History of Computer (In Hindi)

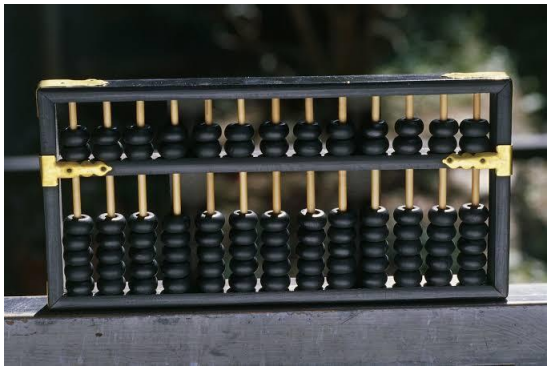
कंप्यूटर का इतिहास (हिंदी में)

FROM 5000 BC

Tally stick

1. First Computing Device.
2. Tally sticks are useful for maintaining records such as **Document numbers, messages and quantity of documents** etc.
3. Tally sticks first appear as **animal bones** carved with notches during the Upper Palaeolithic; a notable example is the **Ishango Bone.**
4. Historical reference is made by **Pliny the Elder** (AD 23–79) about the best wood to use for tallies.

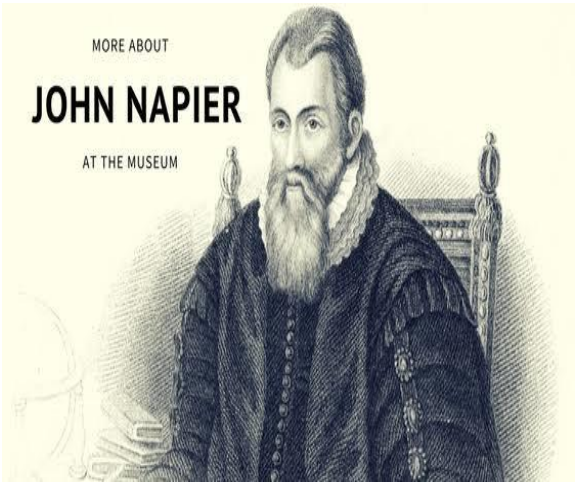
Abacus



1. First **Mechanical computing device** that is useful for **mathematical calculation.**
2. It was invent in **2400 BC in Babylonia.**
3. It was used first in **500 BC in China.**

4. Modern abacus are useful for solving arithmetic problems. It helps to increase the grasping power of mind.

John Napier's Bone

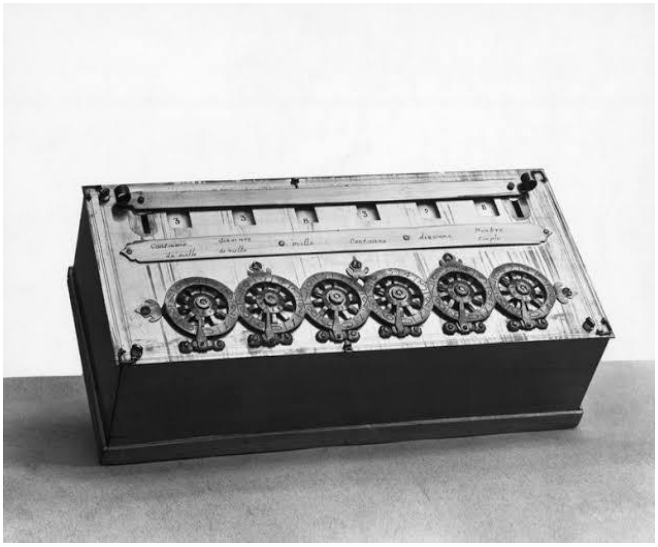


1. **John Napier** develop a manually calculating device in **1617 named John Napier's Bone**.
2. It was very useful in the area of **Mathematics and Technology.**
3. It performs **Multiplication, divide, square and cube roots.**
4. As in in the figure it has a base board has a Rim. We can perform the operations by keeping the rods in the rim.

Slide Rule

1. In 1620, a german mathematician named **William Oughtred** invented as machine named **Slide rule.**
2. Slide rule is a **mechanical analog computer** that is capable to perform **multiplication, division, exponents, roots, logarithms and trigonometric calculations.**
3. **Typically not perform addition and subtractions.**
4. In its most basic form, the slide rule uses two logarithmic scales to allow rapid multiplication and division of numbers.

