ubuntu ,fedora linux,Android
- Licensed operating system  
Ex - Windows 8 , Windows 10,

A computer with licensed software installed is more expensive than a computer with a free and open source operating system.

# Non-technical features to be considered in purchasing a computer

- Warranty
- Price
- Services after-sale
- Ports and network connections

# Warranty

## a. Manufacturer warranty

The warranty which is given by the manufacturing company is known as the manufacturer warranty. If the device malfunctions during the warranty period, it is either repaired or replaced with a new one.



## b. Extended warranty

Extended warranty is a prolonged warranty given to customers in addition to the standard warranty. Customer needs bearing additional cost for extended warranty.



## c. On-site warranty

If a customer obtains an on-site warranty, technicians from the respective company visit the place of work to repair the product. They generally maintain, replace faulty parts and examine the operations of the machine.

There is a standard warranty when purchasing a computer. but, the warranty for the parts of the computer may differ from the standard.



For instance, a laptop computer with standard warranty for 3 years, may have only one year warranty for the battery.

# Price

The price of a computer can vary according to the customer requirements.

e.g.

1. The price of a computer is rather high with a high speed processor.
2. A computer with a large monitor is comparatively high in price.
3. Price is low of a computer with a lesser memory capacity.
4. A computer inclusive high capacity hard disk drive is high in price.

It is advisable to compare prices to suit one's requirements from different places and select the computer with the lowest price.

# Services after-sale

Computer sales centers provide the following after-sales services to customers;

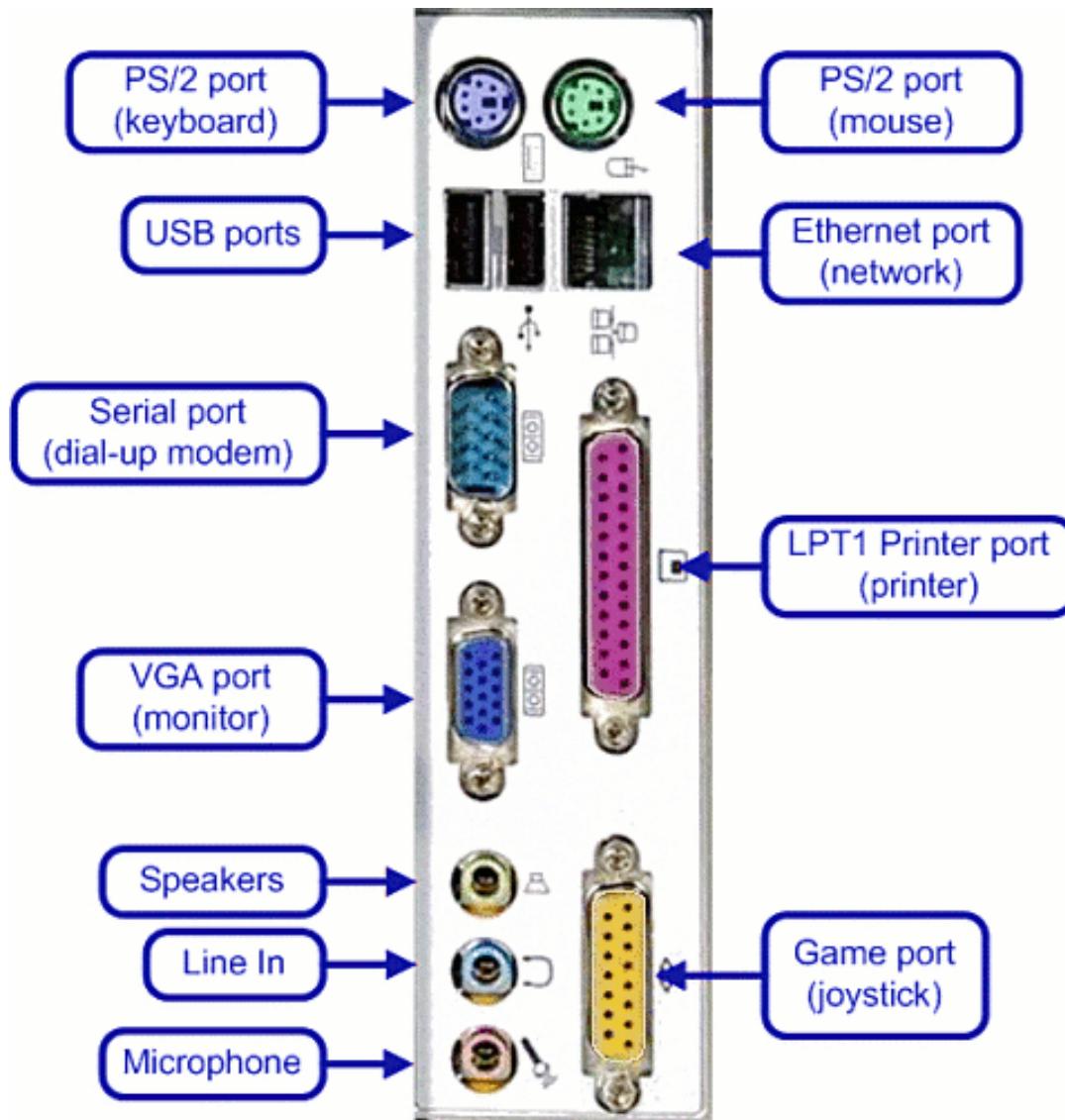
1. Technical advice
2. Technical assistance
3. Telephone, e-mail and website information (i.e. contact information) of the vendor

