

Introduction

❑ ORIGIN:

- The word `COMPUTER` comes from `COMPUTE` means `to calculate` and computer means `calculating machine`

❑ DEFINITION:

- computer is an automatic electronic device which store, retrives & process data to show necessary results.
- Cannot think but carry out instructions using 0 & 1

Uses of computer (Business Purpose)

- **Invention:**
 - Invention of high performing machineries to increase production.
- **Quality control:**
 - Accurate maintenance of quality & quantity by computer.
- **Management Information Systems:**
 - To create & maintain the large database with a lot of information.
- **Statistics:**
 - To get the best statistics among databases of organization.

Uses continues.....

- Prediction:
 - Future prediction about business & helps to make better decisions.
- Design:
 - New products designing become easier with the help of computer.
- Maintenance of organization:
 - To maintain a vast business organization better than past.
- Business communication:
 - Computer become a **base station for communication through** E-MAIL, VIDEO CONFERENCE, WEBSITE etc.
- Trading:
 - Like E-bay, Amazon.com etc. different online computerized services evolved for easy buy & sale.

Evolution of Computers

- ❑ Blaise Pascal invented the first *mechanical adding machine in 1642*
- ❑ Baron Gottfried Wilhelm von Leibniz invented the first *calculator for multiplication in 1671*
- ❑ *Keyboard machines originated in the United States around 1880*
- ❑ Around 1880, Herman Hollerith came up with the concept of *punched cards that were extensively used as input media until late 1970s*

Evolution off Computers cont.

- *Charles Babbage is considered to be the father of modern digital computers*
 - He designed “Difference Engine” in 1822
 - He designed a *fully automatic analytical engine in 1842* for performing basic arithmetic functions
 - His efforts established a number of principles that are fundamental to the design of any digital computer

Generation of computer

□ Definition:

- Generation of computer means gradual development of key features of computer (like hardware, software, input or output devices and other specialties) in different periods after the invention of computer.

□ Generations:

- Observing all the developments; generations are divided into 05 categories.

First generation:(1942-1959)

- ❑ **Prime Hardware:** Bulky Vacuum tube
- ❑ **Input device:** Punch card & Paper tape
- ❑ **Memory unit:** Magnetic drum/core
- ❑ **Programming language:** Machine language, employing combination of 0&1

Problems of First generation

- ☐ Preservation of machine due to it's massive size and shape.
- ☐ Low data storage capacity.
- ☐ Heat problem.
- ☐ Slow speed
- ☐ Vacuum tubes are unreliable & inefficient in operations.
- ☐ Power consumption is very high. Each tube half a watt.
- ☐ Requires constant maintenance.

Examples of First generation

- ❑ **EDSAC:** Electronic Delay Storage Automatic Machine
- ❑ **ACE:** Automatic Computer Engine
- ❑ **EDVAC:** Electronic Discrete Variable Automatic Computer
- ❑ **LEO:** Lyons Electronic Office
- ❑ **UNIVAC:** UNIVersal Accounting Computer
- ❑ **ENIAC:** Electronic Numerical Integrator And Computer

- ❑ **Examples:** IBM 650, IBM 704, IBM 705, IBM 709, Mark II, Mark III.

Second generation: (1960-1965)

- ❑ **Hardware:** Transistor introduced
- ❑ **Input device:** Punch card & Paper tape
- ❑ **Memory unit:** Magnetic disc/Magnetic core
- ❑ **Programming language:** machine or Assembly language.
- ❑ **Data transfer:** High speed & through Tele-communication

Other features of second generation

- ❑ Business oriented computer system
- ❑ Heat problem solved
- ❑ These were first computer that stored their instructions in the memory
- ❑ Smaller in size and less expensive.
- ❑ Less power consumption. One-tenth of tube.
- ❑ Less heat produced.
- ❑ Faster and large primary and secondary storage and IO devices.

Examples of second generation

- ❑ IBM-1400, IBM-1600, IBM-1620
- ❑ RCA-301, RCA-501
- ❑ CDC-1604
- ❑ NCR-300
- ❑ HONEYWELL-200
- ❑ GE-200

Third generation:(1965-1971)

- ❑ **Hardware:** Mainly prepared with `IC`. Transistor was miniaturized and placed on `silicon chips` called `semiconductors`.
- ❑ **Programming language:** High level
- ❑ **Memory:** Semiconductor memory unit
- ❑ **Input device:** Keyboard introduced
- ❑ **Output device:** Monitor introduced
- ❑ **Data transfer:** High speed Satellite communication

Other features of third generation

- ❑ VDU (Video Display Unit) and `Line printers` introduced
- ❑ Interfaced with an `Operating systems`
- ❑ Computers for the first time become accessible to a mass people
- ❑ Could run different applications at the same time
- ❑ Smaller in size and less expensive than 2nd generation.
- ❑ Less power consumption than 2nd generation
- ❑ Faster and large primary and secondary storage than 2nd generation.

Examples of Third generation

- ❑ PDP-08,PDP-11
- ❑ IBM-360,IBM-370
- ❑ GE-600

Fourth generation:(1971-PRESENT TIME)

- ❑ **Hardware:** Microprocessor based computer, VLSI-(Very Large Scale Integration)
- ❑ **Memory:** Concept of `virtual storage` introduced in the memory
- ❑ **Programming:** Object oriented programming (C++) and application Package programming (MS Office)
- ❑ Introduction of `CD ROM` and `DVD ROM`
- ❑ Customize software development
- ❑ Semiconductor storage devices were introduced.

Other features of Fourth generation

- ❑ Totally General purpose machine .
- ❑ Smaller in size and less expensive than 3rd generation.
- ❑ More powerful and reliable.
- ❑ Faster and large primary and secondary storage than 3rd generation.
- ❑ High speed network developed
- ❑ Interactive computer graphics was seen for the first time in the computer
- ❑ Development of Mouse & Handheld devices

Examples of Fourth generation

- ☐ Apple Macintosh
- ☐ IBM-3033, IBM-4341
- ☐ PARAM
- ☐ HP-3000
- ☐ TRS-80
- ☐ SHARP-1211
- ☐ Traditional Desktop, Palmtop, Laptop, PDA

Fifth generation: (Present & Beyond)

- ❑ **Hardware:** Multi-processor & Parallel Processing
- ❑ **AI-**(Artificial Intelligence)
- ❑ **Memory:** Magnetic Bubble Memory
- ❑ Voice recognition, Voice command, Talking machine
- ❑ Use of `Super VLSI` and `optical fiber` in the computer circuit
- ❑ `Quantum computation`, `Molecular` & `Nanotechnology`
- ❑ Will be capable of reasoning, learning, making inferences and behaving like human.