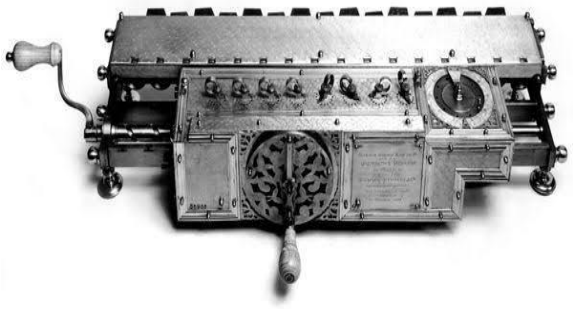
Pascaline/Pascal's Calculator



1. In 1642, A French Mathematician **Blaze Pascal** invented a **mechanical calculator named Pascaline or Pascal's calculator.**

2. He designed the machine to **add and subtract two numbers directly** and to perform **multiplication and division through repeated addition or subtraction**.
3. Pascal's calculator was especially successful in the design of its **carry mechanism,** which adds 1 to 9 on one dial, and carries 1 to the next dial when the first dial changes from 9 to 0.

Stepped Reckoning Machine

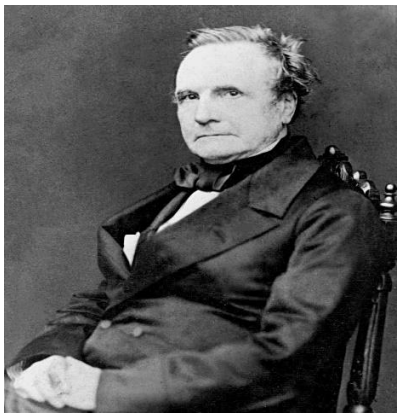


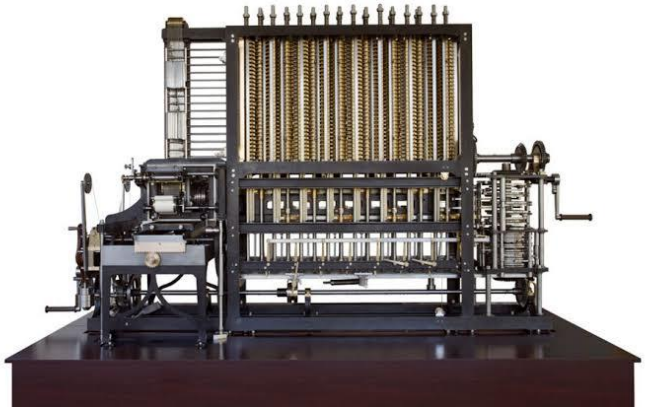
1. The step reckoner was a **digital mechanical calculator** invented by the **German mathematician Gottfried Wilhelm Leibniz** around **1672 and completed in 1694.**
2. The stepped reckoner was based on a **gear mechanism** that Leibniz invented and that is now called a Leibniz wheel.
3. It was the first calculator that could perform **all four arithmetic operations and roots** also.

Arithmometer

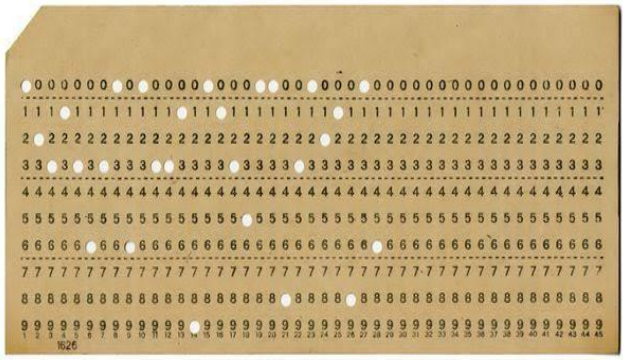
1. The Arithmometer was Patented in France by **Thomas** in 1820 and manufactured from 1851 to 1915.
2. The Arithmometer was the **first digital mechanical calculator strong enough and reliable enough to be used daily in an office environment.**
3. It can perform all four arithmetic operations.

