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Coimbatore- 49



**DEPARTMENT OF COMMERCE WITH INFORMATION  
TECHNOLOGY**

**21UCI507 -Business Information Technology**

**Generations of Computers**

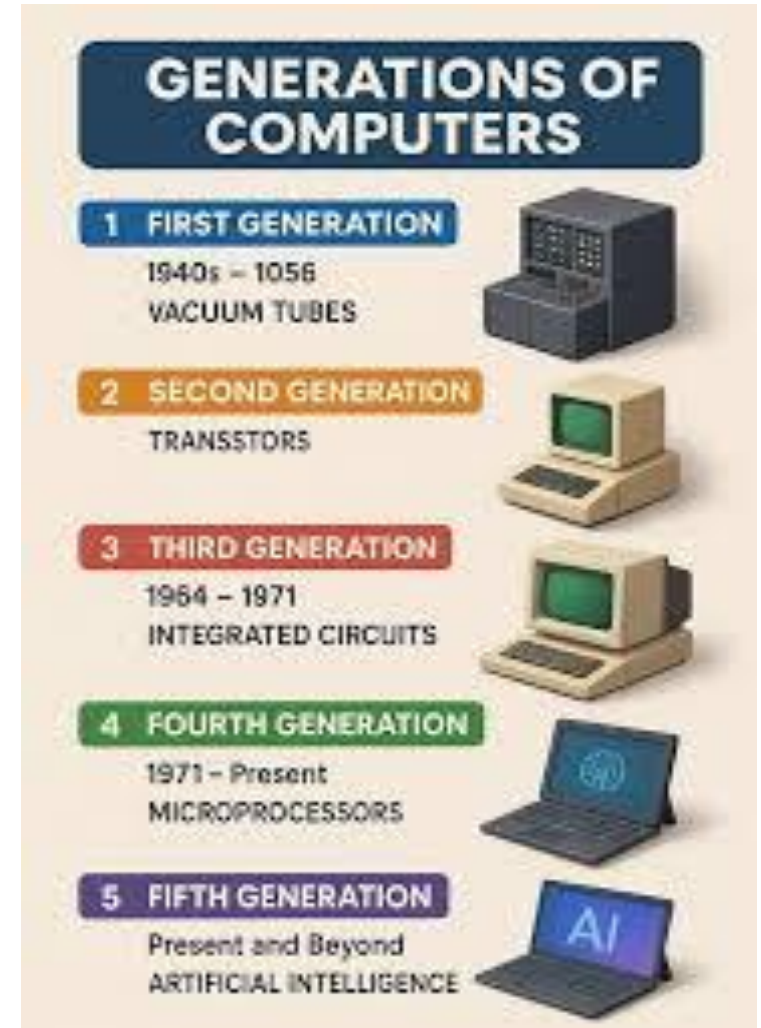
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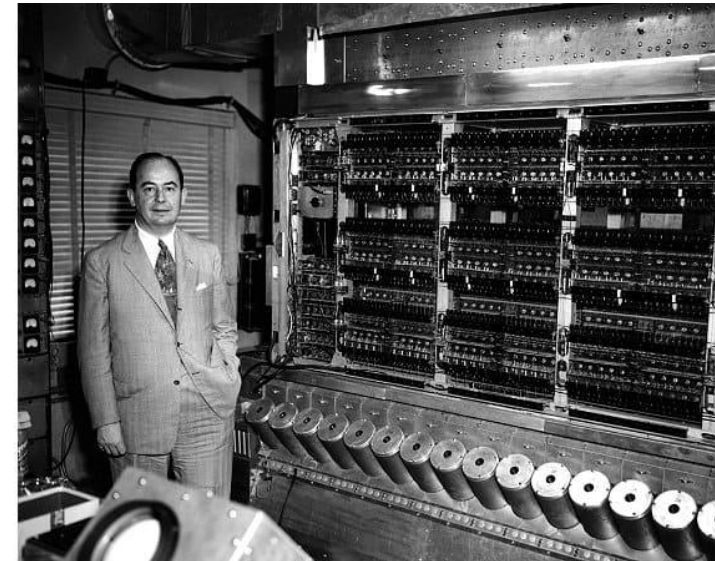
**Department of Commerce with Information Technology**

# Generations of Computers

- The evolution of computer started from 16th century.
- The present-day computer, however, has also undergone rapid change during the last fifty years.
- Evolution of computer took place, can be divided into five distinct phases, basis of the type of switching circuits known as **Generations of Computers.**



- **First Generation Computers (1950's) - vacuum tubes (valves) as major electronic component.**
- The advantage is that it made the advent of Electronic digital computer.
- Vacuum tubes were only electronic devices available during those days which made computing possible.



