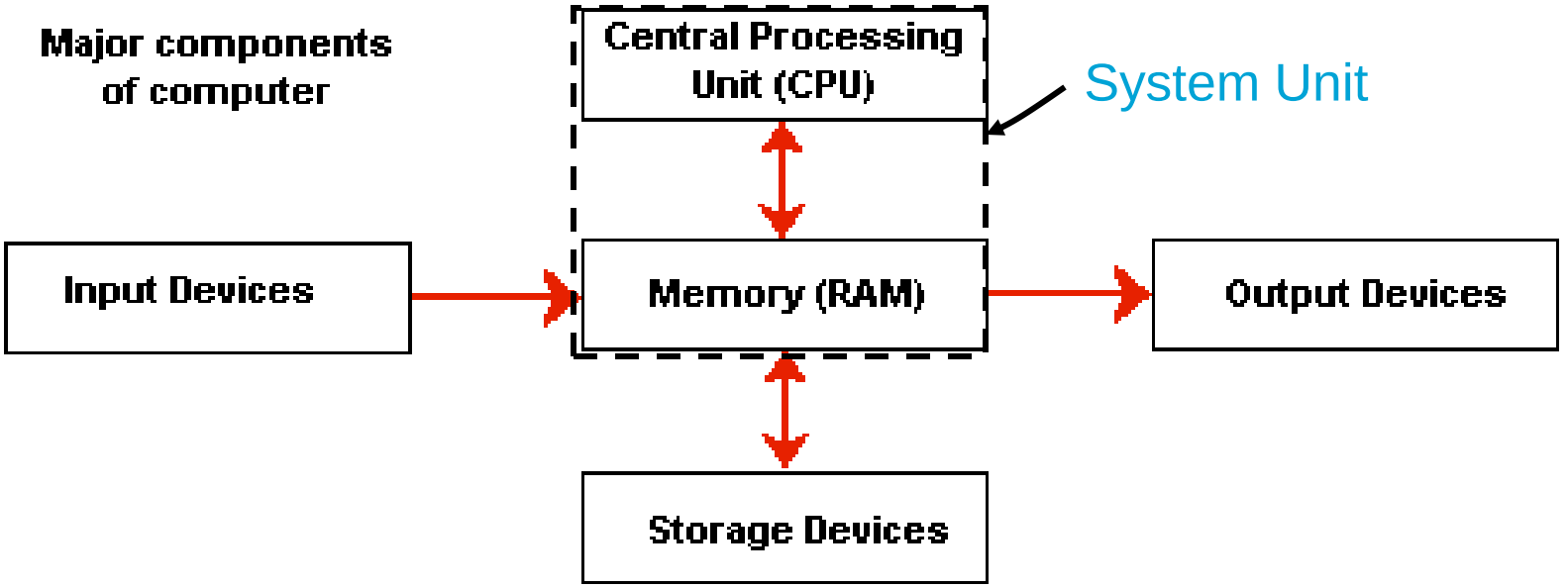
History of Computers

Maninder Kaur
professormaninder@gmail.com

What is a Computer?

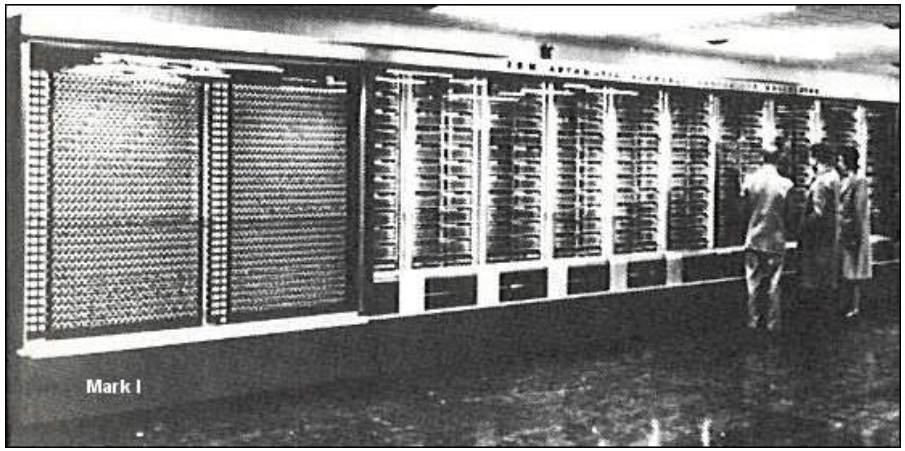


A computer is an *electronic machine* that can be programmed to *accept data* (***input***), *process* it into *useful information* (***output***), and *store* it in a ***storage*** media for future use.

