Evolution of computer or Computer generation

MEANING OF TERMS

- What is Generation?

  The Generation means as a period of time that a technology change from one state to another.
- What is Computer?

  Is an Electronic machine, which can be programmed to accept data, processing those data and produces the desired information, (and some time capable of store those data)
- What is computer Generation?

  Is a term used to describe the evolution of computing devices and how technology is used to implement different model from the beginning , present and the future of computers.

According to the type of processor installed in a machine there are five generations of computers

First Generation (1940-1956)
Second Generation (1956-1963)
Third Generation (1964- early 70s)
Forth Generation (early 70s- 1990s date)
Fifth Generation (Late 1990s, present & beyond)

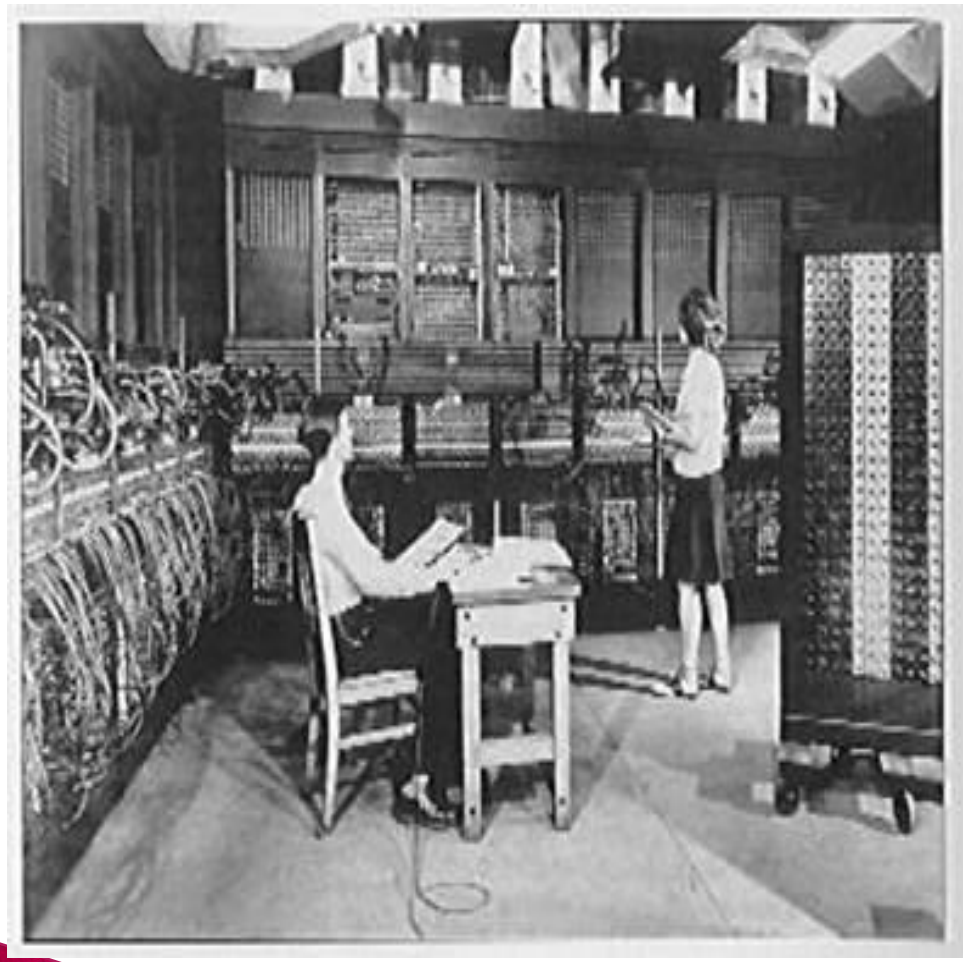
First Generation (1940-1956) Vacuum tubes

