History Of Computers

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History Of Computers: Generation, Classification of Computers

In this topic, we are going to see about History of Computers, studying the evolution of computers from the beginning till the current developments of computers with advanced technologies. The history of computers began with primitive designs in the early 19th century and changed the world during the 20th century. This article contains about computers and their evolution from the basic models to our daily using advanced computers and how it become a part of human life. And also the evolution of how computers and their technologies are changed into different forms of devices that are helping everyone in daily uses. This topic is an important topic for the candidates who are all preparing for competitive exams. It helps us understand the growth and progress of technology through the times.

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Definition Of Computers

A computer is an electronic machine the history of computer devices begins with the birth of the **abacus** which is believed to be the first computer. A computer might be described as deceptively simple as “an apparatus that performs routine calculations automatically”. A computer is an electronic device that works in inbuilt coding like data and from that, a user can get information after processing the data which the user feeds into the computer. A computer is built up of two main parts which are known as Hardware and Software which are the most essential parts to run a computer system.

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History Of Computers

The history of computers starts with the early stages when computers were not invented from the basic ideologies where people used sticks, stones, and bones as counting tools. After some evolution in mankind, they invented devices like,

Abacus - It’s a wooden rack with metal rods with beads attached to them. The abacus operator moves the beads according to certain guidelines to complete arithmetic computations.

Napier’s Bone - John Napier devised Napier’s Bones, a manually operated calculating apparatus. For calculating, this instrument used 9 separate ivory strips (bones) marked with numerals to multiply and divide. It was also the first machine to calculate using the decimal point system.

Pascaline - Pascaline was invented in 1642 by Blaise Pascal, a French mathematician and philosopher. It is thought to be the first mechanical and automated calculator. It was a wooden box with gears and wheels inside.

Stepped Reckoner (or) Leibniz Wheel - In 1673, a German mathematician-philosopher named Gottfried Wilhelm Leibniz improved on Pascal’s invention to create this apparatus. It was a digital mechanical calculator known as the stepped reckoner because it used fluted drums instead of gears.

Difference Engine - In the early 1820s, Charles Babbage created the Difference Engine. It was a mechanical computer that could do basic computations. It was a steam-powered calculating machine used to solve numerical tables such as logarithmic tables.

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Analytical Engine - Charles Babbage created another calculating machine, the Analytical Engine, in 1830. It was a mechanical computer that took input from punch cards. It was capable of solving any mathematical problem and storing data in an indefinite memory.

Tabulating Machine - An American Statistician – Herman Hollerith invented this machine in the year 1890. The Tabulating Machine was a punch card-based mechanical tabulator. It could compute statistics and record or sort data or information. Hollerith began manufacturing these machines in his company, which ultimately became **International Business Machines (IBM)** in **1924**.

Differential Analyzer - A differential analyzer is an electro-mechanical analog computing device that was used in the early and mid - 20 century for solving equations.

MARK 1 - Harvard Mark 1 is an early proto-computer, built during the period of World War II in the United States. Mark 1 was originally called as "**A**utomatic **S**equence **C**ontrolled **C**alculator" by **IBM** in **1944.**

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Generations Of Computers:

The evolution of computers is classified into five generations in the history of computers.

Generations of Computers	*Generation Timeline*
First Generation	1940s - 1950s
Second Generation	1950s - 1960s
Third Generation	1960s - 1970s
Fourth Generation	1970s - Present
Fifth Generation	The Present and The Future

First Generation of Computers (1940s - 1950s)

- In the history of computers, the first generation was used in the **1940s** to **1950s.**
- These types of computers used vacuum tubes for electricity and magnetic drums for storage.
- These computers were cumbersome and huge and they used low-level programming language and not used operating systems.
- The first generation computers are used for calculation, storage, and control purposes.