History & Evolution

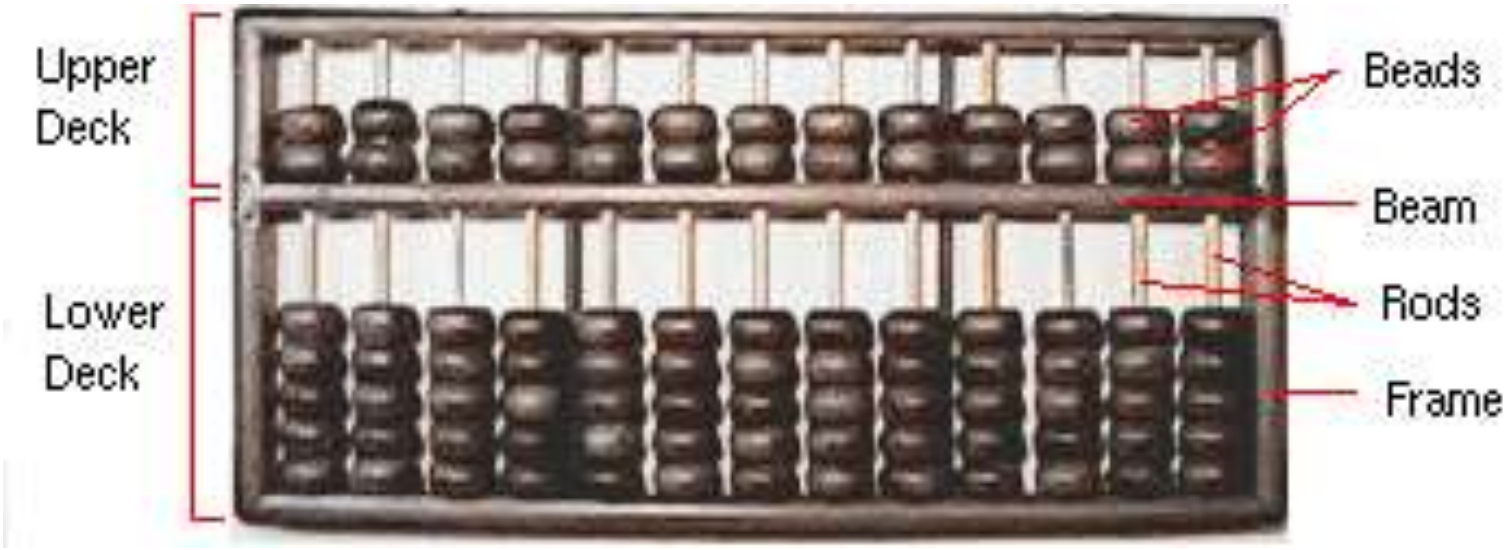
Difference Engine

1944 MARK I
Howard Aiken at
Harvard University

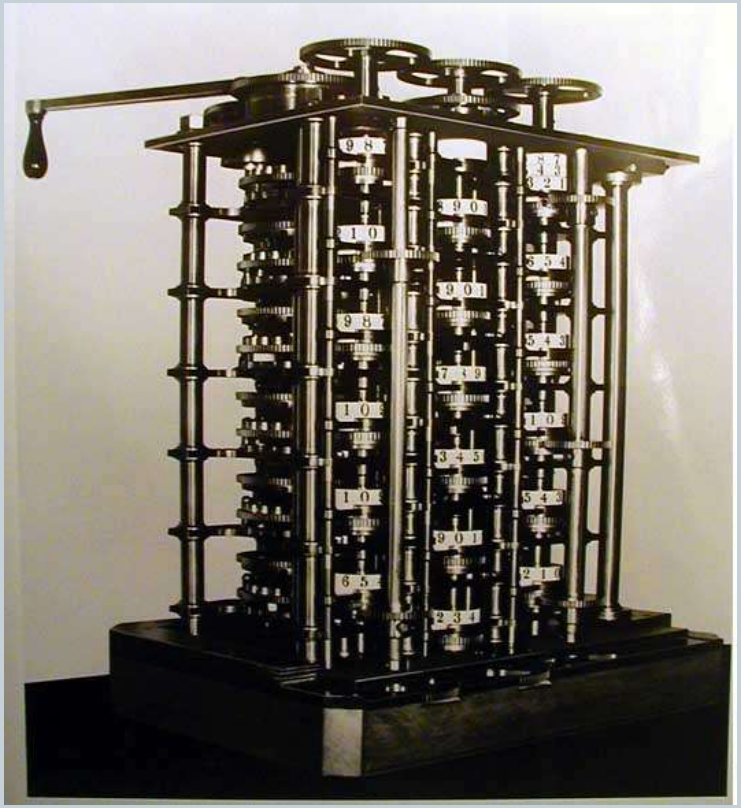


- *Abacus*
- *Mechanical Calculator*
- Analytical Engine
- **1951 - UNIVAC1**
  first commercial computer
- **1954 - Hewlett and Packard**
  Met and setup shop in
  Garage at Silicon valley

