SNS COLLEGE OF TECHNOLOGY

Coimbatore-36.

An Autonomous Institution

Accredited by NBA – AICTE and Accredited by NAAC – UGC with 'A++' Grade
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai

COURSE CODE AND NAME : 23ITT101 C Programming and Data Structures

I YEAR/II SEMESTER

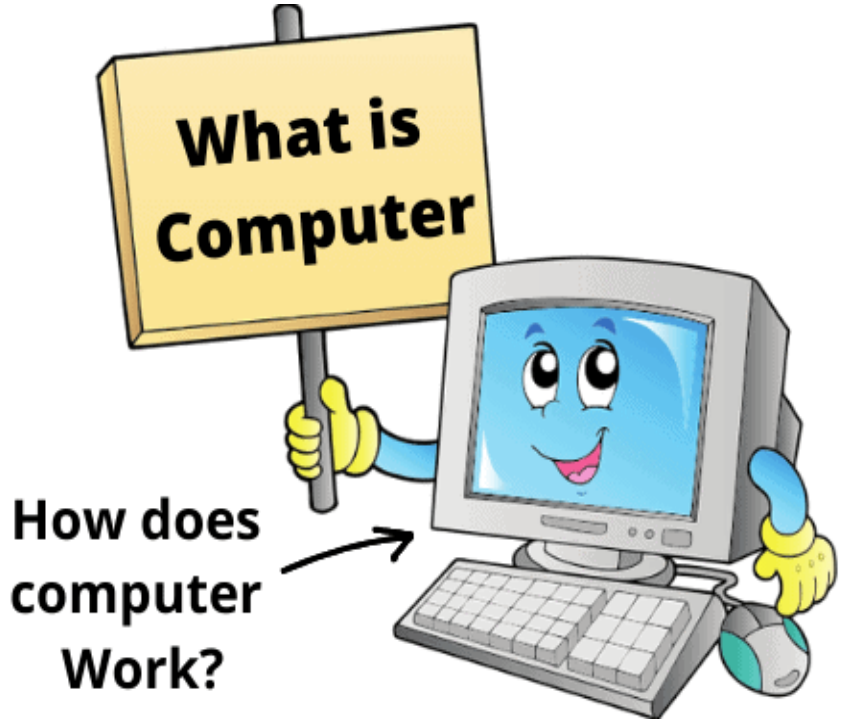
UNIT – I INTRODUCTION TO C

Mrs. S.Priyadarsini,
Assistant Professor
Department of Computer Science and Engineering

Fundamentals of Computer

What is Computer?

- The computer is an electronic machine that takes input from user, process the given input and generates output.
- In the form of useful information.
- The input is data, programs, user reply.



Fundamentals of Computer

Parts of Computer:

