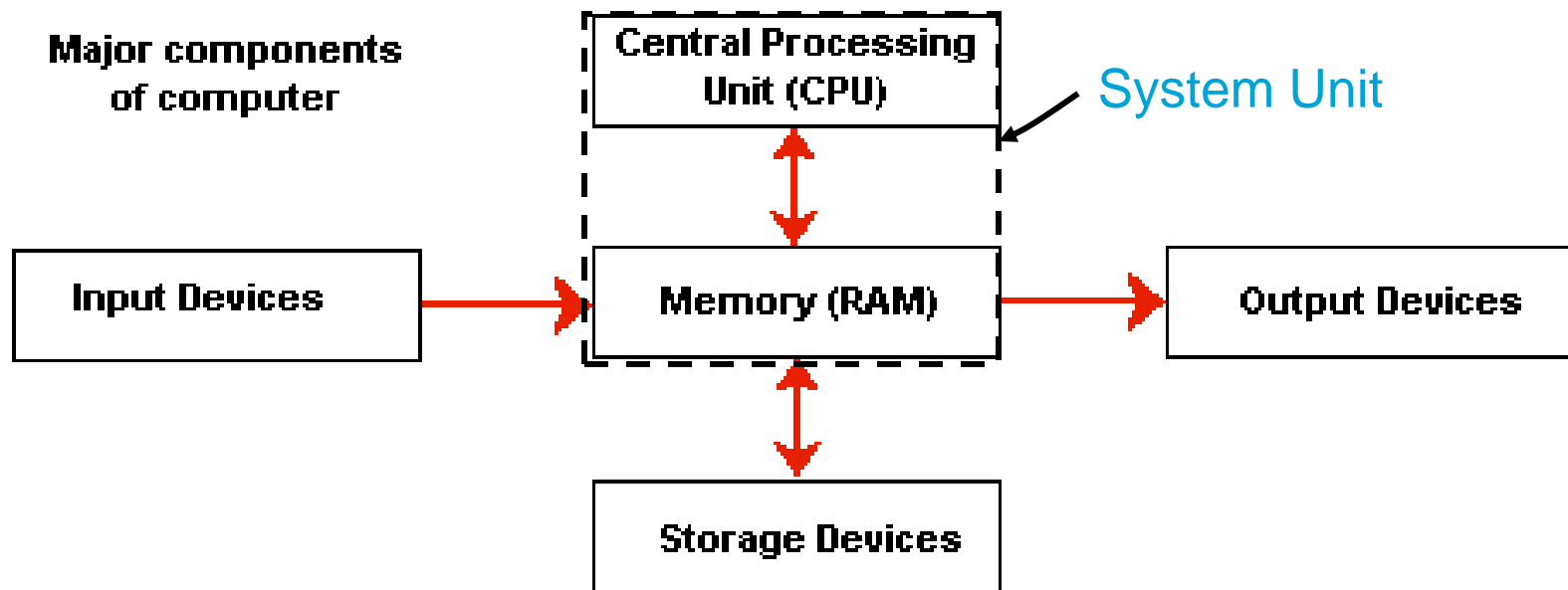


History of Computers

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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.