# Second Generation Computers

- **Second Generation Computers (1960's)** Around 1955 a device called **Transistor** replaced the bulky electric tubes in the first-generation computer.
- Transistors are smaller than electric tubes and have higher operating speed.
- They have no filament and require no heating.
- Manufacturing cost was also very low.
- Thus, the size of the computer got reduced considerably.



Property of Museum of History & Industry, Seattle

## Third Generation Computers (1970's)

The third-generation computers were introduced in 1964.

- They used **Integrated Circuits (ICs)**. These ICs are popularly known as Chips.
- A single IC has many transistors, registers and capacitors built on a single thin slice of silicon
- Computers of this generation were small in size, low cost, large memory and processing speed is very high



Third generation Computer



Integrated Circuit

# Fourth Generation Computers

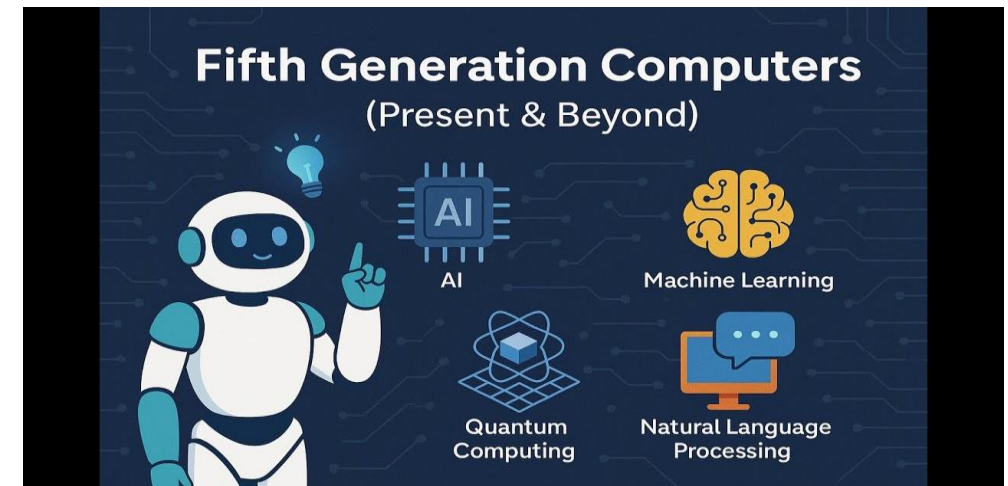
**Fourth Generation (1980's)** -It started around 1975.

- It uses large scale Integrated Circuits (LSIC) built on a single silicon chip called microprocessors.
  - Due to the development of microprocessor, it is possible to place computer's central processing unit (CPU) on single chip.
  - These computers are called microcomputers.
- Later Very Large-scale Integrated Circuits (VLSIC) replaced LSICs.