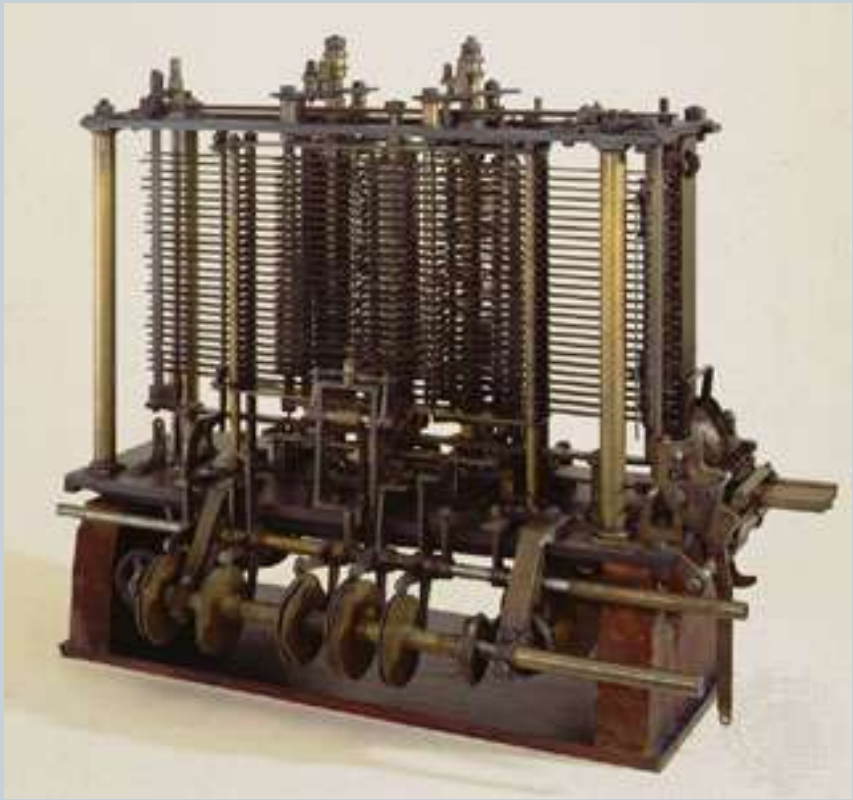
Abacus



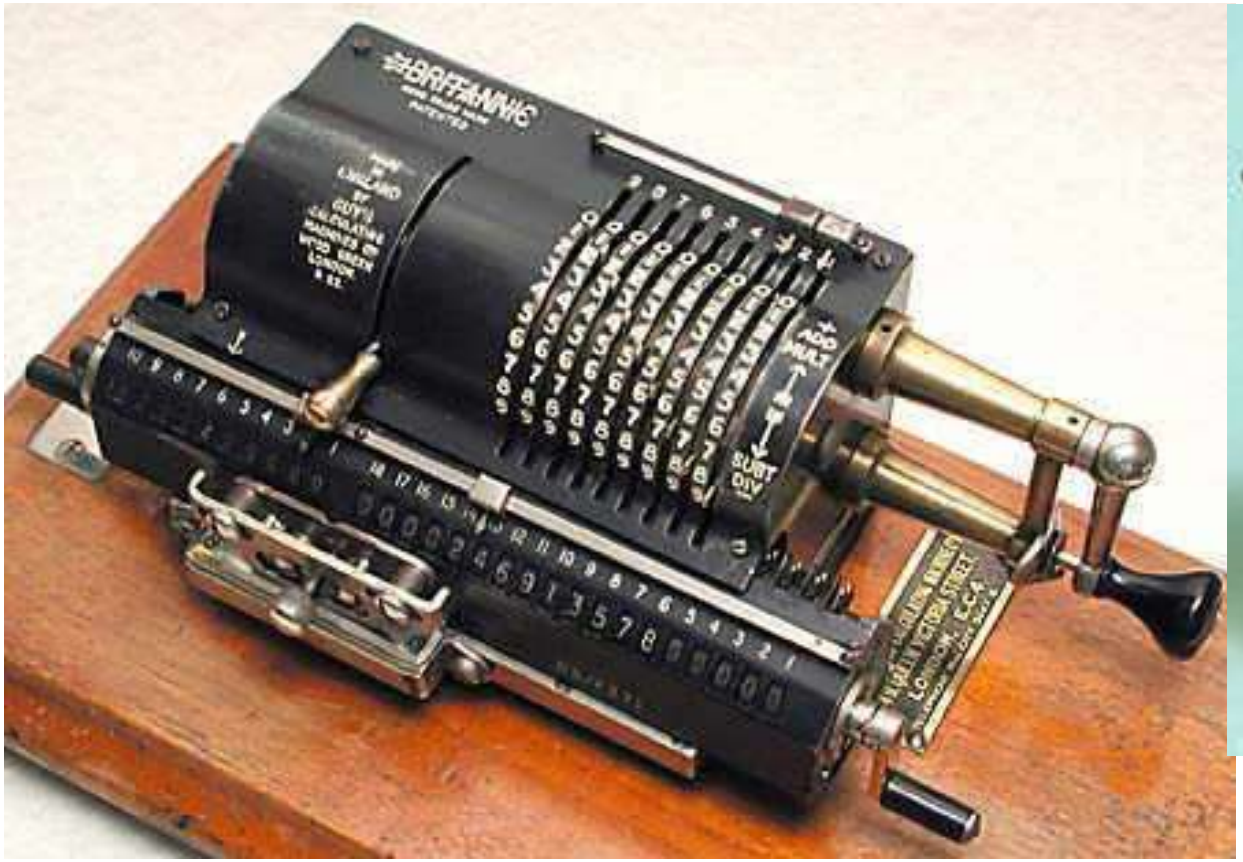
Difference Engine



Analytical Engine



Mechanical Calculators



UNIVAC 1

1969 – Internet was founded

1975 – Microsoft Founded
Bill Gates with Paul Allen

1976
Apple

1981-IBM PC
PC was introduced.

1989 – WWW
Invented by
Tim Berners-Lee

1994 – Netscape
Founded by
Jim Clark and Marc Andreesen

Many more….