It is advisable for a user to consider the given information in purchasing a computer. Customer needs preparing specifications first. Then, a computer must be bought from a vendor with a reputed name and must be from a recognized manufacturer.

# Ports and network connections

Ports are used to connect the peripheral devices to a computer. A user may select peripheral devices to suit one's requirements. However, the computer should have the necessary port to connect them.

# Computer ports



# Universal Serial Bus (USB)

The USB is the most widely used port connect peripheral devices to the computer. it is essential to have several USB ports.

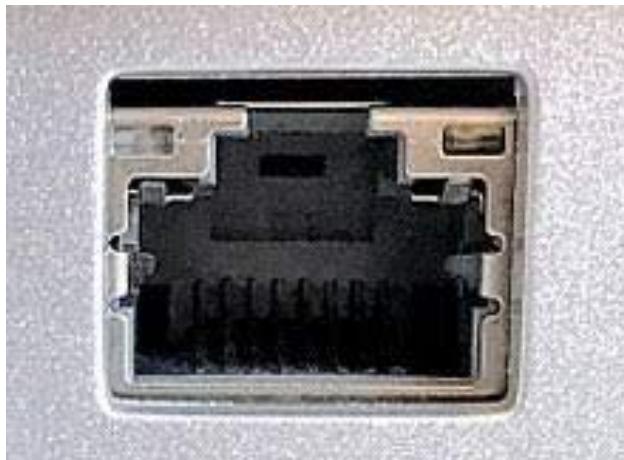
Some peripheral devices that can be connected via USB Port;

Printer , Keyboard , Mouse , Scanner , External hard disk , External DVD drive , Digital camera , Web camera, Bar code reader, Memory card , Pen drive



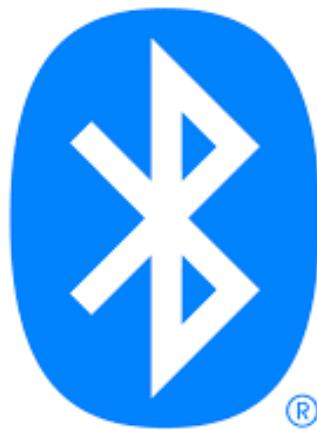
# Network port/ RJ45 connector

- The computer uses RJ45 connector to connect to a network.