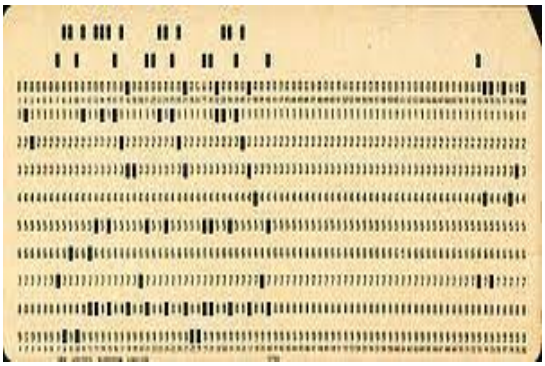
Difference Engine





1. In 1823, **Sir Charles Babbage** who was a Mathematician in Cambridge University invented Difference Engine/Charles babbage's Machine which is capable to perform many toughest calculations.
2. **Punch Card** was used in this for storing the data.



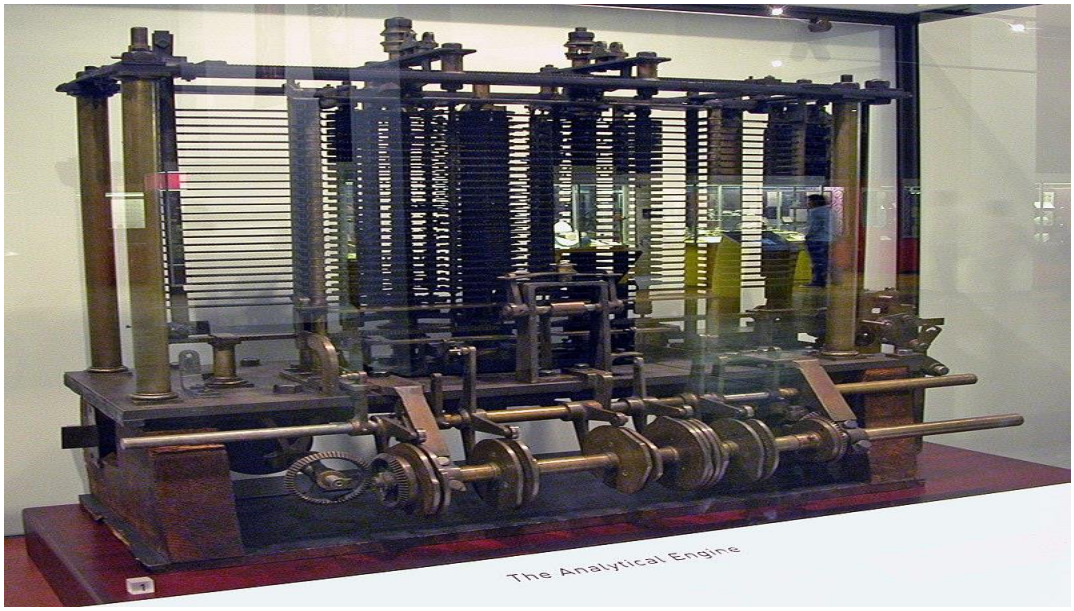


Punch cards also known as **Hollerith cards or IBM cards**, are paper cards in which holes may be punched by hand or machine to represent computer data and instructions. They were a widely-used means of inputting data into early computers.

3. A **difference engine** is an **automatic mechanical calculator** designed to **tabulate polynomial functions.**
4. Its name is derived from the method of **divided differences,** a way to **interpolate or tabulate functions** by using a small set of **polynomial coefficients**. Most **mathematical**

functions commonly used by **engineers, scientists and navigators**, including **logarithmic and trigonometric functions**, can be **approximated by polynomials,** so a **difference engine** can compute many useful **tables of numbers.**

Analytical Engine



1. In 1837, the Analytical Engine was a proposed **mechanical general-purpose computer** designed by **English mathematician and computer pioneer Charles Babbage.**
2. It has Arithmetic Logical Unit (ALU) and Memory storage.
3. With success of the two computer, Charles becomes the **father of computer.**
4. Analytical Engine has four working steps- Input, output, ALU and Memory.

5. **Lady ADA Lovelace** a **Mathematician** develop a **number system for this computer i.e. Binary Number System.**
6. **ADA language is on her name.**

7. **ADA develop first program for the computer so Lady ADA Lovelace is called first computer programmer.**

This was in approximately 1840.

