Computers can do such a wide variety of things because they can be programmed.

Introduction to Structured Programming

CM1_CU1: Week 2

Objectives:

1. Define the basic terminologies on structured programming.
2. Differentiate hardware and software.
3. Demonstrate the conversion of number system.

Introduction to Structured Programming

- **Terminologies**
- Computer and Programming
- Hardware and Software
- Number system

What is Application?

Terminologies

APPLICATION

app for short, is software that performs specific tasks for an end-user

What is Binary digit or Bit?

BINARY DIGIT OR BIT

smallest unit of data in computing. It is represented by a 0 or a 1.

What is Computer?

Terminologies

COMPUTER

machine that can be programmed to carry out sequences of arithmetic or logical operations automatically.

What is Flowchart?

Terminologies

FLOWCHART

diagram that represents a set of instructions

What is Hardware?

Terminologies

HARDWARE

tangible aspects of a computing device that are needed to store and run the software

What is Input Device?

Terminologies

INPUT DEVICE

any hardware device that sends data to a computer, allowing you to interact with and control it

What is Output Device?

Terminologies

OUTPUT DEVICE

any peripheral that receives data from a computer, usually for display, projection, or physical reproduction

What is Program?

Terminologies

PROGRAM

a set of instructions that a computer follows to perform a task

What is Program Logic?

PROGRAM LOGIC

the implementation of the program's requirements and design

What is Programming?

Terminologies

PROGRAMMING

the process of giving a set of instructions to a computer to make it able to perform a particular task

What is Pseudocode?

Terminologies

PSEUDOCODE

an artificial and informal language that helps programmers develop algorithms

What is Software?

Terminologies

SOFTWARE

a set of instructions, data or programs used to operate computers and execute specific tasks

What is Structure?

Terminologies

STRUCTURE

a data organization, management, and storage format that enables efficient access and modification

What is Structured Programming ?

STRUCTURED PROGRAMMING

a programming paradigm that facilitates the creation of programs with readable code and reusable components

What is System?

Terminologies

SYSTEM

a set of integrated devices that input, output, process, and store data and information

Introduction to Structured Programming

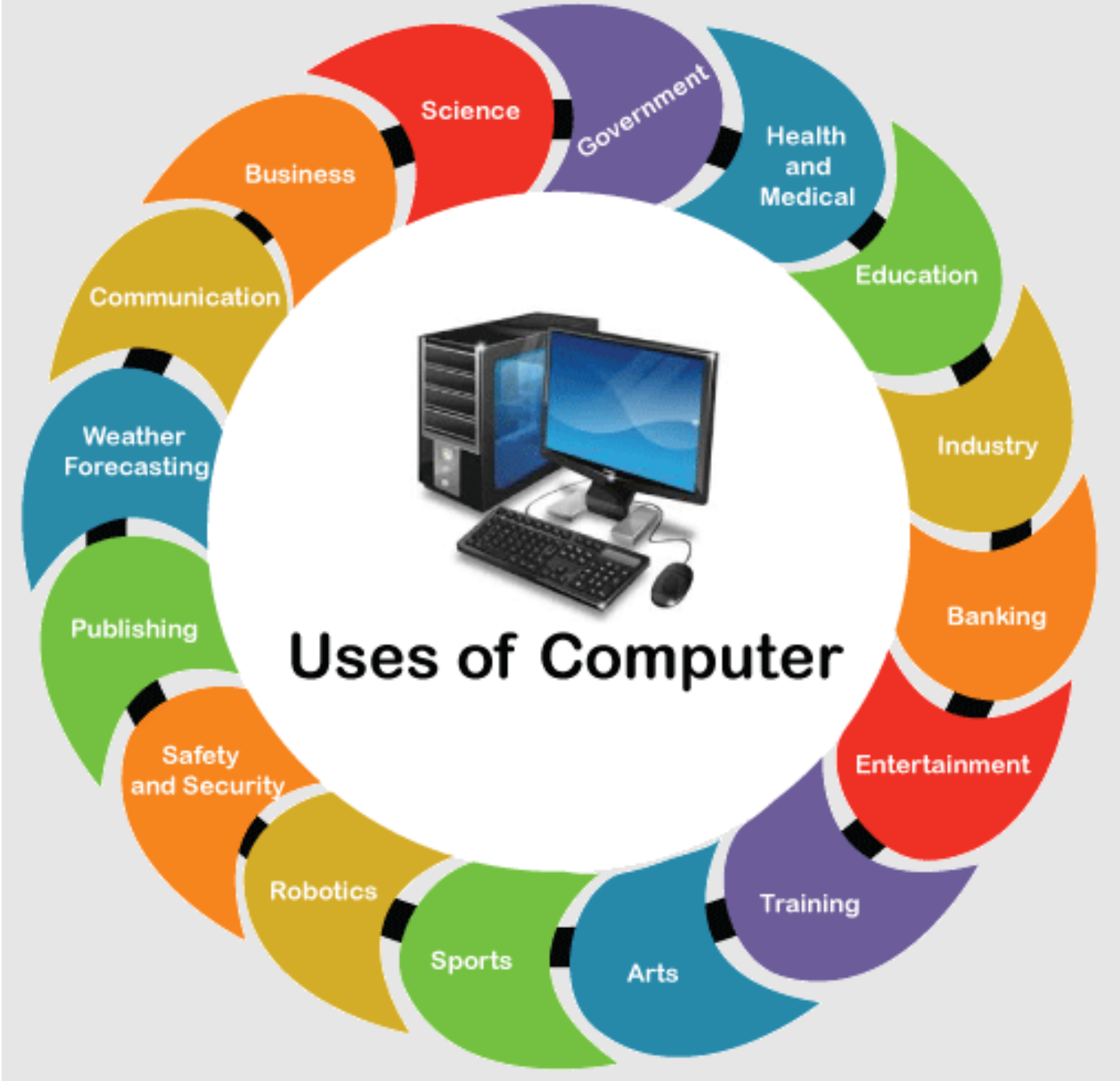
- Terminologies
- **Computer and Programming**
- Hardware and Software
- Number system

What is computer?

