

SOS POLITICAL SCIENCE AND PUBLIC ADMINISTRATION
MBA FA 401

SUBJECT NAME: COMPUTER APPLICATION IN
FINANCIAL ADMINISTRATION


TOPIC NAME: GENERATIONS OF COMPUTER

GENERATIONS OF COMPUTER

Introduction:

Computer word is derived from “Computing”. As the start of the modern science that we call “Computer Science” can be traced back to a long ago age where man still dwelled in caves or in the forest, and lived in groups for protection and survival from the harsher elements on the Earth.

Computing becoming more and more complicated then the first computing device came in to being that is Abacus invented by Chinese about 500 years ago.




A computer is an electronic device that can process data and produce output as per a set of instructions called as program and display output through various output devices such as printer and monitor etc.

- In business and industry the primary function of a computer is processing of data. A factory converts raw materials in to finish products. In this case the raw materials are the inputs and finished products are the outputs.

Brief History of Computer

- Pascal's Adding Machine.
- Leibniz's Reckoning Machine.
- Colmar's multiplying Machine.
- Babbage's Difference Engine.
- Babbage's Analytical Engine.
- The first Computer.

contd...



Dr. Howard Aiken of Harvard university in association with IBM in 1944, constructed an electro mechanical machine capable of processing a series of instructions in the form of a program. It was named as Mark-I. This is considered to be the first operational computer .It was around 15.24m long and 2.44m high comprising of more than 750,000 parts. It can complete one arithmetic operation on 23 digit numbers in around 3 seconds.

Generation of Computer

Since the evolution of 1st computer in 1944, the size of computer has decreased whereas the speed, capacity and reliability have increased with the passage of time. Some notable landmarks in technology responsible for this development are given below.

- Invention of Transistor
- Invention of IC's
- Development of Microprocessor

Depending upon the technology used, computers were classified as follows:-

Generations	Period	Technology
First Generation	1946-1955	Vacuums Tube
Second Generation	1955-1965	Transistors
Third Generation	1965-1975	Integrated Circuits (ICs)
Forth Generation	1976-1988	Microprocessor/Large Scale Integration
Fifth Generation	Since 1988	Artificial Intelligence

First Generation(1946-1955)

- The first computers used **vacuum tubes** for circuitry and magnetic drums for memory, and were often enormous, taking up entire rooms. First generation computers relied on machine language to perform operations, and they could only solve one problem at a time.
- The Mark-I, EDSAC, EDVAC, UNIVAC-I and ENIAC computers are examples of first-generation computing devices.
- IBM-650 was another first generation computer by IBM corporation.

Advantages:

- the 1G computers were able to process any tasks in milliseconds.
- The hardware designs are functioned and programmed by machine languages.
- Vacuum tube technology is very much important which opened the gates of digital world communication.

Disadvantages:

- Size of that machines are very big.
- Required large amount of energy for processing.
- Heat generated and need air conditioning.
- Expensive.
- In order to get proper processing, maintenance is required continuously.

Second Generation(1955-1965)

- Transistors replaced vacuum tubes in the second generation computer. **Transistor** is a device composed of semiconductor material that amplifies a signal or opens or closes a circuit. Invented in 1947 at Bell Labs, transistors have become the key ingredient of all digital circuits, including computers.
- Today's latest microprocessor contains tens of millions of microscopic transistors.
- The first computers of this generation were developed for the atomic energy industry.
- Ex-IBM 7074 series, CDC 164, IBM 1400 Series.

Advantages:

- less expensive and smaller in size as compared to first generation computers.
- Fast in speed.
- Low power consumption and less heat generated.
- Vacuum tube technology is very much important which opened the gates of digital world communication.
- Language after machine language for programming, in G2 assembly language (COBOL, FORTRON) is introduced for programming.

Disadvantages:

- Maintenance of Machine is required.
- Air conditioning required still as heat causes to process slowly.
- These computers are not used as personal system.
- Preferably used for commercial purposes.

Third Generation(1965-1975)

- The development of the **Integrated Circuit** was the hallmark of the third generation of computers. Transistors were miniaturized and placed on silicon chips, called semiconductors, which drastically increased the speed and efficiency of computers.
- Instead of punched cards and printouts, users interacted with third generation computers through keyboards and monitors and interfaced with an operating system, which allowed the device to run many different applications at one time with a central program that monitored the memory.
- Computers for the first time became accessible to a mass audience because they were smaller and cheaper than their predecessors.
- Ex- IBM System/360 & IBM 370, PDP-8, DEC, UNIVAC 1108, UNIVAC 9000.

Advantages:

- Smaller in size.
- Low cost than previous.
- Low power consumption and easy to operate.
- Less computation time.
- High reliability.
- Multitasking Environment.
- OS for user interactions.

Disadvantages:

- IC chips are still difficult to maintain.
- Need complex technology.

Fourth Generation(1976-1988)

- Use of **microprocessor** in mid seventies marked the advent of fourth generation computers. Medium to very large scale IC's technology packed about 1,00,000 transistors in a single chip.
- The Intel corporation in 1971 packed the complete CPU in a single chip. This is known as microprocessor.
- Another significant development of this generation was graphic devices. This has significantly contributed to the use of computers in design, drawing, commercial arts and entertainment.
- What in the first generation filled an entire room could now fit in the palm of the hand.
- Ex-Intel processors, AMD processor based machines

Advantages:

- Smaller in size.
- Microprocessor based Technology.
- Semiconductor Memory.
- Low cost of production.
- High speed.
- High reliability.
- Efficient OS. More external storage mediums are introduced like CD-ROM, DVD-ROM.
- GUIs developed for interaction

Fifth Generation(1988 onwards)

- Fifth generation computing devices, based on **Artificial Intelligence**, are still in development, though there are some applications, such as voice recognition, that are being used today.
- The use of parallel processing and superconductors is helping to make artificial intelligence a reality. Quantum computation and molecular and nanotechnology will radically change the face of computers in years to come.
- The goal of fifth-generation computing is to develop devices that respond to natural language input and are capable of learning and self-organization.
- Ex-ULAIC Technology, Artificial intelligence etc.

Advantages:

- Program independent.
- Have thinking and analysis by its own.
- Voice reorganization & biometric devices.
- Self organization and learning.



THANK YOU