Applications

- Computers are used in every field of life, such as homes, businesses, educational institutions, research organizations, the medical field, government offices, entertainment, etc.
- Today we can not imagine growing our technology without computers.
- The various fields where the computer is very essential are Education, Business, Agriculture, Banking Sector and Financial Company, Medicine, Tourism, Communication, Entertainment, and a lot more.

Application of Computer in Education

- Teaching and Learning Online
- Result Processing
- Student Data Processing
- Question Preparation
- Handouts and Notes Preparation

Application of Computer in Business

- Salary and Payroll Calculations
- Budgeting
- Sales Analysis
- Financial Forecasting
- Managing Employee Database
- Maintenance of Stocks, etc.

Application of Computer in Accounting

- Computers are extensively used for accounting purposes to manage daily and financial accounts and inventory management using various accounting software.
- Some of the popular accounting software available in the market are Tally, Busy Accounting Software, etc.
- With computers, maintaining accounts becomes very easy and convenient. Users can also retrieve the data based on various patterns or requirements very easily.

Application of Computer in Agriculture

- Farmers can use computer systems to guide their vehicles and agricultural equipment to perform specific tasks and jobs like planting and harvesting.
- Also, farmers can use GPS (Global Positioning System) to map factors and areas that might affect crop yields, such as weed patches and wet spots.
- Smart Agriculture

Application of Computer in Banking

- Online Banking (e-banking)
- Reading and sorting cheques with the help of MICR (Magnetic Ink Character Reader)
- Additionally, ATM (Automated Teller Machine) is used to either deposit or withdraw cash in/from banks.

Application of Computer in Healthcare

- A computer plays an important role in the medical field also.
- For example in the Intensive Care Unit (ICU) in the hospital, the computer keeps track of everything going inside the patient's body such as blood pressure and heartbeat, etc.
- Keeping a record of patients and medicines also becomes easy through the use of the computer.
- Diagnostic System − The computer is used to collect data and identify the cause of disease and illness.
- Lab-diagnostic System − All tests can be done and the reports are prepared by computer.
- Patient Monitoring System − Computers are also used to check the patient's signs for abnormality such as CT Scan, ECG, etc.
- Pharmacy Information System − Computers are used to check medicine labels, expiry dates, harmful side effects, etc.
- Surgery − Computers are used in performing surgery.

Application of Computer in Engineering

- Structural Engineering – Requires stress and strain analysis for the design of buildings, ships, budgets, spaceships, airplanes, etc.
- Industrial Engineering – Here computers deal with the design, improvement, and implementation of integrated systems of people, materials, and equipment.
- Architectural Engineering – Computers help in planning cities and towns, designing apartments and buildings using both 2D and 3D drawings.

Application of Computer in Communication

- Chatting
- Instant Messaging
- E-Mail
- FTP
- Video-conferencing, etc.

Application of Computer in Entertainment

- Watching Movies
- Watching Videos
- Listening Songs
- Viewing Photos
- Playing Online Games, etc.

Application of Computer in Science and Research

- Scientific research was the first application of computers as it was first used to perform scientific research. From that time to now, the speed and accuracy of computers are helping scientists in the fields of space research and analysis.

Application of Computer in Military

- Missile Control
- Nuclear Weapon Control
- Security and Army Communication
- Military Operation and Planning
- Smart Weapons Control