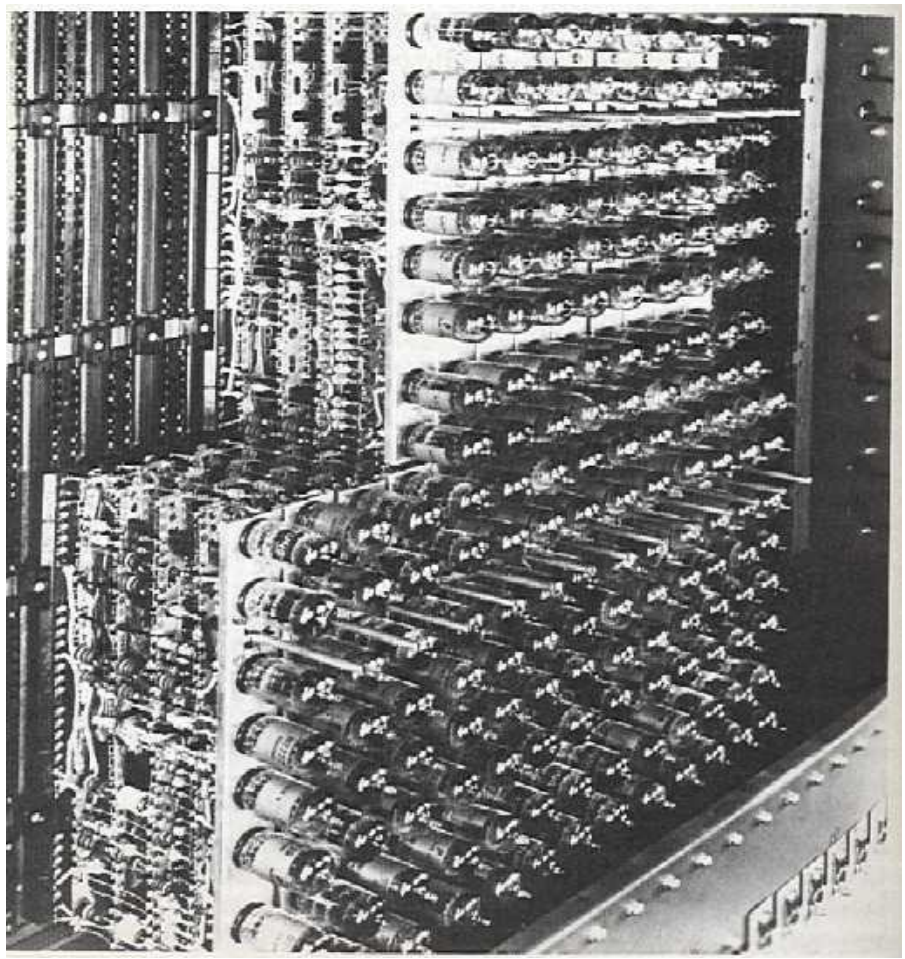
- These computers used vacuum tubes for circuitry and magnetic drums for memory
- These were the fastest computing devices of their times (the computation time was in milliseconds).
- These computers were very large
- Thousands of vacuum tubes were used; generated too much heat, Air-conditions were needed
- The input and output operations were done using punched card technology.

First Generation (1940-1956) Vacuum tubes

- Non portable & very slow
- Used machine language (i.e language of 0s & 1s)
- Very expensive to operate, used large amount of electricity
- Since machine language was used, these computers were difficult to program and use
- Each individual component had to be assembled manually
- Commercial appeal very poor

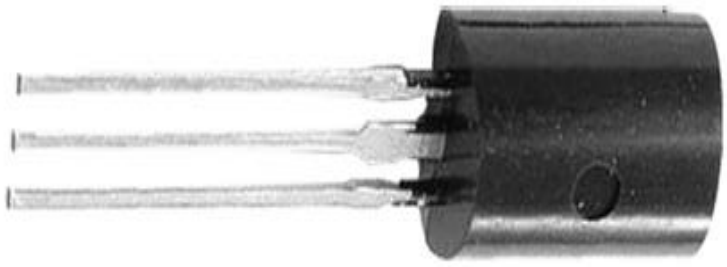
Examples: ENIAC, EDVAC and UNIVAC.





Second Generation(1956-63)Transistors

- Second generation computer machines were based on **transistor technology.**
- These computers were smaller as compared to the first generation computers.
- Computational time of Second generation computers was reduced to microseconds from milliseconds.
- The input operations were performed using punched cards and magnetic tapes and for output operations, punched cards and papers were used.
- For external storage magnetic tapes were used.



Second Generation(1956-63)Transistors

- These computers used assembly language (used abbreviations)

  Hence, programming became more time-efficient and less cumbersome.

- These were more portable and generated less amount of heat.

- Second-generation computers still required air conditioning.

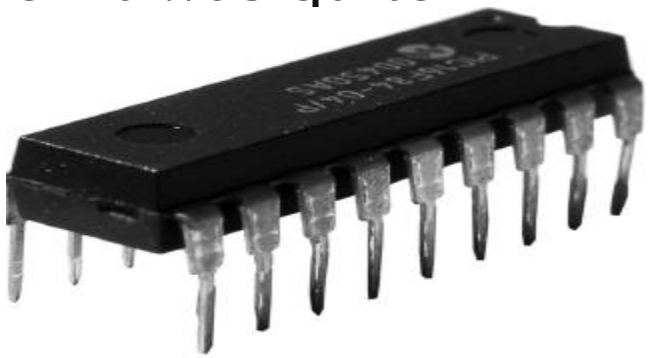
- Manual assembly of individual components into a functioning unit was still required.

