Generations	Major Hardware Technology	Software Used	Characteristics	Systems invented
First Generation Computers 1940-1956	• Vacuum Tubes • Punch Cards are used for input, process, output and storage of data	• Machine language • Assembly language • Stored Program Concept	• High Heat Generation • Slow in processing • Large in size • Not Portable • Consumes a lot of electricity • Expensive	ENIAC EDVAC EDSAC UNIVAC IBM 701
Second Generation Computers 1956-1963	• Transistors • Tape • Floppy Disk, Tape for Secondary Storage	• High-level Programming language • Use of Assembly Language	• Smaller in size. • Less heat Generation • Low power consumption • Comparatively faster than the first generation • Expensive	• Honey well 400 • IBM 7030 • CDC 1604 • UNIVAC LARC

Generations	Major Hardware Technology	Software Used	Characteristics	Systems invented
Third Generation Computers (1964-1975)	• Integrated Circuits (IC) • High capacity disks for secondary storage • Keyboard and mouse for data input	• birth of Operating Systems (OS) • Well developed Programming languages • high level computer languages for coding	• Smaller in size • Less heat Generation • Comparatively faster than the second generation • Expensive • Low power consumption	• IBM-360/370 • PDP-8 • PDP-11 • CDC 6600
Fourth Generation Computers (1975-1989)	• LSIC (Large Scale Integrated Circuits) and VLSIC (Very Large Scale Integrated Circuits • Microprocessor • Palm Tops • High Capacity hard disks • Floppy disk • Optical disk • Personal computers (PC) • Faster computer networks	• OS with GUI (Graphical User Interface) • UNIX OS	• Very small in size • Portable • Upgradable	• IBM PC • Apple II

Generation	Major Hardware Technology	Software Used	Characteristics	Systems invented
Fifth Generation Computers (1989 to present)	• ULSI (Ultra Large Scale Integration) • Very High Capacity Hard disks and optical disks • Internet	• Operating Systems with GUI (Graphical user Interface) • Internet and multi-media applications • Voice recognition based on AI (Artificial Intelligence) • Character recognition • Hand-writing recognition systems	• Portable • Less Expensive • Smaller in size • Easy operation • High reliability • High efficiency	• IBM notebooks • Pentium PCs • SUN workstations

Activity

Find information on computer history and make a report as a group activity.

Summary

- Images, words, numbers or symbols which do not convey a meaning when standing alone are called data.
- Information is obtained by processing data. Information is used to make decisions.
- Computer is a system.
- Computers and computer based systems are used to process data.
- Providing data is called 'input' while extracting information is called 'output'
- Quality of information is important, (relevancy, completeness, accuracy, timeliness, low cost)
- Data input, processing and data output are components of a system.
- Technology is used to exchange the processed data. This is called ICT.
- Applications of ICT have made man's life easy. There are many applications such as e-Government, education, health, agriculture, business,transport, entertainment etc.
- The advent of computing dates back to 5000 years. Computing is categorized into many generations from the period of automation.

2 Fundamentals of a computer system

After studying this chapter you will be able to understand;

- features of a computer,
- classification of computers,
- functions and devices of a computer system,
- basic components of a computer,
- computer ports and,
- computer network.

2.1 What is a computer?

First chapter described how computer systems can make day-to-day work efficient.

A computer can be described as an electronic device, which accepts or collects data, processes them according to the given instructions and produces the desired output.

Computer has become an essential device in our lives. Some of these features of a computer can be described as follows;

Speed	A computer takes only a few seconds to perform calculations. It executes more than one million instructions per second.
Accuracy	A computer provides correct output when correct instructions and data are given.
Efficiency	A computer never gets tired. It can work round the clock with the same level of accuracy.
Versatility	A computer can be used to perform many tasks simultaneously. This is one of the special features of a computer.
Storing and Retrieving	A computer is used to store large number of data and information in a relatively small unit and we can retrieve them easily and quickly when needed.