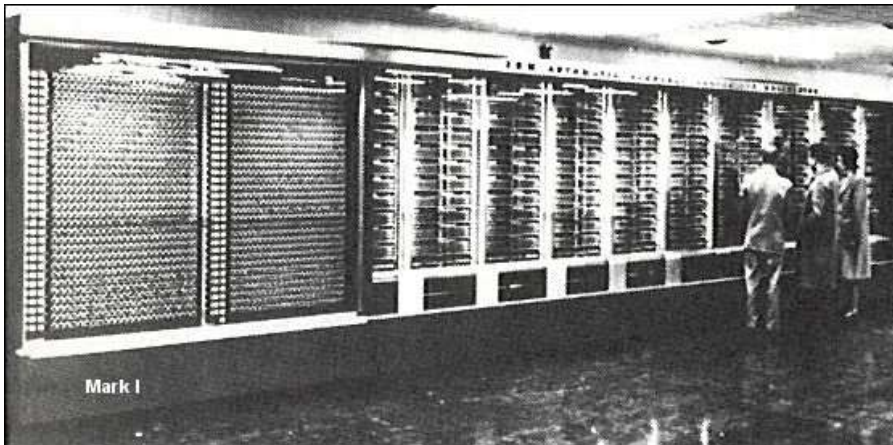
History & Evolution



Difference Engine

1944 MARK I

Howard Aiken at
Harvard University



Abacus

Mechanical Calculator

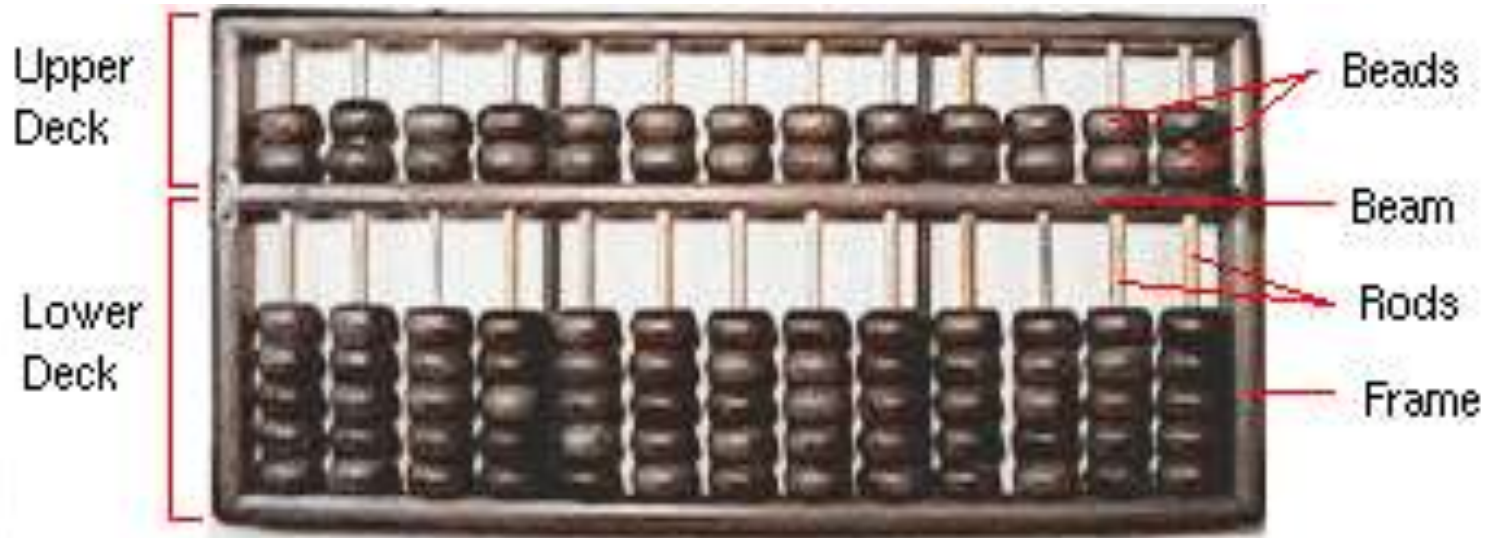
