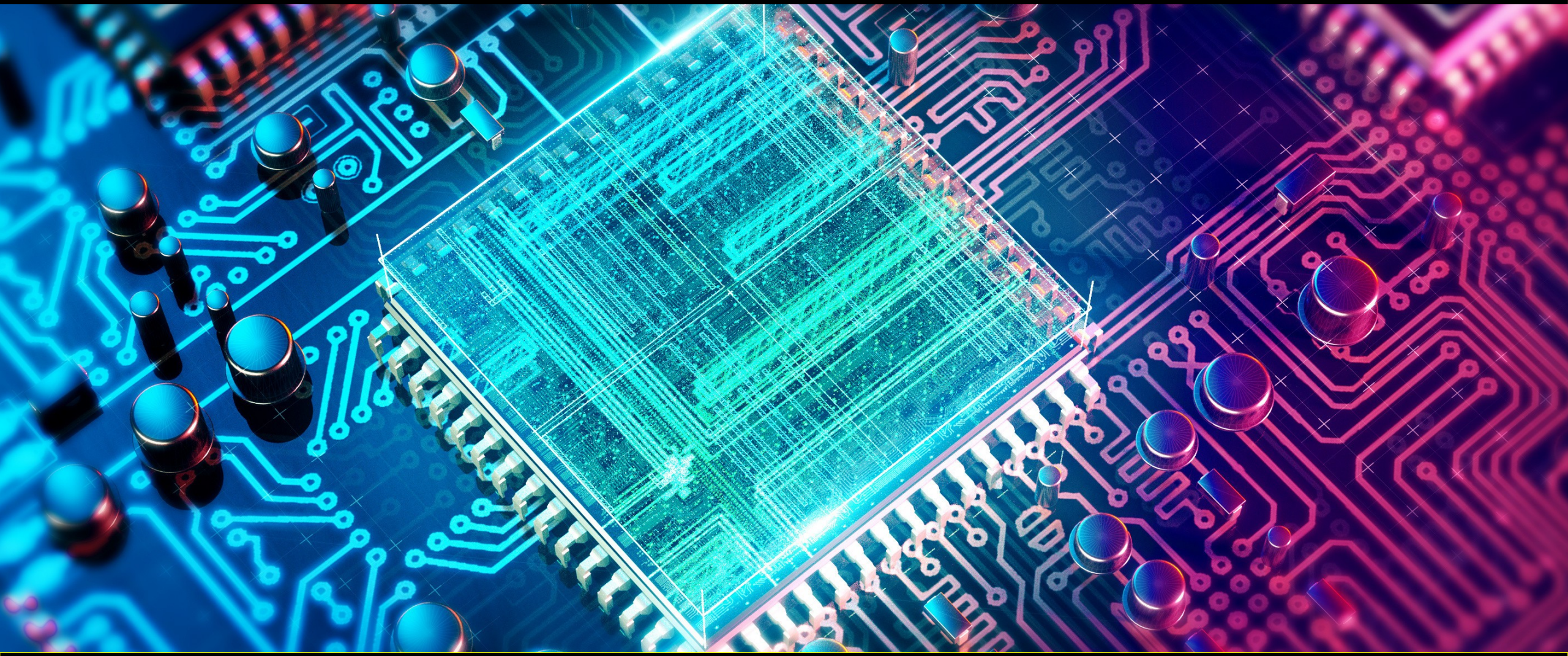
MODULE 1: INTRODUCTION



Lesson 2: History And Generations Of Computer

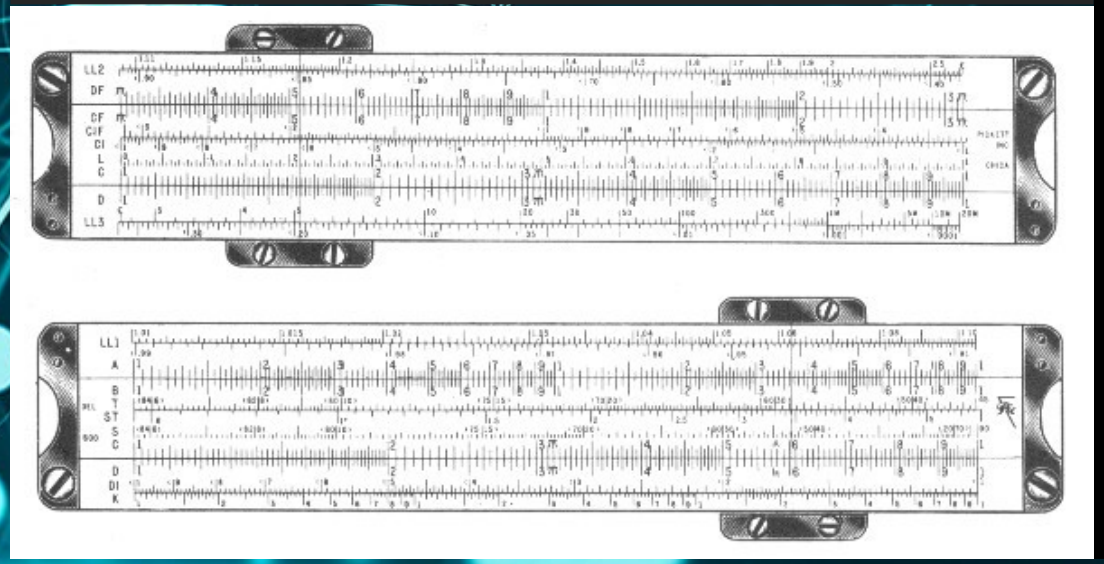
PRE – 20TH CENTURY HISTORY

1. ABACUS

- Invented in 2500 BC
- By Babylonian/Chinese
- Made from beads and wire
- It performed : Addition, Subtraction, Multiplication and Division.

Cont…

2. SLIDE RULE



- Invented in 1633 AD
- By William Oughtred
- English Clergyman and self-taught mathematician

Cont…

3. ROTATING WHEEL CALCULATOR

- Invented in 1642 AD
- By Blaise Pascal
- A French Philosopher
- Consist of gears and levers
- A predecessor to today’s electronic calculator

Cont…

4. MECHANICAL CALCULATOR

- Invented in 1671 AD
- By Gottfried Wilhelm Leibniz
- A German Mathematician and Philosopher
- It performed : **Addition, Subtraction, Multiplication, division and Square roots.**

Cont…

6. DIFFERENCE ENGINE

- Invented in 1822 AD
- By Charles Babbage
- A British Mathematician and Engineer
- Babbage is considered the **“Father of Today’s computer”**

Cont…

7. HOLLERITH TABULATING MACHINE

- Invented in 1890 AD
- By Herman Hollerith
- An American statistician and inventor
- It was designed by using punched cards

