# DSB International Public School
Rishikesh
Class VI
Computer Science
L1- COMPUTER STORY

Computers

A computer is basically an electronic machine that can process information. However, the "process" could be anything. For example, it could be the addition or any other arithmetic operation. Otherwise, it could be just the instruction to group a given set of data or to ungroup it. Today's computers have the power to carry out billions of calculations in a second and return results that are very accurate and reliable. How did it all happen? Where did it all start?

Generations of Computers

The computers of today find their roots in the second half of the twentieth century. Later as time progressed, we saw many technological improvements in physics and electronics. This has eventually led to revolutionary developments in the hardware and software of computers. In other words, soon the computer started to evolve. Each such technological advancement marks a generation of computers. Let us begin with the first one.
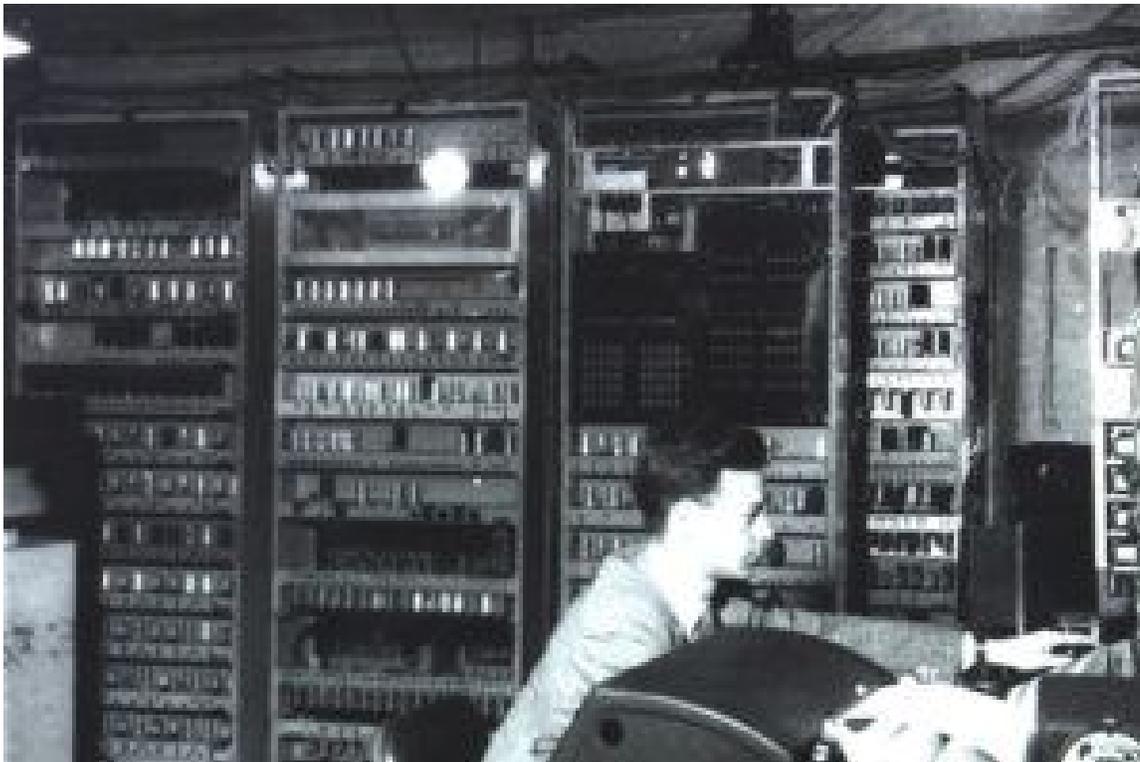
First Generation of Computers

Computers developed between 1946 – 1959, are the first generation of computers. They were large and limited to basic calculations. They consisted of large devices like the vacuum tubes. The input method of these computers was a machine language known as the 1GL or the first generation language. The physical methods of using punch cards, paper tape, and magnetic tape were used to enter data into these computers.

Examples of the first generation computers include ENIAC, EDVAC, UNIVAC, IBM-701, and IBM-650. These computers were large and very unreliable. They would heat up and frequently shut down and could only be used for very basic computations.

Second Generation of Computers

Computers developed between 1959-1965 the second generation computers. These computers were more reliable and in place of vacuum tubes, used transistors. This made them far more compact than the first generation computers. The input for these computers were higher level languages like COBOL, FORTRAN etc. In these computers, primary memory was stored on the magnetic cores and magnetic tape and they used magnetic disks as secondary storage devices.

Examples of the second generation computers include IBM 1620, IBM 7094, CDC 1604, CDC 3600, UNIVAC 1108. As a result, they worked on AC and therefore were faster than their predecessors.

Third Generation of Computers

Computers developed during the period of 1965 – 1971, the third generation of computers. These computers differed from the first and the second generations simply by the fact that a new circuit element like IC's (Integrated Circuits) was used. An integrated circuit is a small device that can contain thousands and thousands of devices like transistors, resistances and other circuit elements that make up a computer. Jack Kilby is credited with the invention of the Integrated Circuit or the IC chips. With the invention of IC's, it became possible to fit thousands of circuit elements into a small region and hence the size of the computers eventually became smaller and smaller.

Examples of the third generation computers include IBM-360 series, Honeywell-6000 series, PDP (Personal Data Processor), and IBM-370/168.