Analytical Engine

1951 - UNIVAC1
first **commercial** computer

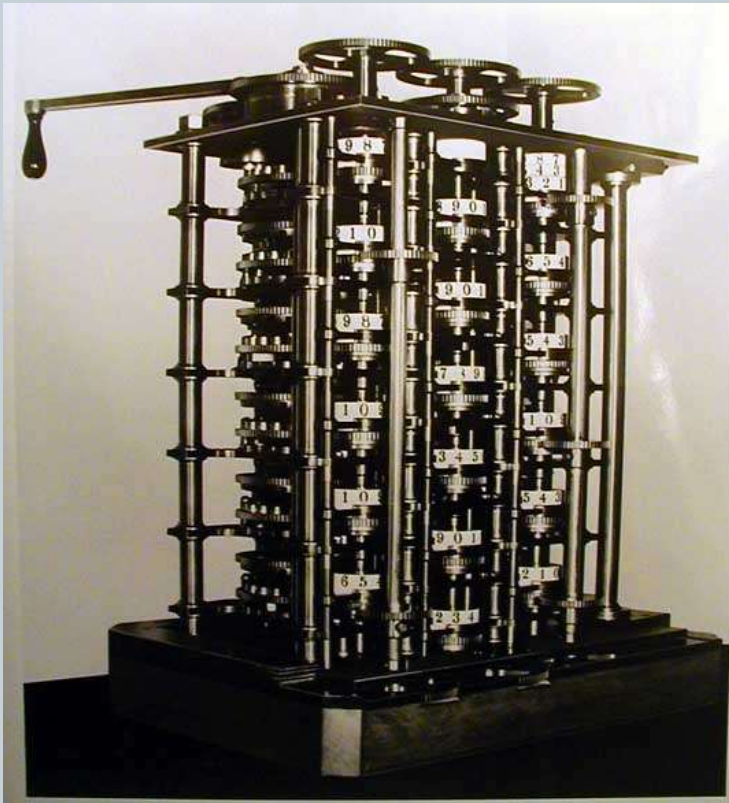
1954 - Hewlett and Packard
Met and setup shop in
Garage at Silicon valley