Fundamentals of Computer

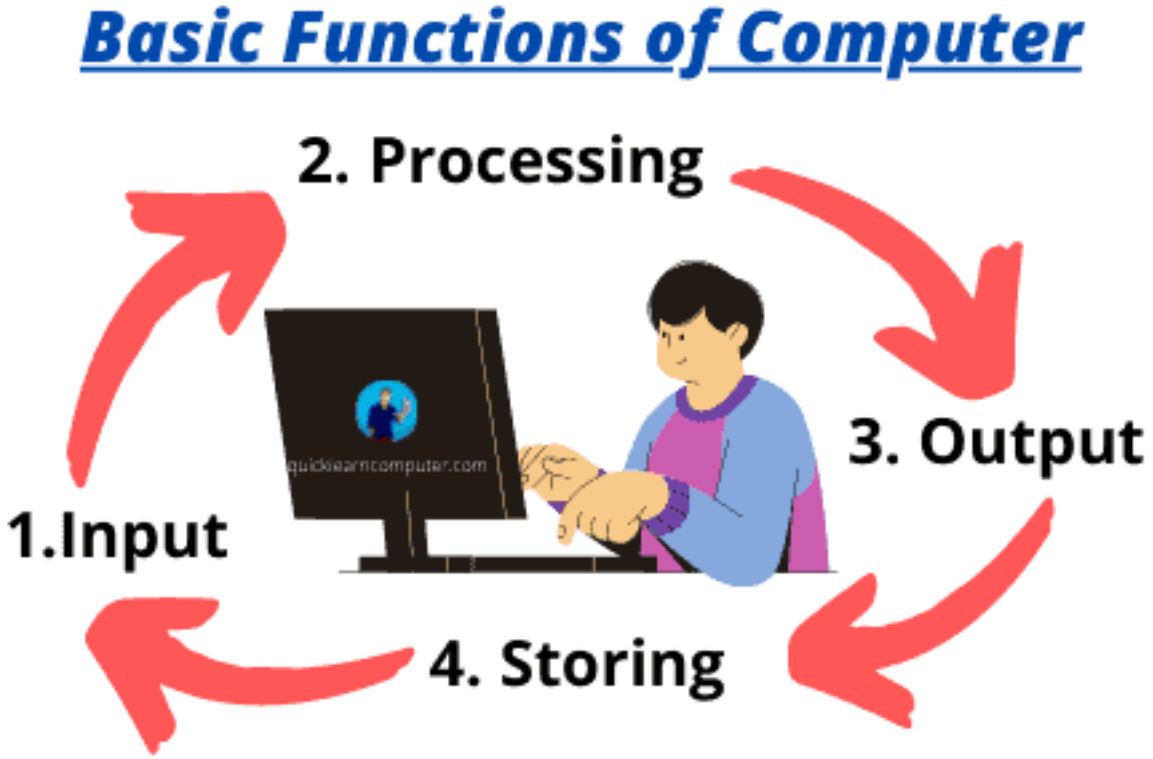
Functionalities of Computer:

1.Input Function

2.Processing Function

3.Output Function

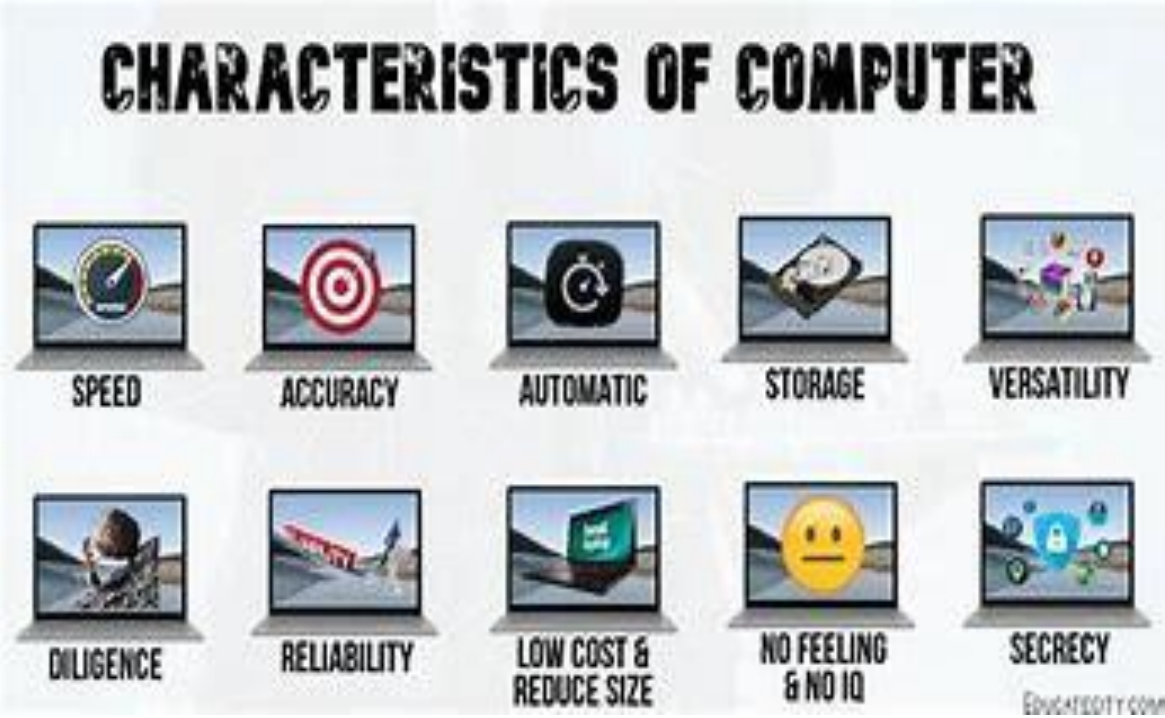
4.Storing Function

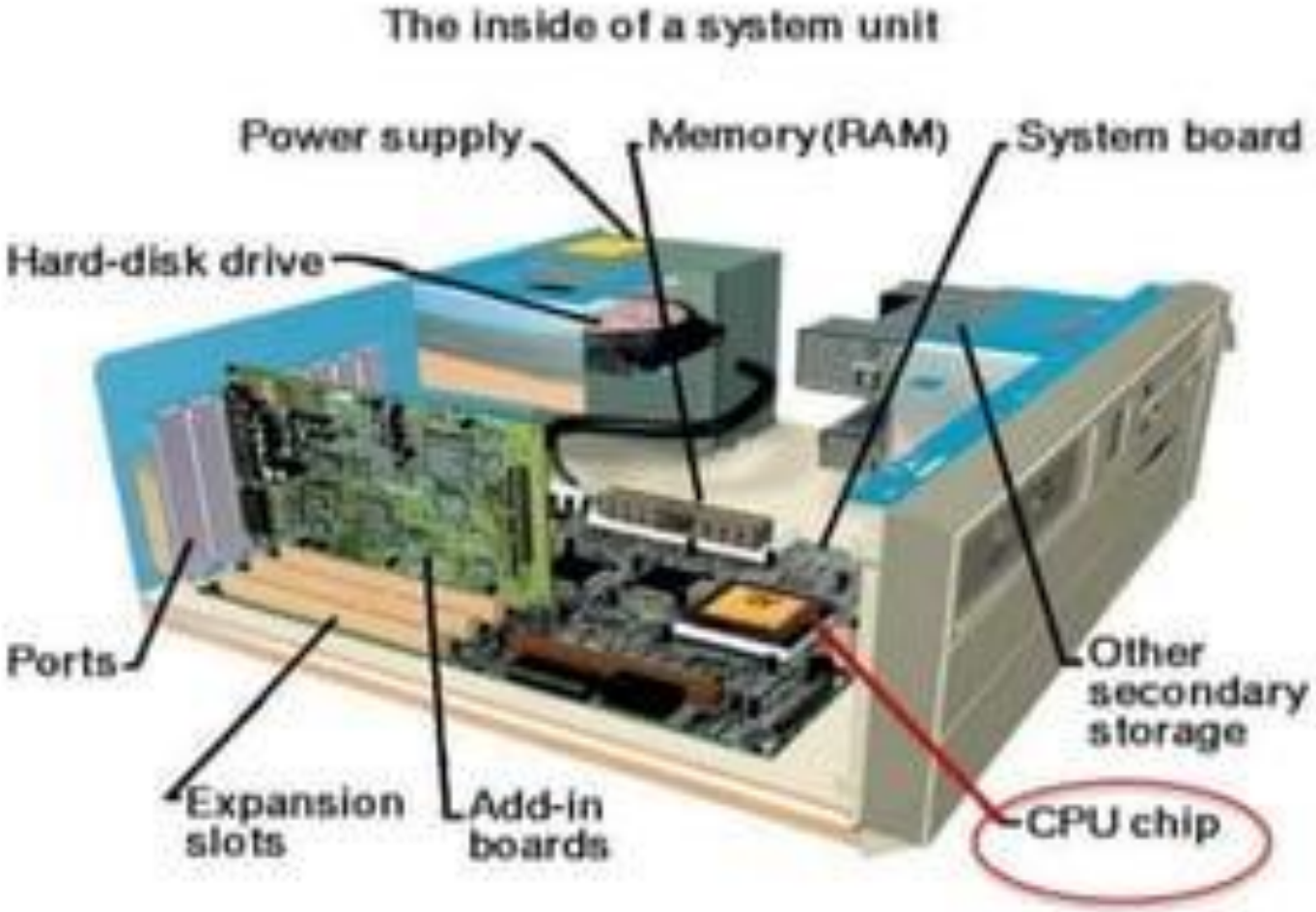


Fundamentals of Computer

Characteristics of Computers:

1. High Speed
2. Accuracy
3. Storage Capability
4. Diligence
5. Versatility
6. Reliability
7. Automation
8. Reduction in Paper Work and Cost

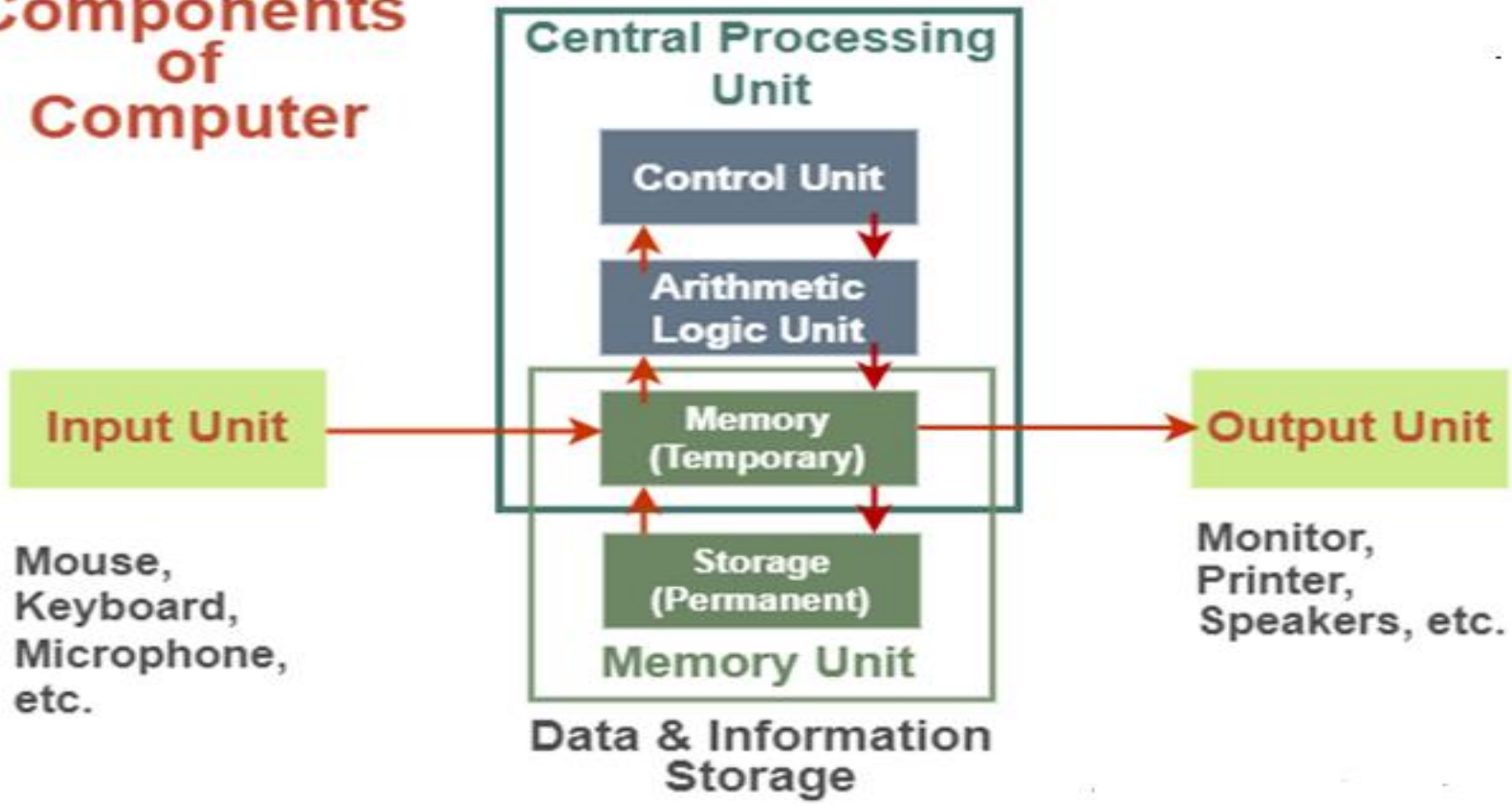



The inside of a system unit
Power supply
Memory (RAM)
System board
Hard-disk drive
Ports
Expansion slots
Add-in boards
Other secondary storage
CPU chip