Fourth Generation of Computers

Fourth Generation of computers was between 1971 – 1980. These computers used the VLSI technology or the Very Large Scale Integrated (VLSI) circuits technology. Therefore they were also known as the microprocessors. Intel was the first company to develop a microprocessor. The first "personal computer" or PC developed by IBM, belonged to this generation. VLSI circuits had almost about 5000 transistors on a very small chip and were capable of performing many high-level tasks and computations. These computers were thus very compact and thereby required a small amount of electricity to run.

Examples are STAR 1000, CRAY-X-MP(Super Computer), DEC 10, PDP 11, CRAY-1. This generation of computers had the first "supercomputers" that could perform many calculations accurately.

Fifth Generation of Computers

This is the present generation of computers and is the most advanced one. The generation began somewhere around 1981 and is the present generation of computers. The methods of input include the modern high-level languages like Python, R, C#, Java etc. These are extremely reliable and employ the ULSI or the Ultra Large Scale Integration technology. These computers are at the frontiers of the modern scientific calculations and are used to develop the Artificial Intelligence or AI components that will have the ability to think for themselves.

Examples include: Intel P 4, i 3 – i10, AMD Athlon, etc.

First generation

Second generation

Fifth generation

Fourth generation

Third generation

Generations Name	Technologies	Period
first Generation	(Vacuum tube)	1942-1955
Second Generation	(Transistor)	1955-1964
Third Generation	(Integrated circuit)	1964-1975
Fourth Generation	(Microprocessor)	1975-Present
Fifth Generation	(Artificial intelligence)	Present and Beyond

Classification of computers

Mainframe computers

Computers with large storage capacities and very high speed of processing (compared to mini- or microcomputers) are known as mainframe computers. They support a large number of terminals for simultaneous use by a number of users.

Mini Computer

A minicomputer is a medium-sized computer. That is more powerful than a microcomputer. These computers are usually designed to serve multiple users simultaneously (Parallel Processing). They are more expensive than microcomputers. A minicomputer is a multiprocessing system capable of supporting from 4 to about 200 users simultaneously.

Micro Computer

A microcomputer is a small, relatively inexpensive computer with a microprocessor as its CPU. It includes a microprocessor, memory, and minimal I/O circuitry mounted on a single printed circuit board.The previous to these computers, mainframes and minicomputers, were comparatively much larger, hard to maintain and more expensive. They actually formed the foundation for present day microcomputers and smart gadgets that we use in day to day life. Eg: Tablets, Smartwatches.

Super computers

Supercomputers have extremely large storage capacity and computing speeds which are many times faster than other computers. A supercomputer is measured in terms of tens of millions Instructions per second (mips), an operation is made up of numerous instructions. The supercomputer is mainly used for large scale numerical problems in scientific and engineering disciplines such as Weather analysis.The fastest and most powerful type of computer Supercomputers are very expensive and are employed for specialized applications that require immense amounts of mathematical calculations.

Multiple Choice Questions.

1. First generation computers used:
   a. Transistors   b. ICs   c. Vacuum Tubes   d. Artificial Intelligence
2. Second generation computers used:
   a. Transistors   b. ICs   c. Vacuum Tubes   d. Artificial Intelligence
3. A device that has screen and a keyboard integrated in it is called
   a. Mainframe   b. Microcomputer   c. super Computer   d. Terminal
4. Super computers employ the technique of
   a. Multiprocessing   b. Parallel processing   c. Serial processing   d. None of these
5. Instructions and data from a user is accepted by
   a. Output unit   b. Processing unit   c. Input unit   d. None of these
6. Result is delivered by
   a. Output unit   b. Processing unit   c. Input unit   d. None of these
7. These are two components of CPU
   a. AU and CLU   b. ALU and CU   c. ULA and CU   d. AU and CU

8. The part of CPU which does the actual calculations is called
   a. AU and CLU   b. ALU and CU   c. ULA and CU   d. AU and CU

Write (T) for True and (F) for False, for the following statements.

1. First Generation Computer came into existence after 1980.   …………………….
2. Fifth generation computer be used artificial intelligence.   …………………….
3. Micro computer use microprocessor.   …………………….
4. Minicomputer are now normally referred to as mid-range servers.   …………………….
5. Super Computer are used for calculation intensive tasks such as weather forecasting,
   climate research etc.   …………………….
6. In parallel processing a single processor works on multiple problems.   …………………….
7. The CU does all the logical operations in a CPU.   …………………….
8. The input unit accepts the instructions and data from the users.   …………………….

Fill in the blanks.
(Transistors, Output unit, Fourth, Super Computer, Parallel, Blaise Pascal, First, Param, ICs, CU)

1. …………..……………………….. generation computers used vacuum tubes.
2. …………….………………. Generation computer use microprocessors.
3. Second generation computers used …………………………….…………..
4. Third generation computer used…………………………………….
5. ………………………………….... is an example of first generation computer.
6. ……………………………………………processing is the simultaneous use of more than one CPU to execute a program.
7. …………………………….………… is India's first super computer.
8. …………………………………is used for calculation intensive tasks.
9. The ……………………………. Supplies the converted results to user.

Answer the following question
1. Name the component used in every generation of computers?
2. Write short note on microcomputer, workstation and parallel processing?
3. For what purpose are supercomputers used?
4. Which operations are common for all type of computers? Just name these?