Generations of Computers

After that, in 19th Century **Electric Computer** comes in existence in which **Capacitors, Diode, Resistors, Vacuum tubes** etc. was being used.

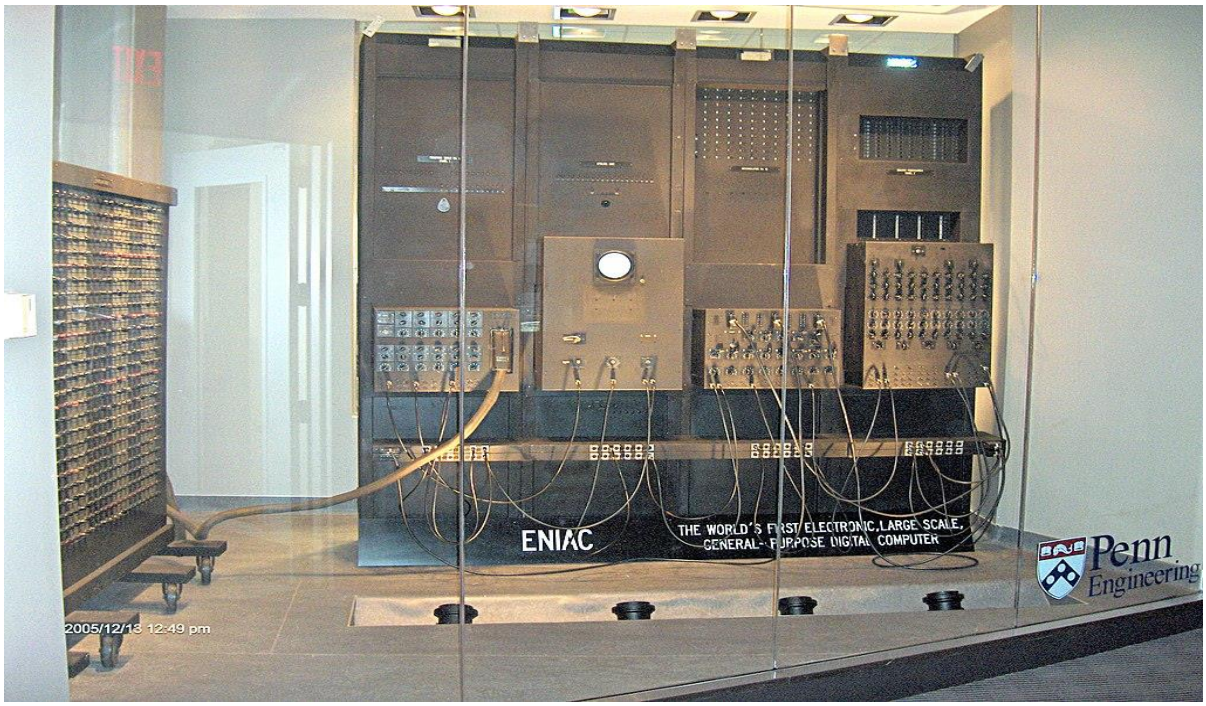
The computers has divided into 5 generations.

First Generations of Computers (1942-1955)

1. **Vacuum tube** was the main hardware components in the computers of this generation.
   As in the above picture, a vacuum tube, is a device that controls **electric current flow** in a **high vacuum between electrodes** to which an electric potential difference has been applied. Which can be used for controlling switches, rectifiers, amplifiers, oscillators etc.

2. **Machine language and binary number systems** were used.
3. These computers was: -
   1. Bigger in size and cost highly.
   2. Consume energy in big amount and perform processing very slowly.
   3. Generate Heat and become hot.
   4. Used for scientifically only
   5. Required to keep in AC Rooms.

