

HISTORY OF COMPUTER

MECHANICAL CALCULATING DEVICES

Early Development of Computer: Mechanical Calculating Devices

Abacus



It is the first counting device, developed by Chinese and Egyptians, 2500 years ago. It performs mathematical concepts and arithmetical operations. It is a rectangular box, divided into two parts by mid bar, upper part is called heaven, consists of two beads and each bead equal to value 5 and lower part is called earth, consists of five beads and each bead equals to value 1. While calculating, beads are brought near to the mid bar.

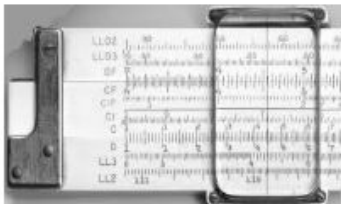
Napier's bones



Another interesting invention is Napier's bones, a clever multiplication tool invented in 1614 by mathematician John Napier of Scotland. The bones are a set of vertical rectangular rods, each one divided into 10 squares. John Napier is also the inventor of logarithms, a concept used to change multiplication into addition. Napier's bones were very successful and were widely used in Europe until mid-1960's. It is mainly used for multiplication table.

A
G

Slide Rule

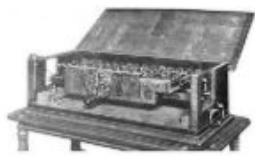


The Slide Rule is an analog device for performing mathematical computations. The first slide rule was created by a British mathematician, William Oughtred in 1620. His device was based on the logarithmic scale created by British astronomer, Edmund Gunter in 1620, Gunter's work, in turn, was based on the principal of logarithm set forth by Scottish mathematician John Napier in 1614. A simple slide rule consists of two graduated scales, one of which slips upon another. The scales are devised in such a way that suitable alignment of one scale against the other makes it possible to obtain products,

Pascaline



Blaise Pascal had a father who was an overworked and harassed tax commissioner. The young Pascal developed a mechanical calculator to help him with his work. Pascal started to build it in 1632 when he was 19 and three years later he had developed a machine called Pascaline. In this machine, numbers were entered by dialling a series of numbered wheels, which were toothed wheels. Each wheel is printed with the numbers from 0 to 9. When the first wheel made a completed turn from 0 to 9, it automatically caused the second wheel to advance to the next number and so on. It could add and subtract by the movement of wheels. The number of calculating the capacity of Pascaline was 9, 99, 999, and 999. It could not be used for division and multiplication.



Stepped Reckoner

Stepped Reckner is a calculating device developed by Gottfried Wilhelm Von Leibnitz in 1671. It was modified to produce higher efficiency and was based on pascal's principle. The stepped Reckoner could multiply, add, subtract and even find square roots.

Charles Babbage

Charles Babbage was born on December 26, 1791 A.D in Britain. He was a professor at Cambridge University. He developed two engine. They are difference engine and analytical engine. He is known as father of a computer.

Difference Engine

Charles Babbage in 1823 developed difference engine. Difference engine was first programmable machine ever made. This device was used for solving differential equations. This device has different sections for input, output and storage media. The machine can give results and process it. There are different parts of the engine:

- Input
- Mill (processing)
- Memory
- Output (Results)

Analytical engine

Charles Babbage developed this device in 1833. This machine used the binary digit concept. This machine was designed to solve up to 20 decimal places but due to mechanical difficulties it was never completed. This device was also an automatic calculator.

Lady Augusta Ada Lovelace

Lady Ada suggested using binary numbers instead of decimal number in Analytical Engine. Lady Ada also wrote a program to be used in Analytical Engine. She is also known as the "First Programmer" in the history of computer science because this was the first program ever written.

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Tabulating Machine



The first person to use punched card practically is Dr. Herman Hollerith. Using the punched card, he developed the tabulating machine or census machine which proved to be very efficient. In 1896, he also established Tabulating Machine Company (TMC). He later founded the International Business Machine Company by merging it with other companies in 1933.

ELECTRO MECHANICAL COMPUTERS



MARK-I

It is the first electro-mechanical computer developed by Howard Aiken in 1937. The machine was 5ft long, 3ft wide and 8ft high and used in 18000 vacuum tubes. The machine took 1 second to perform 3 mathematical calculations.



Atanasoff-Berry Computer (ABC)

In 1942, J.V. Atanasoff and Clifford Berry developed Atanasoff-Berry computer. It was developed to solve the simultaneous equation.



ENIAC (Electronic Numerical Integrator and Calculator)

In 1946, this machine was developed by John Mauchly and J. Presper Eckert. It used decimal number system for calculation. This machine can calculate 300 times faster than any other machine of that time. This machine was used in the military operation for firing ballistic missiles.



EDSAC (Electronic Delay Storage Automatic Computer)

This machine was developed by Maurice Wilkes and his team in 1949. It had 3000 vacuum tubes and consumed 30KW of electric power.



EDVAC (Electronic Discrete Variable Automatic Computer)

This machine was developed by John Mauchly, John Presper Eckert with the assistance of John Von Neumann in 1952. This machine was the first machine that could store programs in it with the help of binary digits.



UNIVAC (Universal Automatic Computer)

This machine was first developed by John Mauchly and J. Presper Eckert in 1951. This was the first computer developed for commercial use.



The computer was introduced in Nepal in 2028 B.S. It was introduced by His Majesty's Government for the population census of 2028 B.S. This was the second generation computer called IBM 1401. In 2039, B.S. microcomputer such as Apple, vector sins etc was imported by private companies and individuals. Nowadays, computers with faster processing and larger storage are found cheaply in Nepalese market. At present, Computer Association of Nepal (CAN) is the governing body of Nepal's computer field.