- The high level languages like FORTRAN, COBOL, BASIC etc. were used as the languages by the computer

Examples:PDP-8,IBM 1401 and IBM 7090

Third Generation (1964-Early 1970s) Integrated Circuits

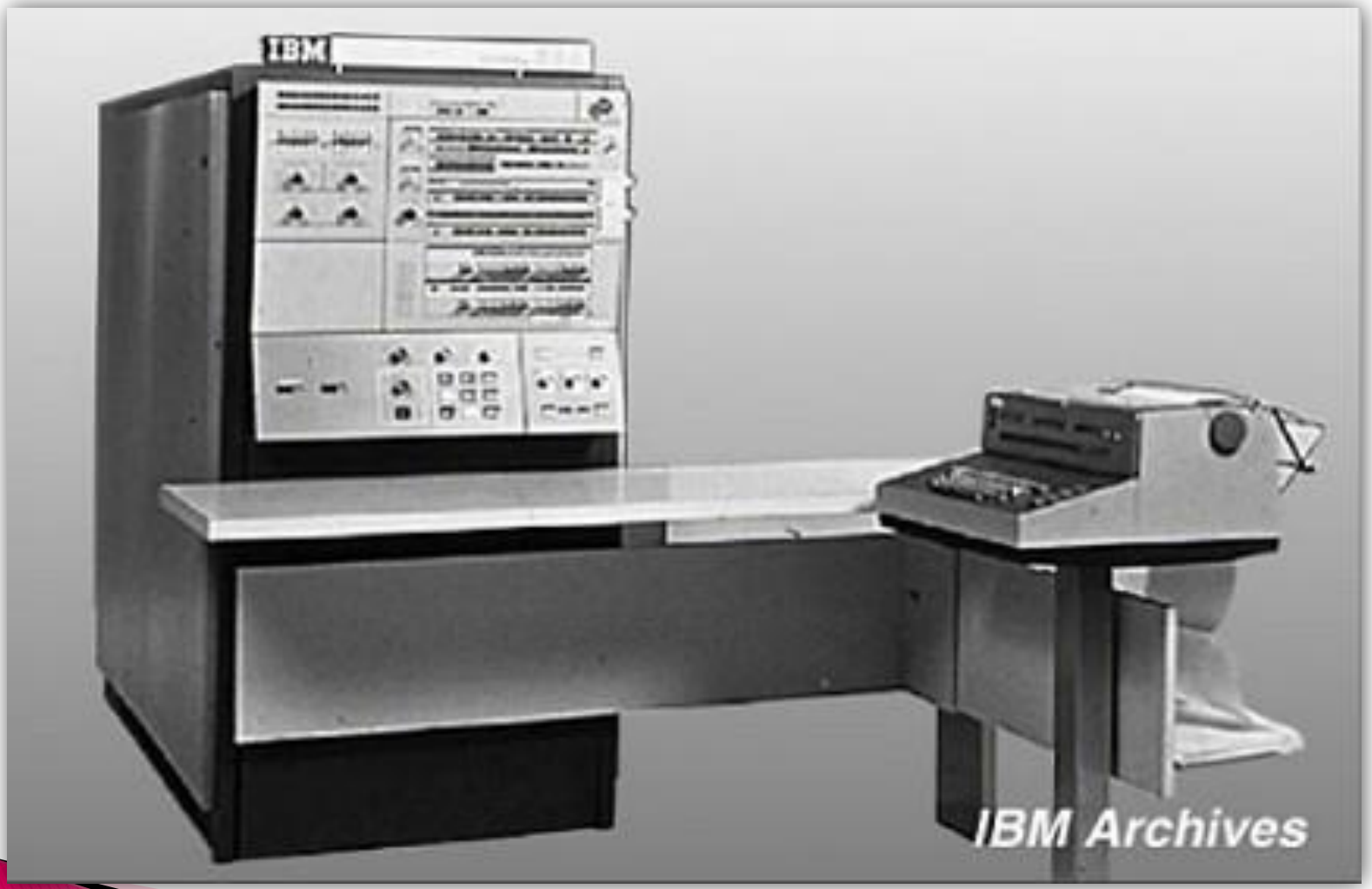
- Third Generation Computers were based on **integrated circuit (IC) technology.**
- These Computers were able to reduce computational time from microseconds to nanoseconds
- These Computers devices consumed less power and generated less heat. In some cases, air conditioning was still required.
- The size of Third Generation Computers was smaller as compared to previous computers
- Since hardware of the Third Generation Computers rarely failed, the maintenance cost for it was quite low.