Abacus

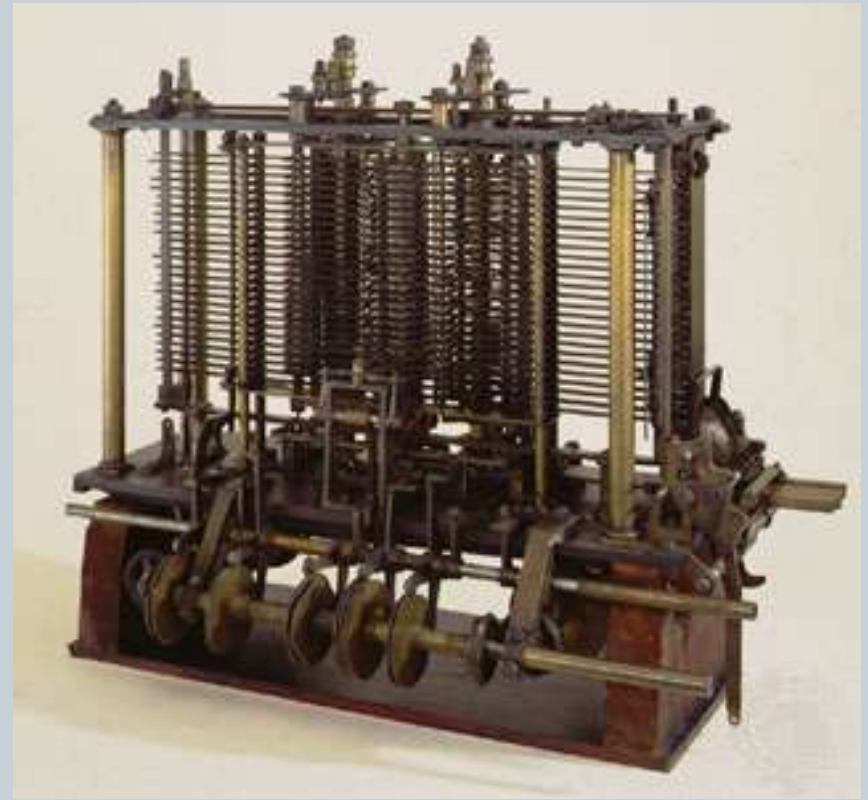
4



Difference Engine

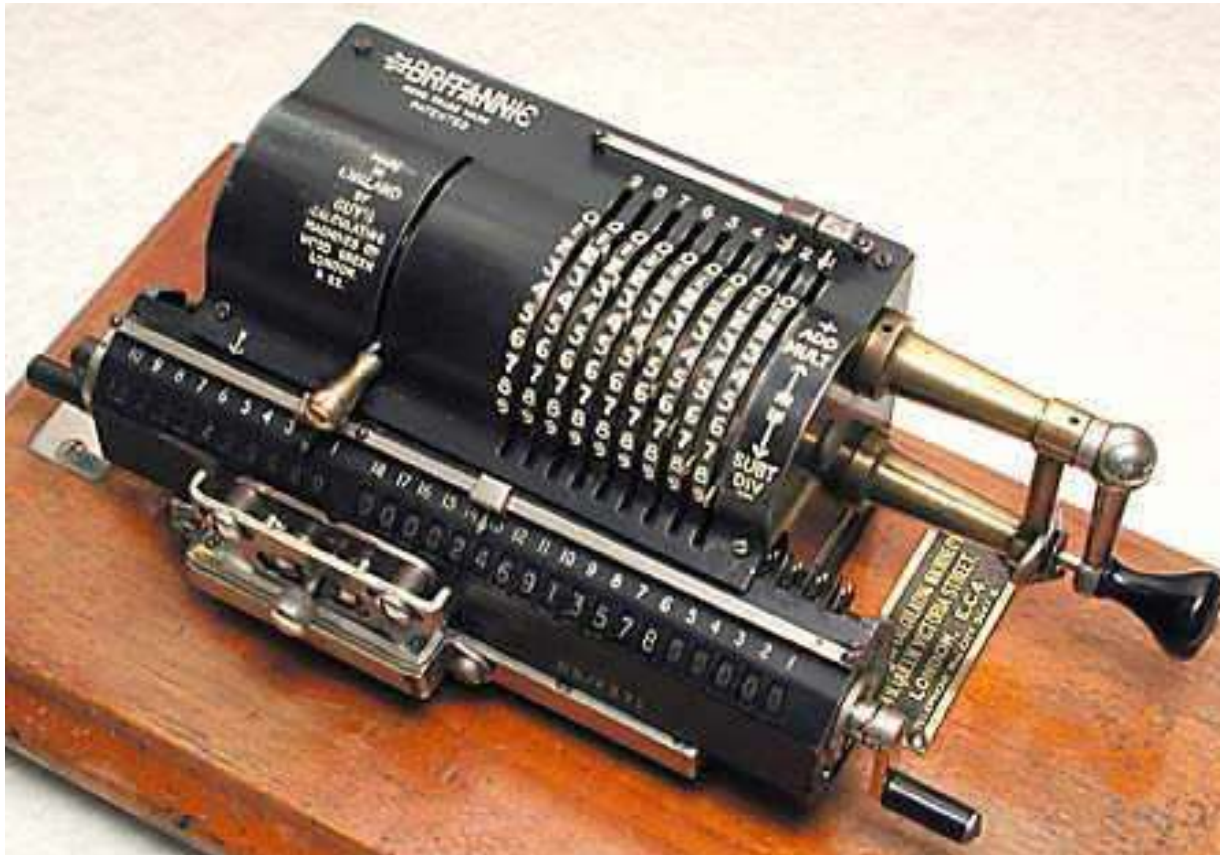


Analytical Engine



Mechanical Calculators

6



UNIVAC 1

7



These guys used to be cutting edge, too.

