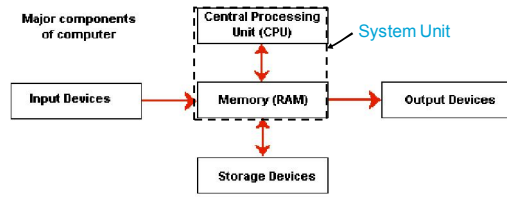


History of Computers

Maninder Kaur
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What is a Computer?



A computer is an *electronic machine* that can be programmed to *accept data (input)*, *process* it into *useful information (output)*, and *store* it in a *storage* media for future use.

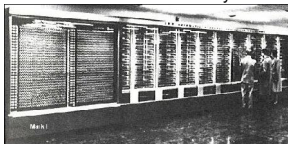
History & Evolution



Difference Engine

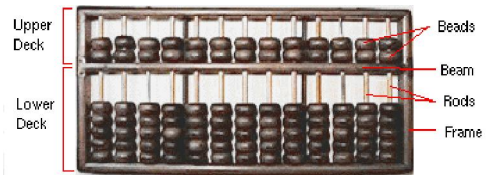


1944 MARK I
Howard Aiken at
Harvard University



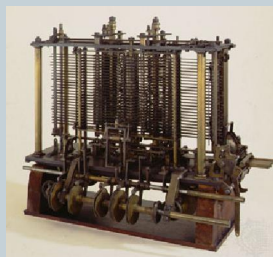
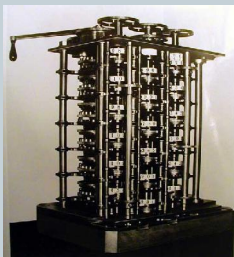
- [Abacus](#)
- [Mechanical Calculator](#)
- [Analytical Engine](#)
- **1951 - UNIVAC1**
first **commercial** computer
- **1954 - Hewlett and Packard**
Met and setup shop in
Garage at Silicon valley

Abacus



Difference Engine

Analytical Engine

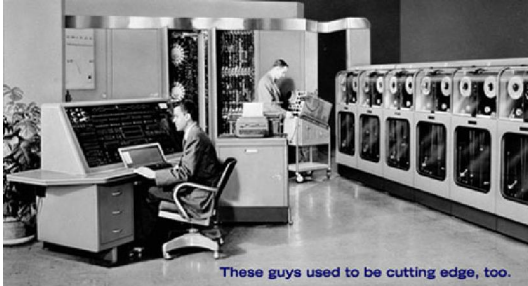


Mechanical Calculators



UNIVAC 1

7



These guys used to be cutting edge, too.

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1969 – Internet was founded

1976
Apple



1989 – WWW
Invented by
Tim Berners-Lee

1975 – Microsoft Founded
Bill Gates with Paul Allen



1981-IBM PC
PC was introduced.



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1994 – Netscape
Founded by
Jim Clark and Marc Andreessen



Many more....

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Computer Generations

1. 1st Generation
2. 2nd Generation
3. 3rd Generation
4. 4th Generation
5. 5th Generation

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1ST GENERATION (1944 - 1958) VACUUM TUBES

- Used thousand of vacuum tubes
- They were fastest calculating devices.
- Too large in size
- Large amount of heat due to thousands of vacuum tubes, so air conditioning was required
- High power consumption

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1ST GENERATION (1944 - 1958) VACUUM TUBES

- High power consumption
- Frequent hardware failure due to burn out of tubes
- Costly to manufacture and maintain these computers
- The first computer using vacuum tubes was ENIAC

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1ST GENERATION (1944 - 1958)
VACUUM TUBES



IBM Punched Card (input)



Magnetic Tapes (output)



Vacuum Tubes (memory)

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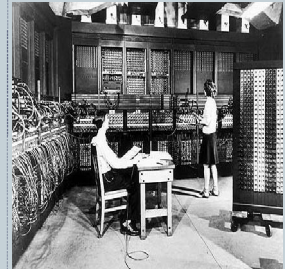
1ST GENERATION (1944 - 1958)

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UNIVAC



ENIAC



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2ND GENERATION (1959 - 1964)
TRANSISTOR

- Use of transistors instead of vacuum tubes
- These transistors were made of solid material, some of which is silicon, therefore they were very cheap to produce
- Easier to use and handle
- No burning out, but hardware failures were still there
- Almost ten times faster than tubes
- Much smaller than vacuum tubes and generate less heat.