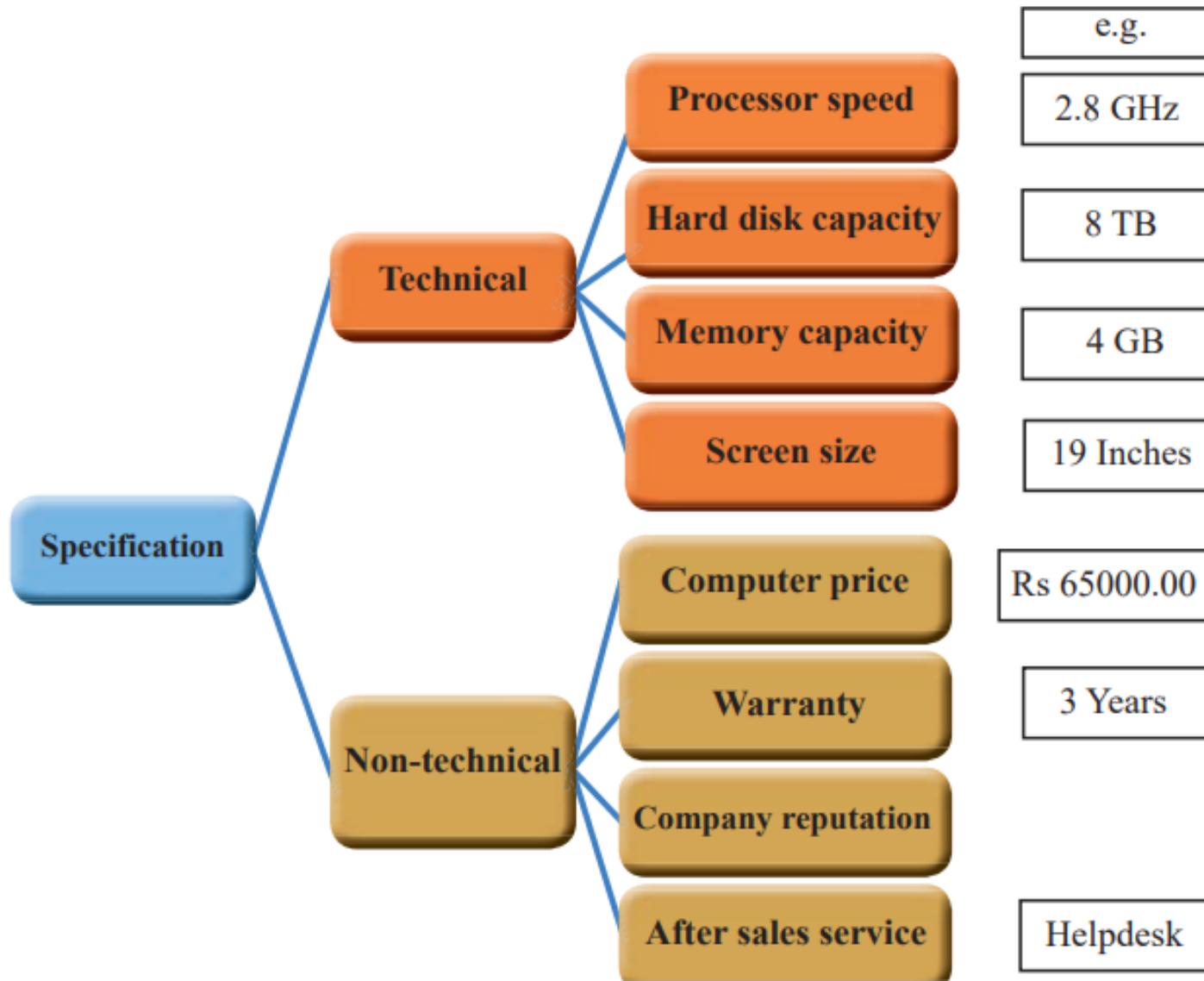


# Bluetooth and Wi-Fi facilities

- Bluetooth and Wi-Fi facilities provide cable free network connections to computers.



Given below are a few basic specifications in purchasing a computer;



## Important factors of technical specifications

Central processing Unit	Type	Single Core/ Dual Core/ Quad Core
	Speed	2.8/ 3.0/ 3.2/ 3.4 GHz
Main memory	Capacity	512 MB/ 1GB/ 2GB/ 4GB/ 8GB
	Generation	1 <sup>st</sup> , 2 <sup>nd</sup> , 3 <sup>rd</sup> , 4 <sup>th</sup> etc.
Hard disk	Capacity	500 GB, 750 GB, 1 TB, 2 TB, 4 TB
Monitor	Size	17", 19", 21"
	Type	CRT/ LCD/ LED
Video Graphic Adapter	Type	VGA/ DVI/ HDMI
Sound card	Type	Onboard, Separate