1969 – Internet was founded

**1976
Apple**



1989 – WWW
Invented by
Tim Berners-Lee

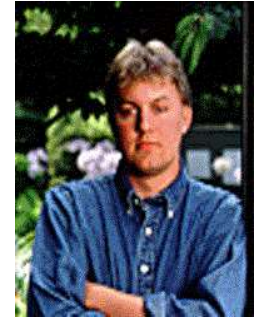
1975 – Microsoft Founded
Bill Gates with Paul Allen



1981-IBM PC
PC was introduced.



1994 – Netscape
Founded by
Jim Clark and Marc Andreessen



Many more....

Computer Generations

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

1ST GENERATION (1944 - 1958)

VACUUM TUBES

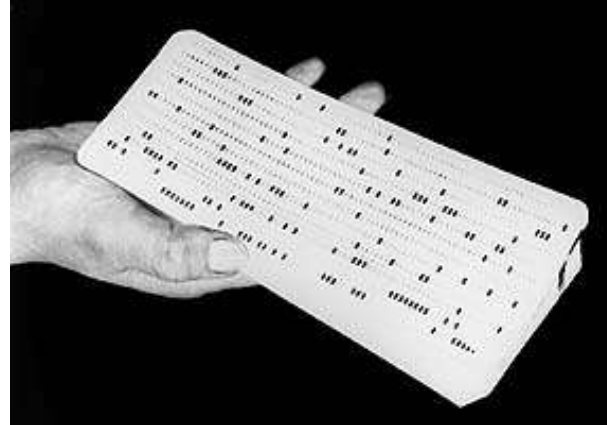
- **Used thousand of vacuum tubes**
- **They were fastest calculating devices.**
- **Too large in size**
- **Large amount of heat due to thousands of vacuum tubes, so air conditioning was required**
- **High power consumption**

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**

1ST GENERATION (1944 - 1958) VACUUM TUBES



IBM Punched Card (input)



Magnetic Tapes (output)



Vacuum Tubes
(memory)

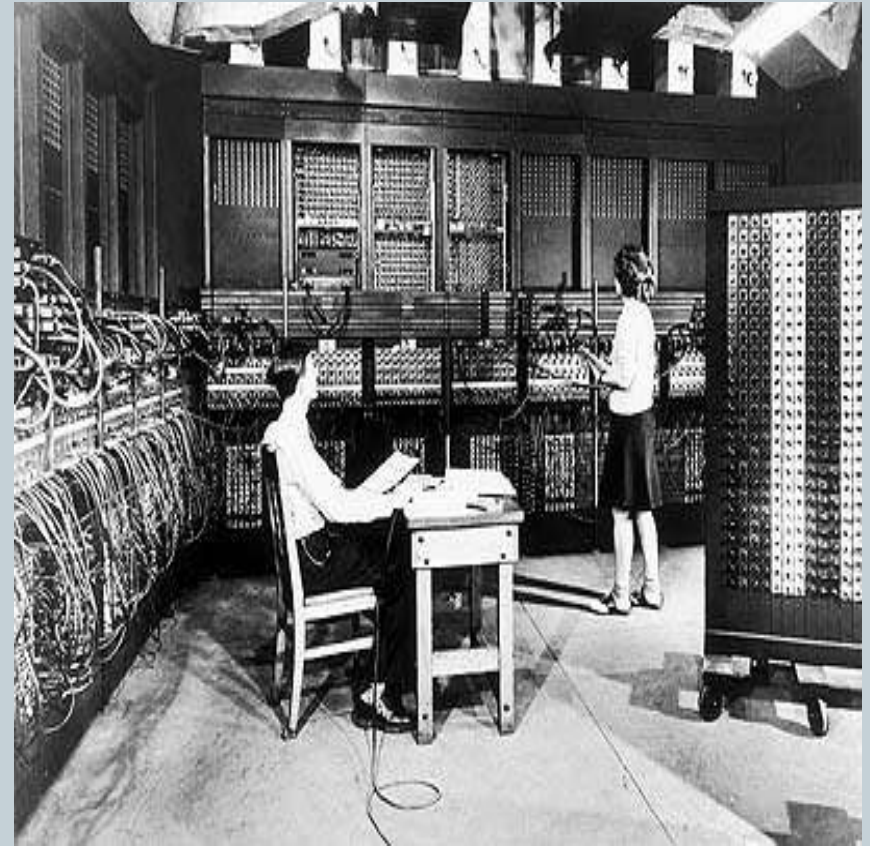
1ST GENERATION (1944 - 1958)