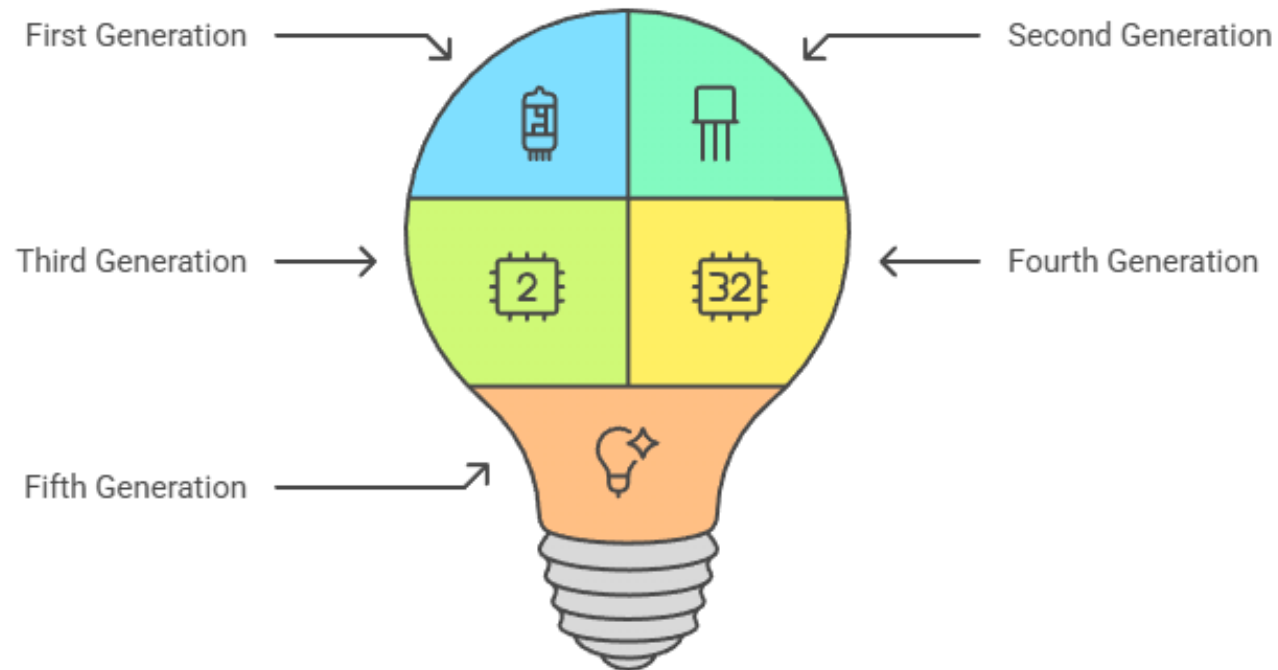
## Fifth Generation (Late 1990's)

- Use optic fiber technology
- Handle Artificial Intelligence, expert systems, Robotics etc.,
- High processing speeds and are more reliable.



# Mind map for Generation of Computer

## Evolution of Computer Generations



Made with  Napkin

## 1. Problem Scenario

A school wants to set up a small computer museum for students to understand how computers evolved over time. The school has limited space and needs to display **only the most important Features and devices from each generation.**

The school asks your team to help design a simple, easy-to-understand museum layout that shows:

### **How computers changed from 1st to 5th generation**

Key technologies used

Major devices of each generation

Advantages and limitations

## Empathize

Understand what students need:

Simple explanation of generations

Clear comparison

Real examples of devices

Visual touch-and-feel experience (posters/models)

## Define

Main problem:

**How to present the evolution of computers in a simple and engaging way for school students with limited space?**

## Ideate

Possible ideas:

- Timeline chart
- Five separate display sections for each generation
- Posters with key features (technology, size, speed, examples)
- QR codes linked to small videos
- Comparison cards

## 1st Generation (1940–1956)

- Technology: Vacuum tubes
- Size: Very large, Example: ENIAC
- Limitation: Overheated, slow

## 2nd Generation (1956–1963)

- Technology: Transistors
- Faster than 1st gen
- Example: IBM 1401

## 3rd Generation (1964–1971)

- Technology: Integrated Circuits

- Much smaller and efficient
- Example: IBM 360

## 4th Generation (1971–Present)

- Technology: Microprocessors
- Personal computers developed
- Examples: Apple I, IBM PC

## 5th Generation (Present & Future)

- Technology: AI, Quantum Computing
- Smart devices
- Example: AI robots, quantum processors

## Test

Show the prototype layout to students:

- Do they understand each generation?
- Are the differences clear?
- Is the display simple and interesting?

## Final Output (Student Understanding)

Students will learn:

- How technology evolved from vacuum tubes to AI ?
- Why modern computers are faster, smaller, and smarter ?
- How innovation improves performance across generations ?

**Next Topic:**  
**Classification of Computers**