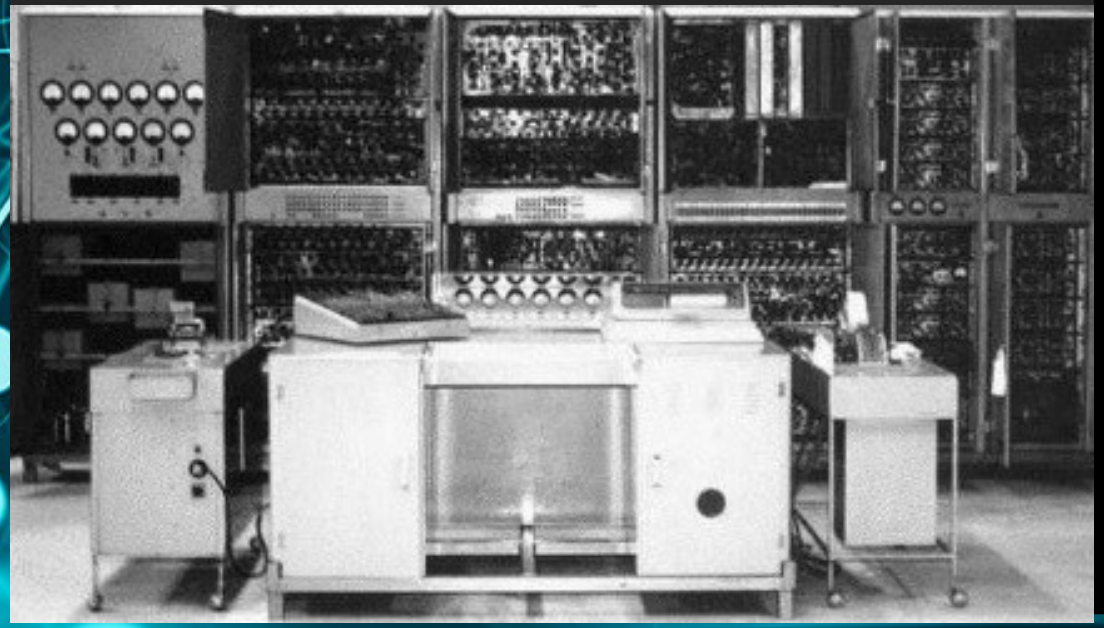
GENERATIONS OF COMPUTER

Definition

- It is an electronic device that manipulates information, or data

Cont…

1st Generation



- 1940 – 1956
- It Used Vacuum Tube for circuitry and Magnetic drums for Memory.
- It can solve one problem at time

Cont…

2nd Generation

- 1956 - 1963
- It replaced the vacuum tubes by transistors
- Transistors used punchecards for input and printout for output .

Cont…

3rd Generation

- 1964 - 1971
- Transistors were made smaller in size and placed on silicon chip, they are known as **“Integrated circuits”**
- It increased the speed and efficiency of computers
- It can Solve many problems at a time

Cont…

4th Generation

- 1971- Present
- Thousands of integrated circuits were built onto a single silicon chip. It is known as **“Microprocessor”**

Cont…

5th Generation

- Present and Beyond
- Artificial Intelligence (AI)
- It will come close to bridging the gap between computing and thinking.

“We have to admit that computers has taken important part in our life. Today’s technology has made impossible things possible in Human History”

2. TYPES OF COMPUTERS

BASED ON WORK

1. Analog Computer

- uses the continuously changeable aspects of physical phenomena such as electrical, mechanical, or hydraulic quantities to model the problem being solved.

- **Example:** temperature, pressure, telephone lines, Speedometer, resistance of capacitor, frequency of signal and voltage etc.