Computer Generations

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

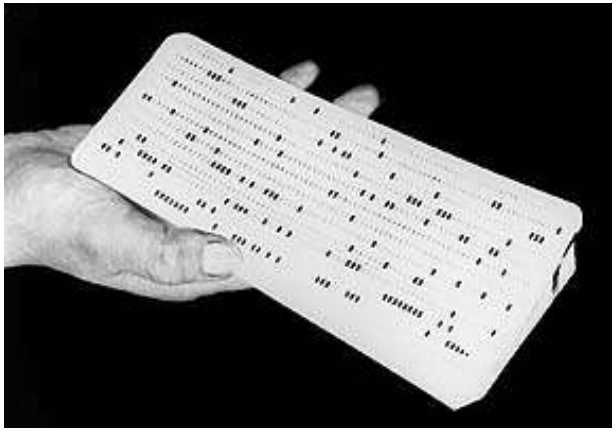
1ST GENERATION (1944 - 1958)
VACUUM TUBES

- 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

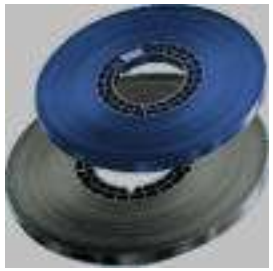
1ST GENERATION (1944 - 1958)
VACUUM TUBES

- 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)



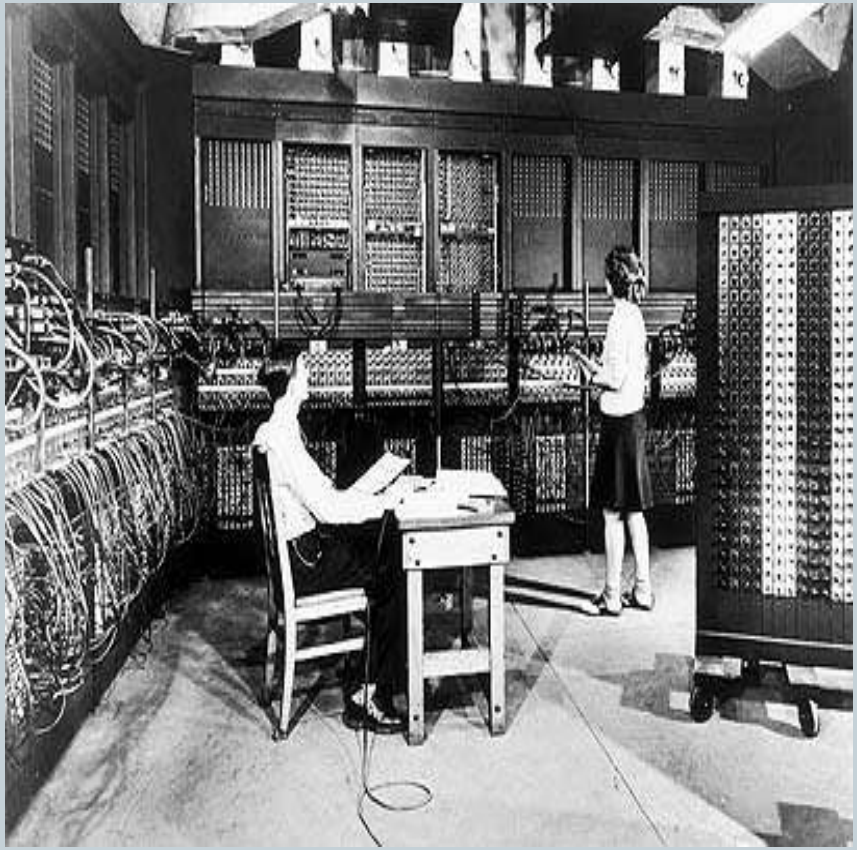
Magnetic Tapes (output)

