Introduction

Computer Skills

Physics Department

1st year- 2nd Semester

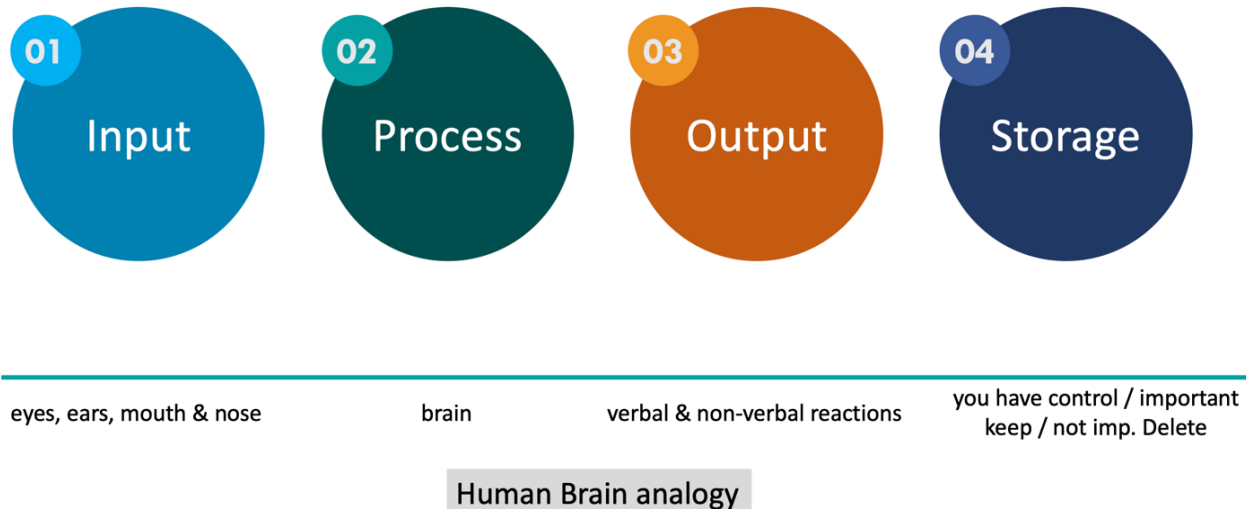Lecture 1

Sarkar Doski

Need of Computers

- Need of a computer has become the necessity of human beings nowadays, it has become the source of instant access to information from around the globe.

- It is a common belief that computer knowledge is necessary for success.

- Computers are everywhere and everyone is using them! Computers are in our cars, our kitchens, our stores and in our workplaces. They are used to communicate, to play, and to make everyday tasks easier. Using a computer and the Internet will help you to keep in touch with friends and family.

- You will also be able to complete common tasks more quickly. Computers can help you pay bills or find information on health or other topics. Computers can also help you reach goals like finding a job and improving your career.

What is a computer?

Computer is an electronic device that does the following functions:

- accepts data (input)

- manipulates the data (process)

- produces information based on the manipulation (output)

- and stores the results (storage).

Information Processing Cycle

01 Input	02 Process	03 Output	04 Storage
eyes, ears, mouth & nose	brain	verbal & non-verbal reactions	you have control / important keep / not imp. Delete

Human Brain analogy

Computer advantages

Can you do these things without a computer?

You probably can! But computers can help you! They give you:

- **Speed:** The computer can manipulate large data at incredible speed and response time can be very fast.

- **Accuracy:** Its accuracy is very high and its consistency can be relied upon. Errors committed in computing are mostly due to human rather than technological weakness. There are in-built error detecting schemes in the computer.

- **Storage:** It has both internal and external storage facilities for holding data and instructions. This capacity varies from one machine to the other. Memories are built up in K(Kilo) modules where K = 1024 memory locations.

- **Automatic:** Once a program is in the computer's memory, it can run automatically each time it is opened. The individual has little or no instruction to give again

- **Reliability:** Being a machine, a computer does not suffer human traits of tiredness and lack of concentration. It will perform the last job with the same speed and accuracy as the first job every time even if ten million jobs are involved.

- **Flexibility:** It can perform any type of task once it can be reduced to logical steps. Modern computers can be used to perform a variety of functions like on-line processing, multi-programming, real time processing etc.
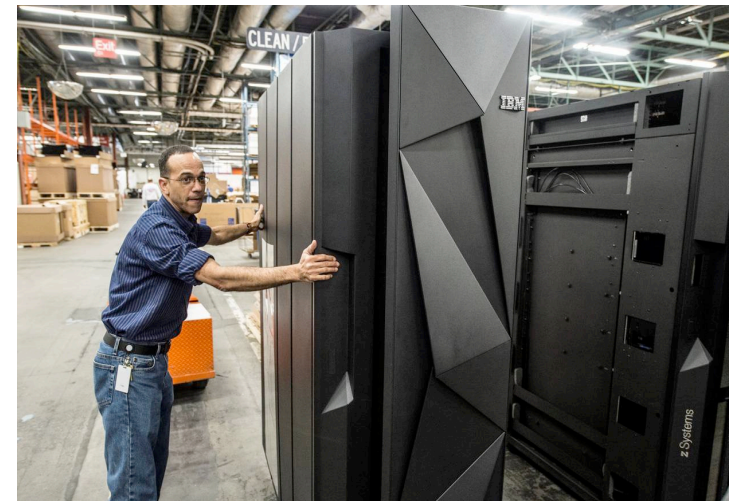
Types of Computers

1- Super computers

- They are the biggest and the most powerful computers.
- They are rare because of their cost and size.
- Used by companies like NASA, research laboratories.
- These are used for jobs that take very big amounts of calculating, like weather forecasting, engineering design and testing

2- Mainframe computers

- Large-sized, powerful multi-user computers that can perform different actions or 'processes' at the same time.
- Mainframe computers can be used by as many as hundreds or thousands of users at the same time.
- Great processing speed and data storage.
- Often connected to many individual PCs with limited processing capabilities.
- Very expensive, Used in Banks, Airlines etc.

3- Microcomputers or Personal computers (PCs)

- The most popular type of computer in use today. The PC is a small-sized, relatively inexpensive computer designed for an individual user.
- It is small enough to fit on top of a desk, can be used by one user at a time.
- Computers may be called 'desktop' computers, which stay on the desk, or 'laptop' computers, which are lightweight and portable.
- Used in homes, schools etc.

4- Portable computers (Laptops)

• Similar in specification to a personal computer Screen and

   keyboard are integrated into a single unit

• Can be used from the mains or with a built-in rechargeable battery

• More expensive than personal computers.

• Ideal computer for business

   people who are constantly on

   the move.

Lenovo

5- Control Computer

These computers are used for controlling operations in industries, medical devices and travel media like planes and cars, to alert in any dangerous case.

6- Smartphones

A smartphone is a powerful mobile phone that is designed to run a variety of applications in addition to phone service. They are basically small tablet computers, and they can be used for web browsing, watching videos, reading e-books, playing games and more.

Data, Information and Knowledge

- **Data**: are the raw alphanumeric values obtained through different acquisition methods. Data in their simplest form consist of raw alphanumeric values.

  Data is represented with the help of characters such as alphabets (A-Z, a-z), digits (0-9) or special characters (+,-,/,*,<,>,= etc.)

- **Information**: Information is created when data are processed, organized, or structured to provide context and meaning. Information is essentially processed data.

- **Knowledge**: Knowledge is unique to each individual and is the accumulation of past experience and assign meaning to, information.

    acquiring and remembering a set of facts, or the use of information to solve problems called **Knowledge.**

We need to understand that processing data produced Information and process Information produces Knowledge and so on