4. ENIAC – **Electronic Numerical Integrator and Computer** was one of the computers of this generation.

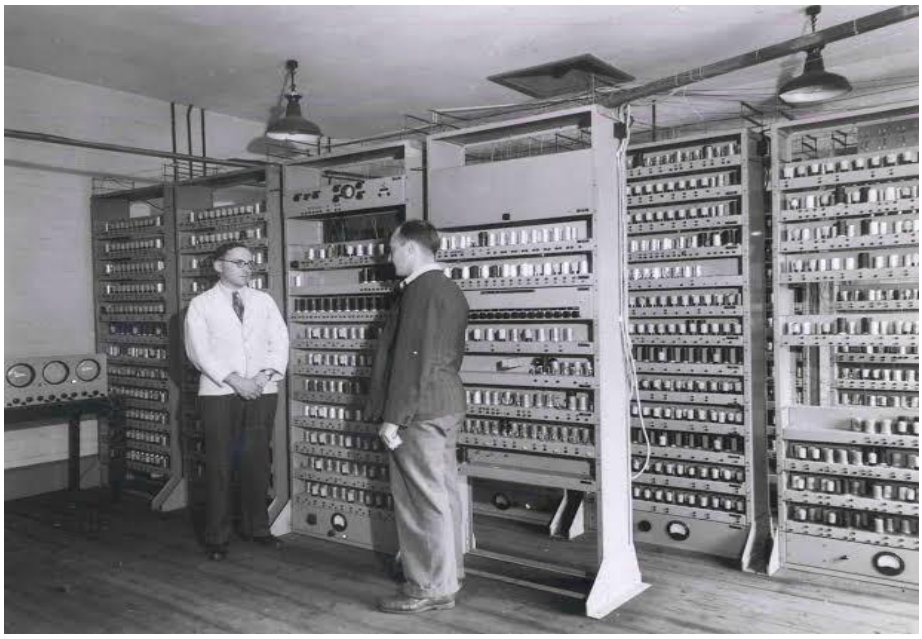


ENIAC was made up with 20,000 Vacuum tubes, 7200 Crystal diode, 1500 relays, 70,000 Resistors, 10,000 capacitors and 5 crore hand soldered joints.

ENIAC was invented **by John Presper Eckert and John W. Mauchle**.

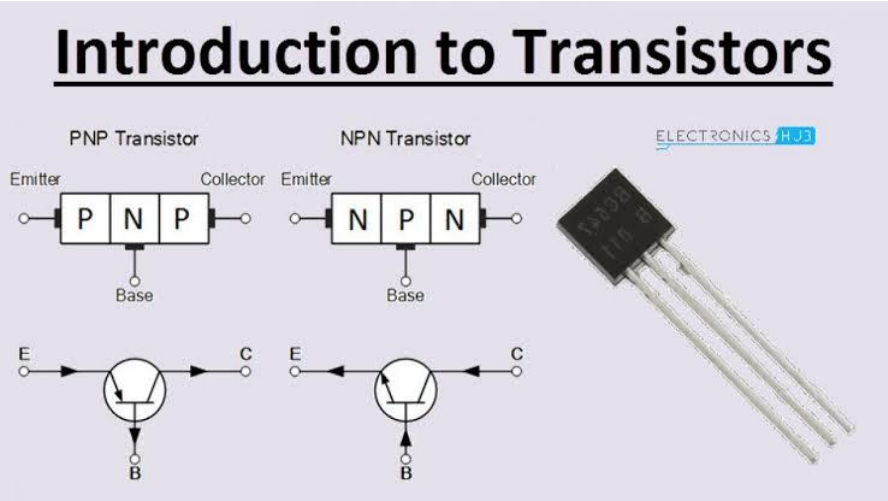
5. **UNIVAC – Universal Computer.**

6. **EDVAC – Electronic Discrete variable automatic computer.**



Second Generations of Computers (1955-1964)

1. The main hardware component in these computer was **transistors.**



As in the picture these are the transistor works same has vacuum tubes and these are so **smaller and cheaper than vacuum tubes**.

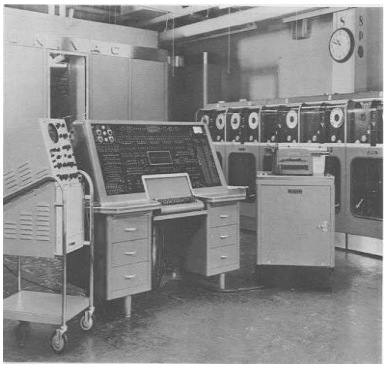
2. **Magnetic cores** were used for **Primary memory** and **Magnetic tape and disc** for **secondary memory.**
3. High level languages such as **FORTRAN, COBOL** were used.
4. These computer was: -
    1. Smaller and cheaper than the First generation's computers

2. Consume lesser energy than the First generation's computers.
3. Process faster than the First generation's computers.
4. Generate Heat and become hot.
5. Used for scientifically only
6. Required to keep in AC Rooms.