Third Generation (1964-Early 1970s) Integrated Circuits

- For external storage magnetic disks were used.
- Extensive use of high-level language became possible in Third Generation Computers.
- Manual assembling of individual components was not required; large requirement of labor and cost was reduced
- For data input and output operations monitors and keyboards replaced the punched cards.
- Commercial production became easier and cheaper

Examples :IBM SYSTEM

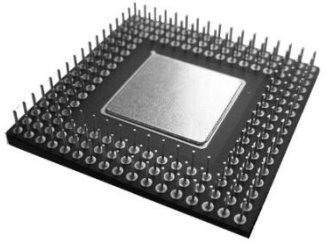


Fourth Generation (Early 1970s- 1990) Microprocessors

- Fourth-generation computers are microprocessor-based systems (integrated circuit chip)
  - Microprocessor were introduced as CPU.
  - Other peripherals were used like scanner, CRT screen.

- These computers are very small in size.
- These are the cheapest among all the other-generation computers.
- These are portable and quite reliable.
- These machines generate negligible amount of heat, hence, they do not require air conditioning.
- Hardware failure is negligible, so minimum maintenance is required
- Development of network technologies such as LAN and W
- G.U.I technology started.

Fourth Generation (Early 1970s- 1990s) Microprocessors



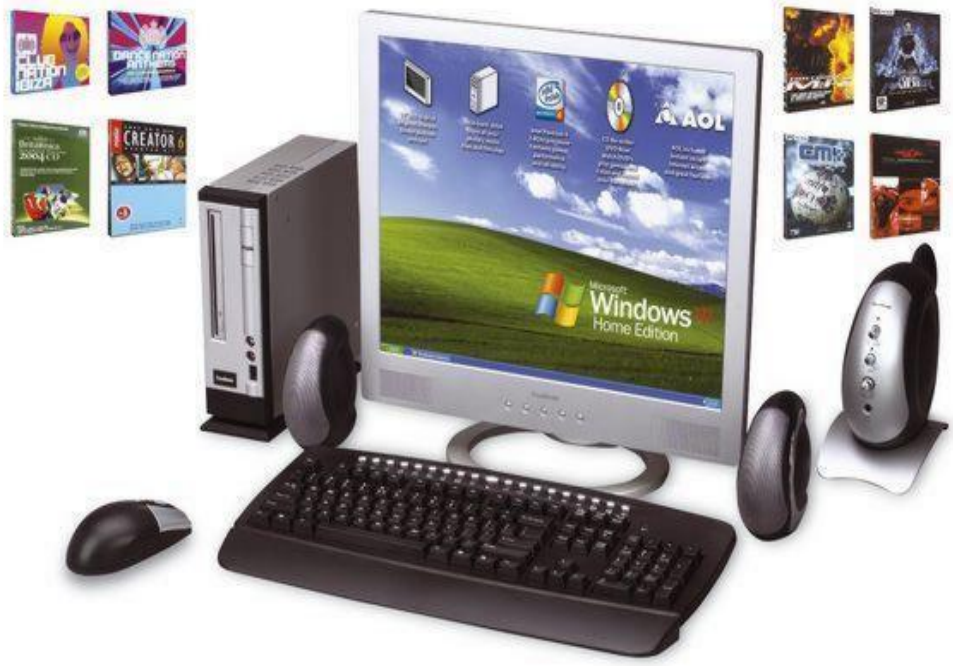
- GUI and pointing devices (mouse, joysticks etc) enables users to learn to use the computer quickly.
- Interconnections of computers leads to better communication and resource sharing.
- Fourth generation computers are very powerful than previous generations and can easily do more calculation or can run more programs at a time and for more hours.
- The input output devices were the same monitors, keyboard, printer etc.

Examples: Apple II, Altair 8800 and CRAY-1.

Fifth Generation (Late 1990, Present and Beyond)-Artificial Intelligence

- The computers of this generation use **optic fiber technology to handle Artificial Intelligence.**
- These computers have capacity to think and reason which can be used to solve problems where human intelligence is required.
- Expert Systems are examples of systems implementing Artificial Intelligence (AI).
- Combinations of some or all of the following technologies:
  - -parallel processing
  - -high speed logic and memory chips
  - -high performance
  - -voice/data integration;
  - -artificial intelligence, expert systems
  - -virtual reality generation
  - -satellite links

Human and Robot


AOL
Microsoft
Windows
Home Edition


iPad

Q & A