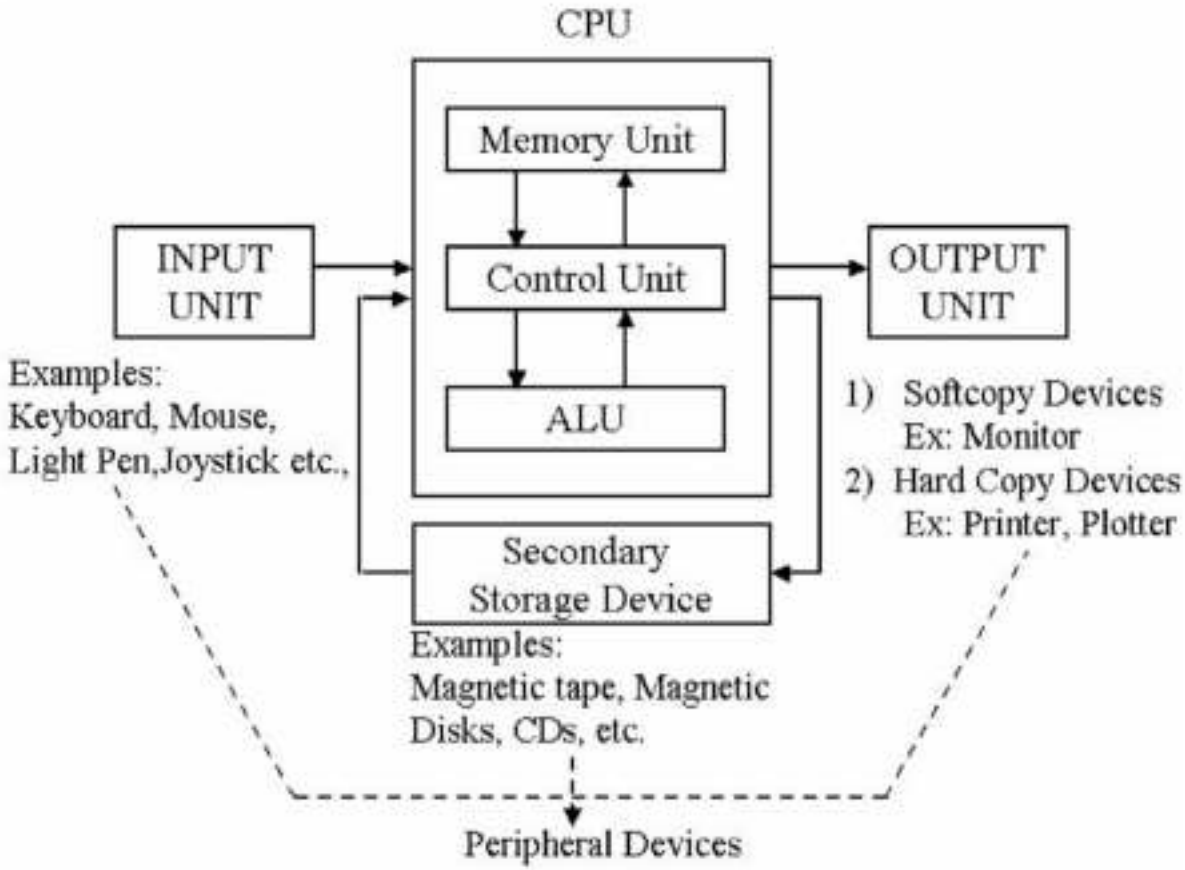
Application of Computer in Insurance

- Procedure to continue with policies
- Starting date of the policies
- Next due installment of a policy
- Maturity date
- Interests due
- Survival benefits
- Bonus

Application of Computer in Government and Private Offices

- Budget Planning
- Sales Tax Department
- Income Tax Department
- Computation of Male/Female Ratio
- Computerization of Voters Lists
- Computerization of PAN Card

Basic Components of PC


CPU
Memory Unit
Control Unit
ALU
INPUT UNIT
OUTPUT UNIT
Secondary Storage Device
Examples:
Keyboard, Mouse,
Light Pen,Joystick etc.,
1) Softcopy Devices
Ex: Monitor
2) Hard Copy Devices
Ex: Printer, Plotter
Examples:
Magnetic tape, Magnetic
Disks, CDs, etc.
Peripheral Devices

Computer Hardware

Computer hardware is divided into two main categories:

- System unit

  contains the electronic components used to process and temporarily store data and instructions. These components include the central processing unit, primary memory, and the system board.

- Peripherals.

  They are hardware used for input, auxiliary storage, display, and communication. These are attached to the system unit through a hardware interface that carries digital data to and from main memory and processors.

Central Processing Unit

- The most important component of any electronic computer is the central processing unit. A CPU is a complex integration of millions of transistors that execute program instructions and manipulate data.
- The Intel 10-Core Xeon houses over 2.6 billion transistors within a tiny 2-inch chip. This ability to store a CPU on a single silicon chip ushered in the age of personal computers.
- A processor's speed is measured in Megahertz (MHZ), or Gigahertz (GHZ). Higher the hertz, the faster the process in of instructions

The CPU has three essential sets of transistors that work together in processing digital data:

Control Unit

The control unit directs the flow of data and instructions within the processor and electronic memory.

Arithmetic logic Unit

The arithmetic logic unit (ALU) contains programmed transistors that perform mathematical and logical calculations on the data.

Registers/Memory Unit

The registers are special transistors that store data and instructions as they are being manipulated by the control unit and ALU. New microprocessors also have additional high-speed memory called cache, on the chip to store frequently used data and instructions

Memory

- It is classified in the following two categories
- Primary Memory
  - RAM
  - ROM
- Secondary Memory/Auxiliary Memory

Input and Output Devices

- Input and output devices of a computer system are the devices that connect you to computer.
- Input devices let you to transfer data and user command into the computer system.
- I/O devices are used to interact with the computer system.
- Output devices display the result of input data or signals after processing it.
- Input and output devices allow the computer system to interact with the outside world by moving data into and out of the computer system.

Input Devices

- Input and output devices are also called I/O devices.
- They are directly connected to an electronic module called I/O module or device controller.
- For example, the speakers of a multimedia computer system are directly connected to a device controller called an audio card, which in turn is connected to the rest of the system.

Input Devices

- Keyboard
- Mouse
- Joystick
- Bar code reader
- OMR
- OCR
- Graphics tablet
- Digital Camera

Output Devices

- Monitor
- Visual Display Unit
- Projector
- Printer
- Plotter
- Speaker