

Basic Computing Concepts

Computer:

- Processor of information.

Input:

- The data and instructions that a user passes to the computer.
- Some input devices: keyboard, mouse, scanner.

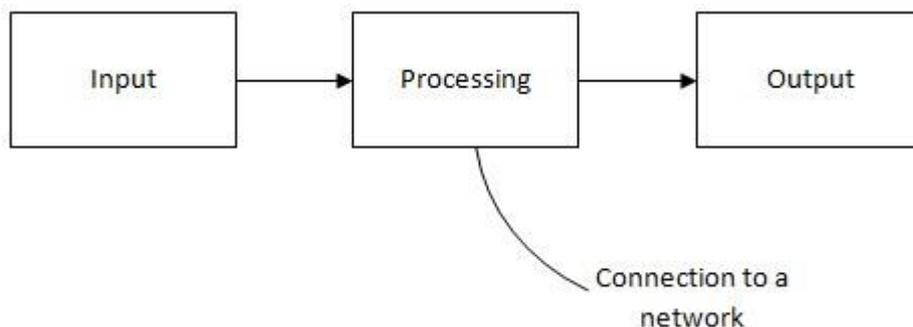
Output:

- The information that is passed from the computer to the user.
- Some output devices: monitor, speakers, printer.
- A device that is both an input and an output device: touchscreen.

Processing:

- The work done by the computer to obtain the output from the given input.

A Simple Model of a Computer



Hardware:

- Consists of all the devices and components that make up the computer.
- Hardware can be touched; it has weight e.g. keyboard, screen etc.

Software:

- Refers to programs.
- Cannot be touched; has no weight e.g. a web browser, a word processor.

Program:

- It is a sequence of computer instructions.

Data:

- Values that the computer will work upon e.g. prices €2.9, €3.3, €2.8.

Information:

- Processed data that is required by the user e.g. the average of the data above i.e. €3

The two major software categories are:

- **System software**
 - software required by the computer system
 - examples: operating system e.g. Windows, antivirus etc.
- **Application software**
 - software that is required by the user
 - examples: word processor, a game etc.

Operating system:

- A program that manages the computer e.g. coordinates input and output.

Process control program:

- A program that deals with the automated control of a process i.e. a system is left under the control of a computer.
- Examples: a program controlling a robot, a program controlling air temperature.

Office automation program:

- Is usually used in an office.
- Examples: Word Processor, e-mail program, a program that works accounts etc.

Industrial & Commercial program:

- Is one that is used in industry or for commercial purposes.
- Example CAD (Computer-Aided Design)

Multimedia program:

- A program used in the media such as radio and television.
- Examples are audio/video editing, graphics design etc.

Embedded computer:

- A processor found in a larger system.
- Examples: washing machine, car etc.

Mobile phones:

- Apart from phoning it can perform many computer functions.

Palmtop computers:

- A small computer that literally fits in your palm.

Laptop:

- A portable personal computer.

Tablet:

- A popular small computer without a keyboard.
- Is used primarily for games and for browsing the Internet.

Desktop personal computer:

- More powerful than a laptop.
- More comfortable to work on.

Terminal:

- It is a device with a monitor and a keyboard that is connected to a very powerful computer.
- It serves to input data.
- Two types:
 - **Dumb terminals** have no processing power.
 - **Intelligent terminals** have the capacity of limited processing.

EPOS terminal:

- Stands for Electronic Point of Sale.
- It is used to record purchases at the point where the consumer purchases the product or services.

- It modifies the goods' database according to the sales.

EFTPOS:

- Stands for Electronic Fund Transfer Point of Sale.
- Terminals are able to transfer funds from a customer's bank account directly to the retail outlet's account after reading the customer's debit card.

ATM:

- Stands for Automatic Teller Machine.
- It is a self-service banking machine attached to a host computer through a telephone network.

Workstation:

- A powerful, single-user computer.
- Usually it is attached to a higher-quality monitor.

Client computer:

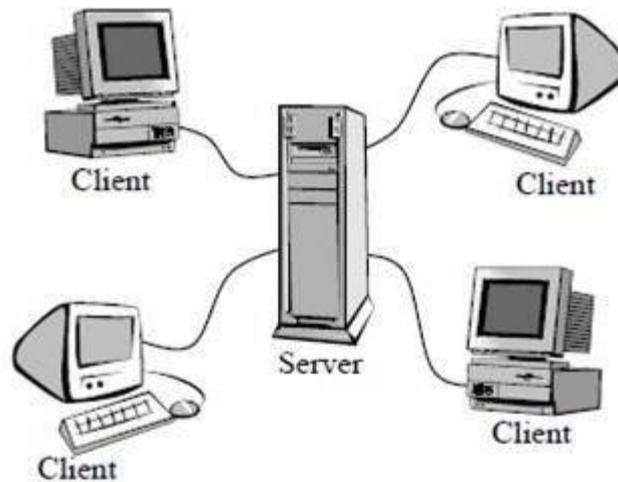
- Can access the resources on a network.
- It is a network computer.

Server:

- A server is the host or central computer that manages the resources on a network.
- Some kinds of servers are:
 - A **file server** stores and manages files.
 - A **print server** manages printers and print jobs.
 - A **database server** stores and provides access to a database.
 - A **network server** manages network traffic.

Client-server network

- A network where computers are either clients (demanding a service) or servers (offering a service).



The Architecture of a Client-Server network

Midrange Computer:

- Previously known as **minicomputer**.
- A multiuser computer capable of supporting from 10 to hundreds of users simultaneously.
- Users typically access a minicomputer via a personal computer or a terminal.

Mainframe:

- A powerful multi-user computer capable of supporting many hundreds or thousands of users simultaneously.
- Large, expensive, but powerful computer.
- Users typically access a mainframe via a personal computer or a terminal.
- Typical users of mainframes include banks, insurance companies, and airlines with sophisticated reservation systems.

Supercomputer:

- An extremely fast computer that can perform hundreds of millions of instructions per second.
- Used for sophisticated mathematical calculations.

Basic Computing Concepts Exercise

1. Give the definition of Computer.
2. State two input devices and two output devices.
3. Can a device serve both as input and as output? Explain.
4. What is Software?
5. Give the definition of a Program.
6. What is the difference between Data and Information?
7. Software is divided into two main categories. State these categories and give two examples of each.
8. What is an Operating System?
9. Give an example of each of the following:
 - a. Process control program
 - b. Office automation program
 - c. Industrial and commercial program
 - d. Multimedia program
10. Computers vary in size and power. State five kinds of computers.