14

UNIVAC



ENIAC



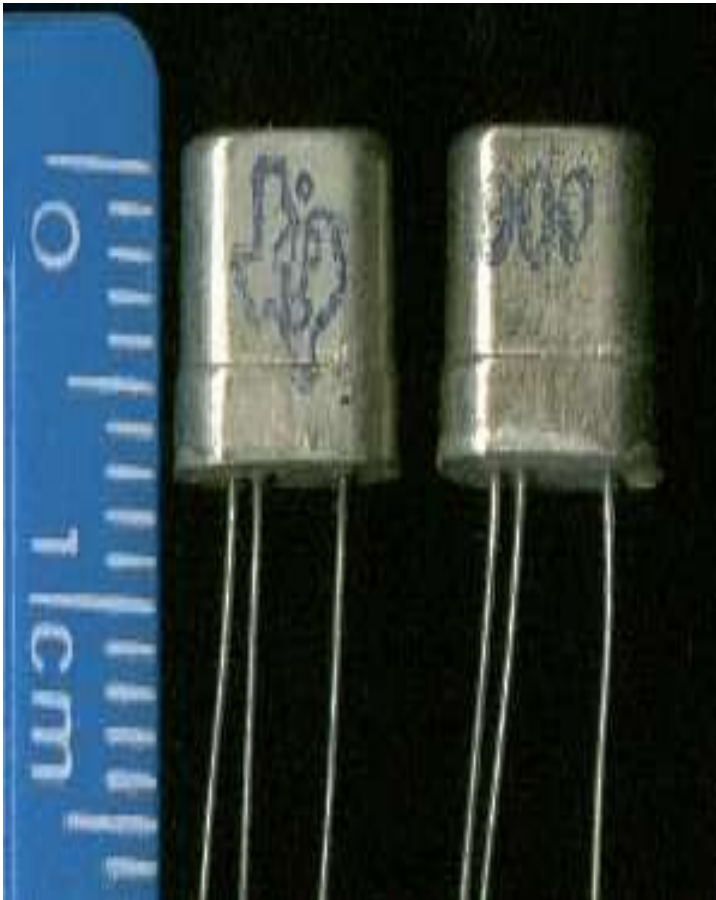
2ND GENERATION (1959 - 1964) TRANSISTOR

- 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.

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

2ND GENERATION (1959 - 1964) TRANSISTOR



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.

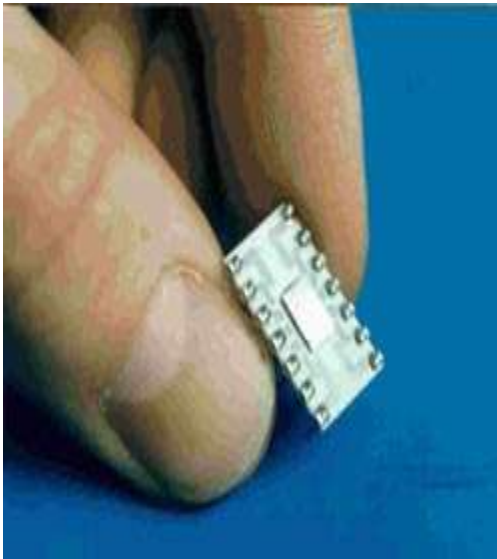
3RD GENERATION (1964 - 1970)

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

3RD GENERATION (1964 - 1970)

INTEGRATED CIRCUIT



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

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.

4TH GENERATION (1971-PRESENT) MICROPROCESSOR



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

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