

History of Computers

- 1) Mechanical Devices – Counting and Calculating (Abacus, Napier's bones, Slide Rule, the Pascaline, Leibnitz's Calculator – The Stepped Reckoner, Analytical Engine, Difference Engine, Dr. Herman Hollerith & his Tabulating Machines,
- 2) Electro Mechanical Computers → Mark I, Z3 Computer
- 3) Electronic Computers → ABC, ENIAC, EDVAC, EDSAC, UNIVAC

1) Tally Sticks

A tally stick was an ancient memory aid device to record and document numbers, quantities, or even messages.

2) Abacus

- 1) ABACUS was the **first mechanical calculating device.**
- 2) Abacus is a Latin word that has its origins in the Greek words Abax or Abakon (meaning "table" or "tablet")
- 3) The word ABACUS means calculating board.
- 4) An abacus is used to aid an individual in performing mathematical calculations.
- 5) The abacus was invented in Babylonia in 2400 B.C.
- 6) The abacus in the form we are most familiar with was first used in China in around 500 B.C.
- 7) It used to perform basic arithmetic operations.
- 8) Thus Abacus is essentially a memory aid rather than truly a calculating device

3) Napier's Bones

- 1) Invented by an English mathematician John Napier in 1614.
- 2) Allowed the operator to multiply, divide and calculate square and cube roots to the rule of Logarithm, by moving the rods around and placing them in specially constructed boards.

3) Slide Rule

- 1) Invented by William Oughtred in 1622.
- 2) Is based on Napier's ideas about logarithms.
- 3) Used primarily for – multiplication, division, roots, logarithms, Trigonometry
- 4) Not normally used for addition or subtraction

5) Pascaline

- 1) Invented by Blaise Pascal in 1642. called Pascals Calculator
- 2) the first mechanical adding machine or **first mechanical Calculator.**
- 3) It was its limitation to addition and subtraction.
- 4) It is too expensive.

5) Stepped Reckoner (Leibnitz's Calculator)

- 1) Invented by Gottfried Wilhelm von Leibniz in 1672. improved Pascal's adding machine and made Stepped Reckoner.
- 2) This is the first digital mechanical calculator
- 3) This machine can perform all four basic arithmetic operations – add, subtract, multiply and divide. automatically

6) Jacquard Loom

- 1) The Jacquard loom is a mechanical loom, invented by Joseph-Marie Jacquard in 1881.
- 2) It an automatic loom controlled by punched cards.

7) Arithmometer

- 1) A mechanical calculator invented by Thomas de Colmar in 1820,
- 2) The first reliable, useful and commercially successful calculating machine.
- 3) The machine could perform the four basic mathematic functions.
- 4) The first mass-produced calculating machine.

8) Difference Engine and Analytical Engine

- 1) It an automatic, mechanical calculator designed to tabulate polynomial functions.
- 2) Invented by Charles Babbage in 1822 and 1834 • It is the first mechanical computer
- 3) the Difference Engine considered to be the first automatic computing machine.
- 4) In 1837, Charles Babbage proposed the first general purpose mechanical computer, the Analytical Engine.

Unfortunately, because of funding issues, this computer was also never built while Charles Babbage was alive. In 1910, Henry Babbage, Charles Babbage's youngest son, was able to complete a portion of this machine and was able to perform basic calculations

INTERESTING FACT:- Babbage conceived of a computer 100 years earlier. Howard Aikin builds the first computer Mark I based on Babbage's idea in 1944. so Charles Babbage is considered the father of computers.

9) First Computer Programmer

- 1) In 1840, Augusta Ada Lovelace suggests to Babbage that he use the binary system.
- 2) She writes programs for the Analytical Engine. She was known as **enchantress of numbers** (সংখ্যা জাদুকর)
- 3) Ada is the daughter of Lord Byron, a famous English poet.
- 4) US Defence developed a programming language and named it ADA to honour her contribution

10) Scheutzian Calculation Engine

- 1) Invented by Per Georg Scheutz in 1843.
- 2) Based on Charles Babbage's difference engine.
- 3) The first printing calculator.

11) Tabulating Machine

- 1) Invented by Herman Hollerith in 1890.
- 2) Hollerith was successful in designing a machine that could accept input through punched cards and process it electronically. That's why he is considered to be the First man to use punched cards practically for the first time.
- 3) To assist in summarizing information and accounting

INTERESTING FACT: Punched cards were originally invented by Joseph Jacquard, a textile manufacturer. He used them to automate the weaving loom. These cards were later used by Charles Babbage in his design of Analytical Engine and Herman Hollerith practically used them for the first time in his Tabulating Machine.

12) Z1

- 1) The first electromechanical binary programmable computer, and the first really functional modern computer.
- 2) Created by Konrad Zuse in Germany from 1936 to 1938.
- 3) To program the Z1 required that the user insert punch tape into a punch tape reader and all output was also generated through punch tape.

13) Turing machine

- 1) The Turing machine was first proposed by Alan Turing in 1936.
- 2) First concepts of what we consider a modern computer
- 3) The machine was a device that printed symbols on paper tape in a manner that emulated a person following a series of logical instructions. Without these fundamentals, we wouldn't have the computers we use today.

14) Atanasoff-Berry Computer (ABC)

- 1) It was the first electronic digital computing device. ABC is a special purpose computer and not programmable computer.
- 2) Invented by Professor John Atanasoff and graduate student Clifford Berry at Iowa State University between 1939 and 1942.

It is the ABC that first implements the three critical features of modern computers:

- i. Using binary digits and Boolean logic to represent all numbers and data
- ii. Performing all calculations using electronics rather than wheels, ratchets, or mechanical switches
- iii. Organizing a system in which computation and memory are separated.

15) Harvard Mark 1

- 1) Also known as IBM Automatic Sequence Controlled Calculator (ASCC).
- 2) Invented by Howard H. Aiken in 1943
- 4) The first electro-mechanical computer.

16) Colossus

- 1) developed by Tommy Flowers, and was first demonstrated in December 1943.
- 5) The first electric programmable computer
- 2) The Colossus was created to help the British code breakers read encrypted German messages.

17) ENIAC

- 1) ENIAC stands for Electronic Numerical Integrator and Computer or Calculator.
- 2) It was the first general-purpose electronic computer.
- 3) Developed by John Presper Eckert and John W. Mauchl.in 1946.

18) SSEM

- 1) SSEM (Small-Scale Experimental Machine), also known as the "Baby" or "Manchester Baby,"
- 6) The first stored program computer
- 2) It was designed by Frederic Williams, in 1948.