Example: -

IBM-7094

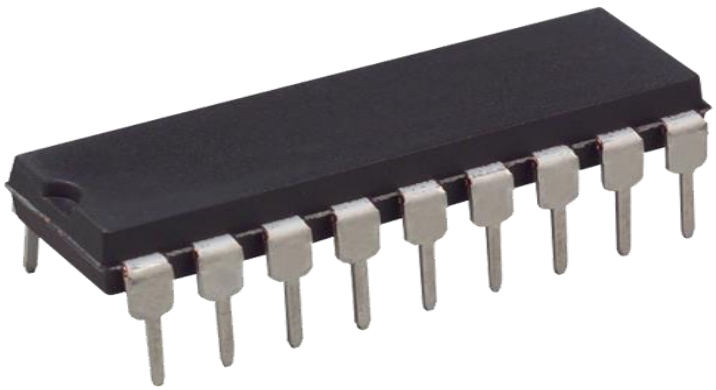
CDS-1604



UNIVAC-LARC

Third Generations of Computers (1965-1975)

1. The main hardware component in these computer was **IC (Integrated Circuit).**



An integrated circuit is a set of electronic circuits on one small flat piece of semiconductor material that is normally **silicon.** The integration of large numbers of **tiny MOS transistors** into a **small chip** results in this **circuits** that are orders of magnitude smaller, faster, and less expensive than those constructed of discrete electronic components.

2. By Using IC in place of Transistors computer become smaller, faster and cheaper than the computer of Second Generation.
3. Multiprogramming operating systems, high level languages such as FORTRAN, COBOL, BASIC, Pascal etc. were used in these computer.

4. Computer of this generation was: -
    1. Smaller and cheaper than the second generation's computers.
    2. Consume lesser energy than the second generation's computers.
    3. Process faster than the second generation's computers.
    4. Generate lesser Heat and take time to be hot.
    5. Used for scientifically only
    6. Required to keep in AC Rooms.

Example: -

IBM-360/370

CDC-6000

PDP-8/11

Fourth Generations of Computers (1975-1989)

1. The main hardware component in these computer was **LSI – Large Scale Integration** and **VLSI –Very Large Integration.**

Large-scale integration (LSI) is the process of integrating or embedding thousands of transistors on a single silicon semiconductor microchip.

Very large-scale integration is the process of creating an integrated circuit by combining millions of MOS transistors onto a single chip.

2. Microcomputer and Personal Computer does exist in this generation.
3. Time sharing, Real time networking and distributed operating system are being used.
4. These computer was: -
    1. Small because of large integration in hardware.
    2. Cheap and portable
    3. Consume less energy and works fast.
    4. Heat generation become nil but require to keep in AC Rooms.
    5. Used for Commercial, Scientific and general purpose also.

- MS-DOS and MS-Window software was used in these computer.
- Use of microprocessor also started.
- GUI – Graphical User Interface base operating system and High level languages such as C, C++ and DBASE etc. were used.
- The computers are accurate, reliable, diligent and versatile.
- External storage such as CD-ROM and DVD-ROM become exist.

Fifth Generations of Computers (1989-till)

1. The main hardware component in these computer was **ULSI – Ultra Large Scale Integration.**

Ultra large scale integration (ULSI) is the process of integrating or embedding millions of **transistors on a single silicon semiconductor microchip**. ULSI technology was conceived

during the late 1980s when superior computer processor microchips, specifically for the Intel 8086 series, were under development.

2. **Super Conductor** and **Parallel Processing** were used in these computer**.**
3. **GUI** based operating systems with high level languages such as JAVA, Python, C languages etc. were used.
4. These computers are: -
    1. Portable and multipurpose
    2. Powerful
    3. Cheap and fast
5. Voice recognition, video conference and money transfer etc. facility.

Example: -

Pentium PC, PARAM series, Sun Workstations, Laptop, Palmtop, Notebook etc.

Thanking you