The Computer Generations

Historic Timeline

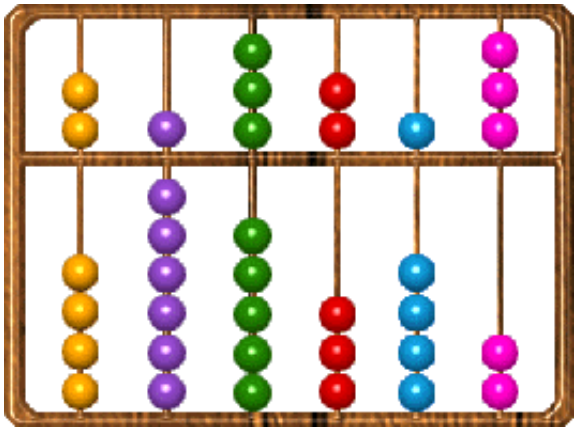
The history of computers is a long one, in which the calculating devices evolved from simple drawings to high-speed electronic networked super computers. The Computer Generations provides framework for the growth of the computer industry.

Each generation has been discussed below in detail.

- **Abacus**
- **Punch Cards**
- **Electronic Digital Computers**
- **Transistor**
- **Microprocessor**
- **Internet**

Abacus:-

- The first (technically) mechanical computer was called the Abacus. It was invented about 2000 years ago.
- The abacus was a wooden rack with beads that represented numbers by the position of beads on a rack. (As you may see in the following image).



- It was used to compute numbers. The 'user' could perform simple mathematical equations, like subtraction or addition by positioning the beads in the rack appropriately.
- While the abacus was a very simple and mechanical calculator, it was the first man made computer.

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Punch Cards:-

A step towards automated computing was the development of punched cards (which are extensively used as input media in modern digital cards) were first successfully used with computers in 1890 by Herman Hollerith and James Powers, who worked for the US. Census Bureau.

They developed devices that could read the information that had been punched into the cards automatically, without human help.

Punched Cards provided a means of I/O, and memory storage on a huge scale. They were one of the first forms of useful memory storage, aside from a brain, or written records.

For more than 50 years after their first use, punched card machines did most of the world's first business computing, and a considerable amount of the computing work in science.

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Electronic Digital Computers

The start of World War II produced a large need for computer capacity, especially for the military. New weapons were made for which **trajectory tables** and other essential data were needed

In 1942, John P. Eckert, John W. Mauchly (left), and their associates at the Moore school of Electrical Engineering of University of Pennsylvania decided to build a high-speed electronic computer to do the job. This machine became known as **ENIAC** (Electrical Numerical Integrator And Calculator).

ENIAC was capable of performing math operations 1000 times faster than any previous machine due to its unique way of determining given equations. The size of ENIAC's numerical "word" was 10 decimal digits, and it could multiply two of these numbers at a rate of 300 per second, by finding the value of each product from a multiplication table stored in its memory.

It is commonly accepted as the first successful high-speed electronic digital computer (EDC) and was used from 1946 to 1955.

- The drawback of this computer was the incredible amount of space and electricity to operate. It used 18,000 vacuum tubes, about 1,800 square feet of floor space, and consumed about 180,000 watts of electrical power.

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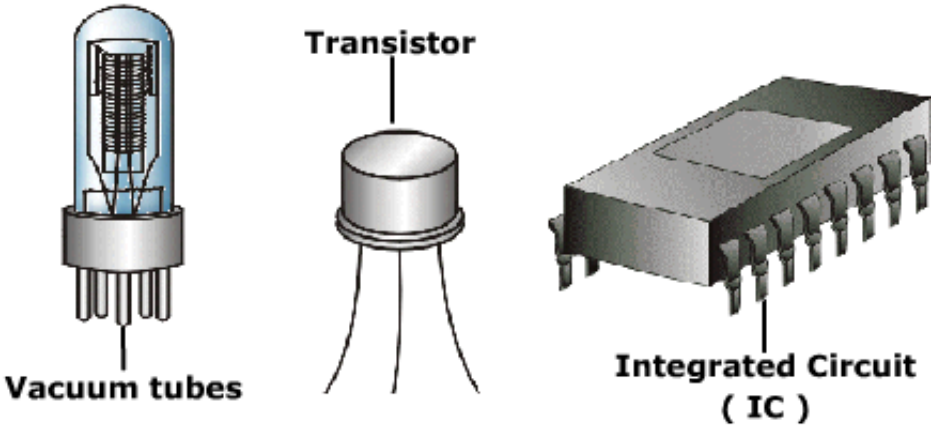
Transistor:-

- In 1959 computers became smaller due to a device called a **Transistor**, which was invented in Bell Labs by J. Bardeen, H.W. Brattain and W. Shockley.
- They replaced the vacuum tubes, and were a lot better because of the fact that they were small, used little energy, and were much faster than their predecessors
- In 1965 the integrated circuit was invented. Circuits were built into a substance called silicon (which is a good (super) conductor of electricity).

This was a big break for the computer industry because now big boards lined with transistors which took up a lot of space were replaced with small boards that reduced the size of computers drastically and made them more reliable, and less expensive



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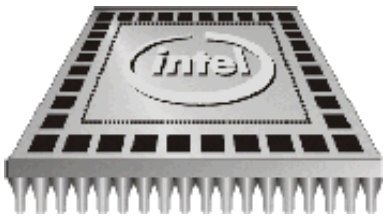
Microprocessor:-

- The Microprocessor was invented in 1971 using integrated circuit technology all of which is still used today.
- The Microprocessor, a small chip, allowed computers to do things that could not have been intended to do with with transistors or silicon boards alone.
- Microprocessors allow computers think more quickly, and think more powerful thoughts. It made computers much faster, and allowed them to do more powerful things.



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Internet:-

In 1969, the Internet started as a project, originally designed by the U.S. Defense Department so that a communication signal could withstand a nuclear war and serve military institutions worldwide. The project was called ARPAnet, and it is what the Internet started as.

ARPAnet

- ARPAnet was a system of linked computer networks, international in scope, that facilitated data communication services such as remote login, file transfer, electronic mail, and newsgroups.

- ARPAnet achieved its network by using a protocol called TCP/IP. The basics around this protocol was that if information sent over a network failed to get through on one route, it would find another route to work with, as well as establishing a means for one computer to "talk" to another computer, regardless of whether it was a PC or a Macintosh.

By definition, **Internet** is a worldwide collection of computer networks that are physically inter-connected.

After software evolution and computer performance boosts, today Internet is in full swing, providing online shopping, learning, gaming and communicating in interactive and amazing ways.

Today, millions of people have access to the Internet, and it's estimated that by 2004, almost all people in the world will have some way to access to Internet.