Vacuum Tubes (memory)

1ST GENERATION (1944 - 1958)

UNIVAC

ENIAC



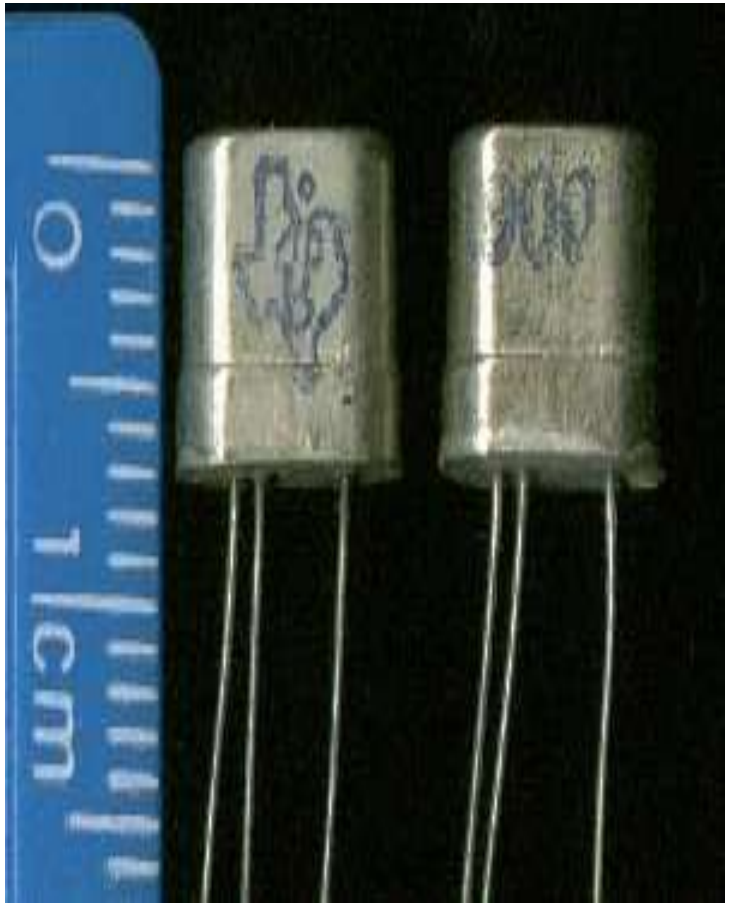
2ND GENERATION (1959 - 1964)
TRANSISTOR

- 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 Cilby & 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

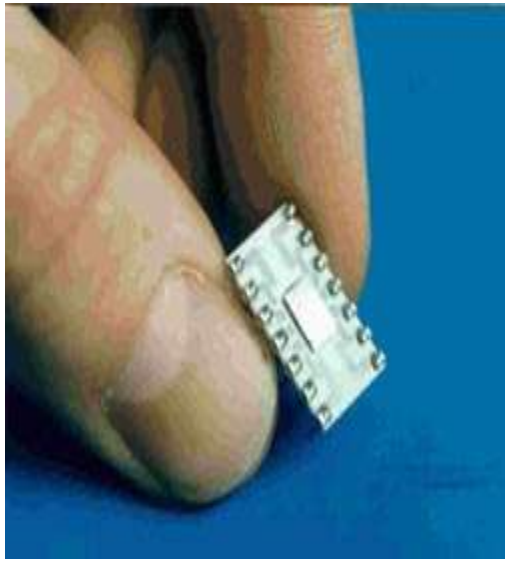
- Smaller in size and require small space for installation

- 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