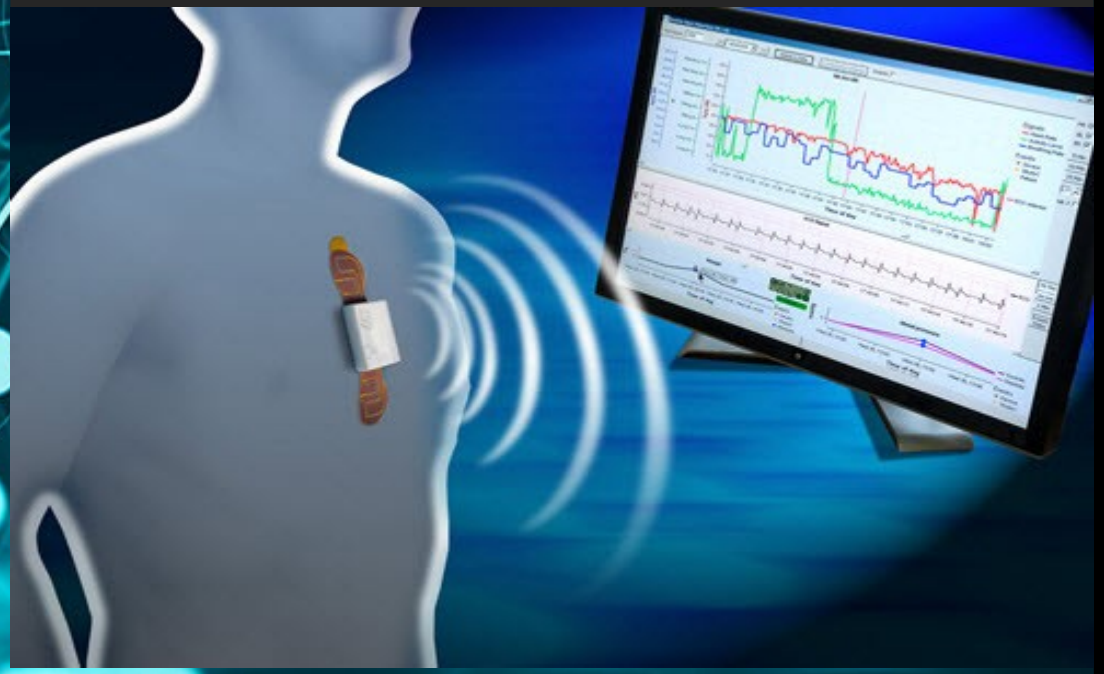
Cont…

2. Digital Computer

- The most commonly used type of computer and is used to process information with quantities using digits, usually using the binary number system.
- **Example:** MacBook

Cont…

3. Hybrids Computer



- It is a digital computer that accepts analog signals, converts them to digital and processes them in digital form
- **Example:** Computer used in hospitals to measure the heartbeat of the patient

BASED ON PURPOSE

1. General Purpose

- It is one that, given the appropriate application and required time, should be able to perform most common computing tasks.
- **Example:** desktops, notebooks, smartphones and tablets

Cont…

2. Special Purpose Computer

- They are designed to be task specific and most of the times their job is to solve one particular problem.
- **Example:** Microwaves, Washing machine

BASED ON MEMORY SIZE AND PERFORMANCE

1. Supercomputer

- It is a computer with a high level of performance compared to a general-purpose computer. They are used for a wide range of computationally intensive tasks in various fields, including quantum mechanics, weather forecasting, climate research, oil and gas exploration

Cont…

2. Mainframe Computer

- They are powerful computers used for large information processing jobs. They are mainly used by government institutions and large companies for tasks such as census, industry and consumer statistics, enterprise resource planning, and financial transaction processing.

Cont…

3. Minicomputer

- It is a computer of a size intermediate between a microcomputer and a mainframe. Minicomputers were primarily used from 1960 to 1980, are generally larger, but have limited functionality and slower processors.