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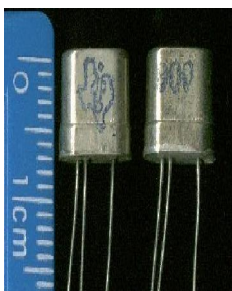
2ND GENERATION (1959 - 1964)
TRANSISTOR

- Less expensive to produce but still costlier
- Produce less heat as compared to tubes but air conditioning was required
- High level programming languages such as FORTRAN, COBOL were used
- Easier to program these computers
- Batch operating system was used

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2ND GENERATION (1959 - 1964)
TRANSISTOR



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3RD GENERATION (1964 - 1970)
INTEGRATED CIRCUIT

- In 1958, Jack St. Clair Kilby & Robert Noyce invented integrated circuits
- IC's consist of several electric components like transistors, resistors and capacitors embedded on a single chip of silicon
- SSI, MSI technology
- More powerful & faster than second generation computers.

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3RD GENERATION (1964 - 1970)

INTEGRATED CIRCUIT

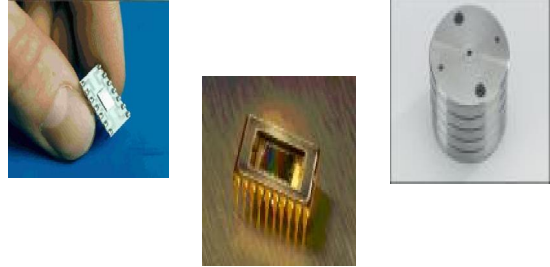
- Smaller in size and require small space for installation
- Require less power and produce less heat but still need proper air conditioning
- Faster and large memory

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3RD GENERATION (1964 - 1970)

INTEGRATED CIRCUIT



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4TH GENERATION (1971- PRESENT)

INTEGRATED CIRCUIT

- Use of IC's with VLSI technology Very Large-scale integrated (VLSI).
- Microprocessors and semiconductor memory
- Larger memory because of larger hard disks and floppy disks and magnetic tapes as portable storage media
- Very less heat hence no air conditioning was required instead fans were used

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4TH GENERATION (1971-PRESENT)

INTEGRATED CIRCUIT

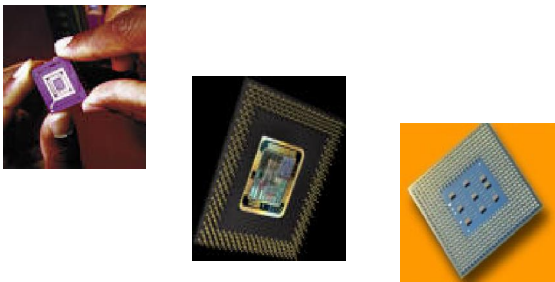
- Graphical User Interface operating systems were used
- Very easy to manufacture & maintain them and cost very less
- Very fast as compared to computers in early generations
- Microprocessors led to the invention of personal computers.

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4TH GENERATION (1971-PRESENT)

MICROPROCESSOR



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5th GENERATION

PRESENT & BEYOND

- IC's based on ULSI technology
- Portable PC's (notebook computers) were much smaller and handy
- Much faster and powerful than computers in earlier generations
- Consume very less power

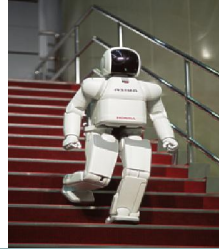
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5th GENERATION PRESENT & BEYOND

- Less costlier and easy to manufacture and maintain
- Newer and more powerful applications make computers more easy to use in every field
- Artificial Intelligence (AI) concerns with making computers behave and think like humans.
- AI studies include robotics, expert systems, games, etc..

5th Generation (Present & Beyond) Artificial Intelligence



THANK YOU