Data and Information

- **Data** is a collection of unprocessed items, which can include text, numbers, images, audio, and video.

- **Information** conveys meaning to users.

Figure (1) Computer system components and information production steps through data processing

Characteristics of Computer

1- High Speed

▶ The computer is a very fast device.

▶ It is capable of performing calculations of a very large amount of data.

▶ The computer has units of speed in microseconds, nanoseconds, and even picoseconds.

▶ It can perform millions of calculations in a few seconds as compared to a man who will spend many months performing the same task.

2- Accuracy

▶ In addition to being very fast, computers are very accurate.

▶ The accuracy of a computer is consistently high and the degree of its accuracy depends upon its design.

▶ Computers perform all jobs with 100% accuracy provided that the input is correct.

3- Storage Capability

▶ Memory is a very important characteristic of computers.

▶ The computer stores large volumes of data in storage devices.

▶ It can store any type of data such as images, videos, text, audio, and many others.

4- Diligence

► , Unlike human beings, a computer is free from monotony, tiredness, and lack of concentration.

► It can work continuously without any error and boredom.

► It can perform repetitive tasks with the same speed and accuracy.

5- Versatility

► A computer is a very versatile machine.

► A computer is very flexible in performing the jobs to be done.

► This machine can be used to solve problems related to various fields.

► At one instance, it may be solving a complex scientific problem, and the very next moment it may be playing a card game.

6- Reliability

► A computer is a reliable machine.

► Modern electronic components have long lives.

► Computers are designed to make maintenance easy.

7- Automation

► A computer is an automatic machine.

► Once a program is given to the computer i.e., stored in computer memory, the program and instruction can control the program execution without human interaction.

8- Reduction in Cost

▶ Though the initial investment for installing a computer is high it substantially reduces the cost of each of its transactions.

9- Reduction in Paper Work

▶ The use of computers for data processing in an organization leads to a reduction in paperwork and results in speeding up the process.

▶ As data in electronic files can be retrieved as and when required, the problem of maintaining of a large number of paper files gets reduced.

Limitations of Computers:-

1- No Self Intelligence

- A computer does only what it is programmed to do.

- Each instruction has to be given to the computer. A computer cannot take any decision on its own.

2- Dependency

- It functions as per a user's instruction, so it is fully dependent on a human being.

3- operational Environment

▶ Medium and large computer systems require high-cost environments, operating conditions, and human and material requirements.
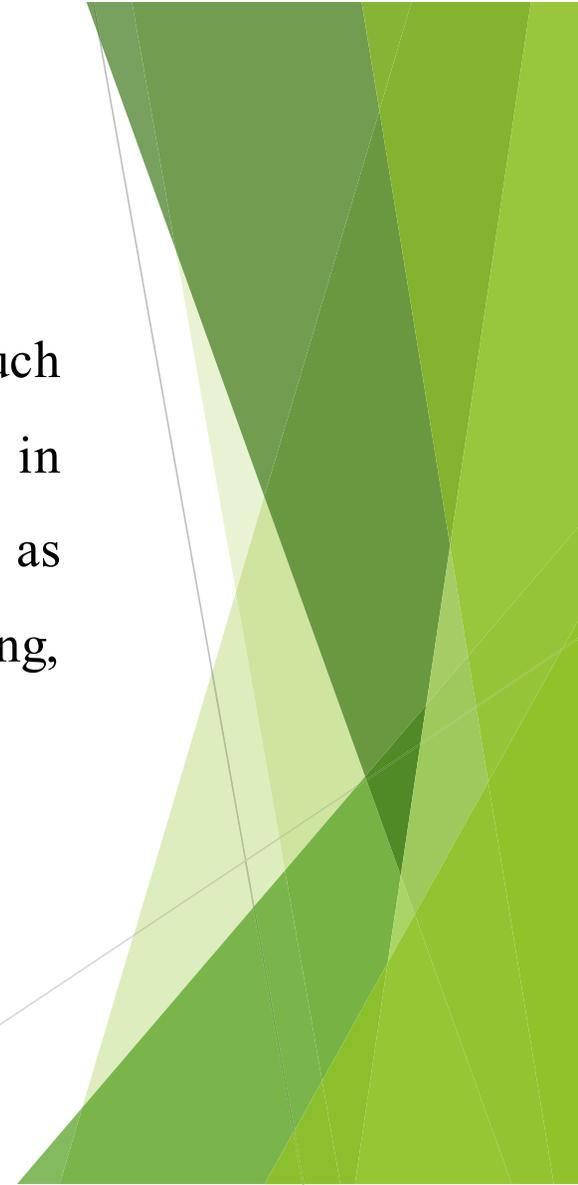
4- Decision-making process

▶ Computers have no feelings or emotions.

▶ It cannot make judgments based on feeling, taste, experience, and knowledge, unlike a human being.

▶ Its judgment is based on the instructions given in the form of programs

Fundamentals Uses of Computers:-

1- Communication:

- Thanks to computers and the Internet, the world has gotten much smaller in recent years. Many people use their computers to keep in touch with friends and family using instant messenger programs as well as email. A growing communication tool is social networking, with sites like Facebook and Twitter becoming incredibly popular.

2- Entertainment and Games:

▶ PCs have long served as recreational devices with hundreds of games available.

▶ Almost all computers come with CD or DVD disk drives, which allow you to use the computer as a CD player or DVD player. With an Internet connection, users have a nearly limitless of videos and music available online as well.

3- Work:

▶ Almost every working environment uses computers in one capacity or another