FUNCTIONAL UNITS OF COMPUTER

- Input Unit
- Output Unit
- Central processing Unit (ALU and Control Units)
- Memory
- Bus Structure

Components of Computer



INPUT UNIT:

- Converts the external world data to a binary format, which can be understood by CPU

- Eg: Keyboard, Mouse, Joystick etc

OUTPUT UNIT:

- Converts the binary format data to a format that a common man can understand

- Eg: Monitor, Printer, LCD, LED etc

CENTRAL PROCESSING UNIT

- The “brain” of the machine
- Responsible for carrying out computational task
- Contains ALU, CU, Registers
- ALU Performs Arithmetic and logical operations
- CU Provides control signals in accordance with some timings which in turn controls the execution process
- Register Stores data and result and speeds up the operation

Control Unit

- The control unit of the CPU contains circuitry that uses electrical signals to direct the entire computer system to carry out, or execute, stored program instructions.
- The control unit does not execute program instructions; rather, it directs other parts of the system to do so. The control unit must communicate with both the arithmetic/logic unit and memory.

Arithmetic Logic Unit (ALU)

- Arithmetic logic unit (ALU) is a digital circuit that performs arithmetic and logical operations.
- An ALU loads data from input registers, an external Control Unit then tells the ALU what operation to perform on that data, and then the ALU stores its result into an output register. The Control Unit is responsible for moving the processed data between these registers, ALU and memory.
- Arithmetic/logic unit (ALU) performs execution part of the machine cycle. The execution consists of Arithmetic (addition, subtraction, multiplication, and division), Comparison (greater than, equal to, or less than) and Logical (AND, OR, NOT).

MEMORY

- Stores data, results, programs

- Two class of storage
(i) Primary (ii) Secondary

- Two types are RAM or R/W memory and ROM read only memory

- ROM is used to store data and program which is not going to change.

- Secondary storage is used for bulk storage or mass storage

RAM

Random-access, commonly known as RAM or simply memory, provides space for your computer to read and write data to be accessed by the CPU (central processing unit). When people refer to a computer's memory, they usually mean its RAM.

The strength of the RAM determines, at random, how fast a piece of data can be pulled and returned.

Regardless of where the data is on a drive or whether it is at all related to any previous bit of data is irrelevant; RAM pulls it back at a constant time.

RAM is volatile, so data stored in RAM stays there only as long as the computer is running. As soon as the computer is switched off, the data stored in RAM disappears.

ROM

Read-Only Memory or ROM is an integrated-circuit memory chip that contains configuration data.

ROM is commonly called firmware because its programming is fully embedded into the ROM chip. As such, ROM is a hardware and software in one.

Because data is fully incorporated at the ROM chip's manufacture, data stored can neither be erased nor replaced. This means permanent and secure data storage.

Data stored in ROM is nonvolatile - it is not lost when your computer is turned off.

Data stored in ROM is either unchangeable or requires a special operation to change.

Examples of ROM are: Programmable ROM (PROM), Erasable Programmable ROM (EPROM) and Electrically Erasable Programmable ROM (EEPROM).

Difference between RAM and ROM

TERMS	RAM	ROM
Definition	RAM can be defined as a temporary memory that can hold the data and instructions if there is adequate power supply.	ROM can be defined as a permanent memory holding the data even the power is switched off.
Type	The content in RAM (Random Access Memory) can be accessed and processed.	The content in ROM (Read Only Memory) can not be processed. It can only be read.
Utility	It stores immediate instructions required by the processor.	It keeps the booting instructions of a computer.
Speed & Cost	High-speed at a higher cost than ROM	Low-speed at a lesser cost than RAM


Thank
you!