Examples of First Generation Computers

ENIAC - Electronic **N**umerical **I**ntegrator and **C**omputer

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EDVAC - Electronic **D**iscrete **V**ariable **A**utomatic **C**omputer

UNIVAC - Universal **A**utomatic **C**omputer

Second Generation of Computers (1950s - 1960s)

- The Second Generation computers are from the years 1959 - 1965, these computers are called **Transistors.**
- In the generation of computers, the high-level programming language is called **FORTRAN, COBOL.**
- The second generation of computers consists of two types of devices: transistors **and magnetic cores.**
- It consumes low power, generates less heat, and is smaller in size with improved speed and reliability compared to the first-generation computers.

Examples of Second Generation Computers

IBM 1620
IBM 7094
CDC 1604
CDC 3600
UNIVAC 1108

Third Generation of Computers (1960s - 1970s)

- The third generation of computers was introduced in the history of computers from the year 1965 and stopped in the year 1971.
- Third-generation computers use integrated circuits in place of transistors.
- This computer is developed by Robert Noyce and Jack Kilby in the year 1958.
- The usage of integrated circuits became reliable, generated less heat, was small in size, fast, had very little maintenance, and was inexpensive.

Examples of Third Generation Computers

IBM-360 Series
Honeywell-6000 Series
PDP (Personal Data Processor)
IBM-370/168

Fourth Generation Of Computers (1970s - present)

- Fourth-generation computers were introduced in 1972 following the third-generation computers that largely used microprocessors.
- These computers used the VLSI (Very Large Scale Integrated Circuits) Technology.

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- VLSI circuits have about 5000 transistors and other circuit elements with their associated circuits on a single chip.
- Fourth-generation computers became more powerful, compact, reliable, and affordable which gave rise to the Personal Computer (PC).

Examples of Fourth Generation Of Computers

DEC 10
STAR 1000
PDP 11
CRAY-1(Super Computer)
CRAY-X-MP(Super Computer)

Fifth Generation Of Computers (The Present and The Future)

- The fifth-generation computers are the present and the future computers of the computer era.
- These types of computers are designed to work much faster, more powerful, and more intelligent than any of their predecessors.
- The fifth generation computers use **Artificial Intelligence** to perform various tasks.
- Japan invented the FGCS in 1982, a type of fifth-generation computer with high computing power that uses microelectronic technology.

Examples of Fifth Generation Of Computers

Examples of the fifth generation of computers

Laptop
Desktop computers
Notebook
Chromebook

Classification Of Computers

The computers are classified in some ways:

- Size - Computers range in size from personal laptops to large mainframe computers.
- Purpose - Computers can be classified as general-purpose, special-purpose, or embedded systems.
- Architecture - Computers can be classified by design elements like input/output systems and memory organization.
- Data management capacity - Computers can be classified as digital, hybrid, or analog.

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- Generation - Computers can be classified by the period of their invention, such as first-generation, second-generation, third-generation, fourth-generation, and fifth-generation.

On the whole

Overall, we have seen the history of computers and their evolution from one time period to another till today their growth, and how it is used in daily work life or personal life. And also we have seen its developments as many versions in it which are being advanced and used in all sectors to help mankind to speed the work and also help to get absolute results at final.

FAQ's

Q. When and who invented the first computer in the history of computer devices?
Blaise Pascal invented the first digital computer in 1642, which could only add numbers entered into dials.

Q. What was the first commercially available general-purpose computer?
The Ferranti Mark I is considered the first commercially available general-purpose computer because it was sold to Manchester University.

Q. What are the most common types of computers?
The most common types of computers are

- Personal computers(PC)
- Laptop: A type of microcomputer
- Smartphone: A type of microcomputer

Q. When and by whom was the first computer mouse invented?
The first computer mouse prototype was developed at SRI in 1964 by Bill English**.**

Q. How many generations of computers are there in the world?
There are **5** generations of computers are there in the world now and the future generations of the **6**th generation are in the idealogy stage.

Q. What is the full form of MOUSE?
The full form of the **MOUSE** is **M**anually **O**perated **U**ser **S**election **E**quipment.

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