Cont…

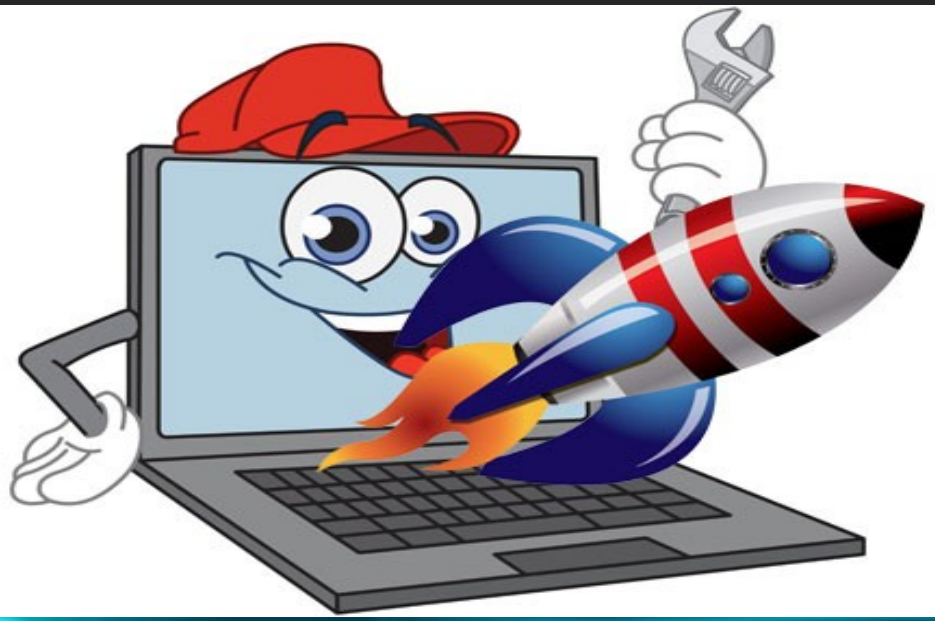
4. Microcomputer

- Microcomputers and minicomputers may sound similar, but they are very different types of computers. Microcomputers usually refer to laptop or desktop PCs that you use in a typical household…

3. CAPABILITIES AND LIMITATIONS OF COMPUTER

CAPABILITIES OF COMPUTER

1. Speed



- The duration computer requires in fulfilling a task.
- Computers can execute MIPS (Millions of Instructions per second)
- The clock speed of computers is usually measured in megahertz (MHz) or gigahertz (GHz).

Cont…

2. Accuracy

- The level or precision with which calculations are made and tasks are performed.

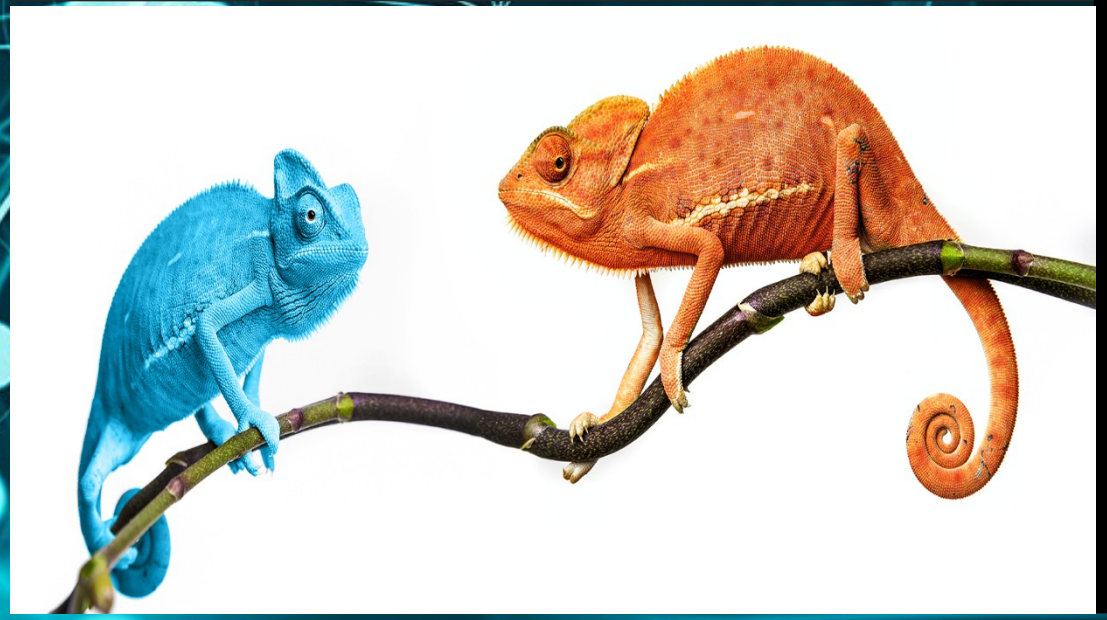
Cont…

3. Reliability

- The quality due to which the user can stay dependable on the computer.

Cont…

4. Adaptability



- The quality due to which the computer can complete different type of tasks ; simple as well as complex.

Cont…

4. Storage

- The ability of computer to store data in itself for accessing it again in the future.

LIMITATIONS OF COMPUTER

Limitations

- Drawbacks of the computer system in which humans outperform them
- **Example:** Depend on user inputs, have no imagination, cannot detect error in logic, only expert users can work on it, can not take its own decisions.