COMPUTER

- an electronic device for storing and processing data, typically in binary form, according to instructions given to it in a variable program.
- a machine that can be programmed to carry out sequences of arithmetic or logical operations automatically.
- a programmable machine.

What are the uses of computer?


Uses of Computer
Science
Government
Health and Medical
Education
Industry
Banking
Entertainment
Training
Arts
Sports
Robotics
Safety and Security
Publishing
Weather Forecasting
Communication
Business

Computers are not designed to do just one job, but to do any job that their programs tell them to do.

What is program?

PROGRAM

- is a set of instructions that a computer follows to perform a task.

- commonly referred to as SOFTWARE.

Software is essential to a computer because it controls everything the computer does.

How computer works?

Let’s watch a video first!!!

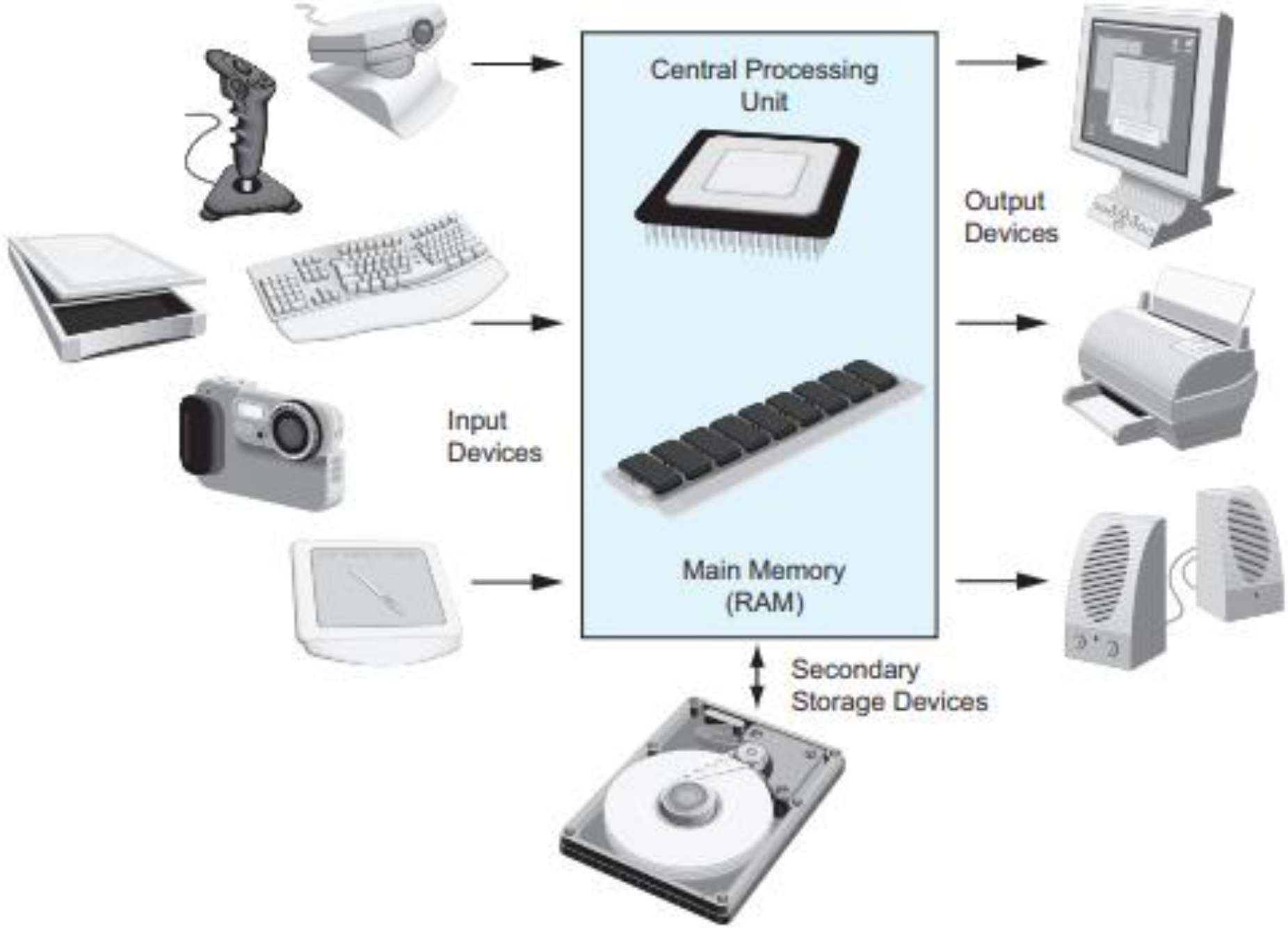
(Source: Inside your computer - Bettina Bair – YouTube)

Computer is not one single device, but a system of devices that all work together.

Typical computer system consists of the following major components:

- The central processing unit (CPU)
- Main memory
- Secondary storage devices
- Input devices
- Output devices

Computer and Programming



What is CPU?

CPU

- Central Processing Unit, or CPU, is the part of a computer that actually runs programs.

CPU

- The CPU is the most important component in a computer because without it, the computer could not run software.

- CPUs are small chips known as MICROPROCESSORS.

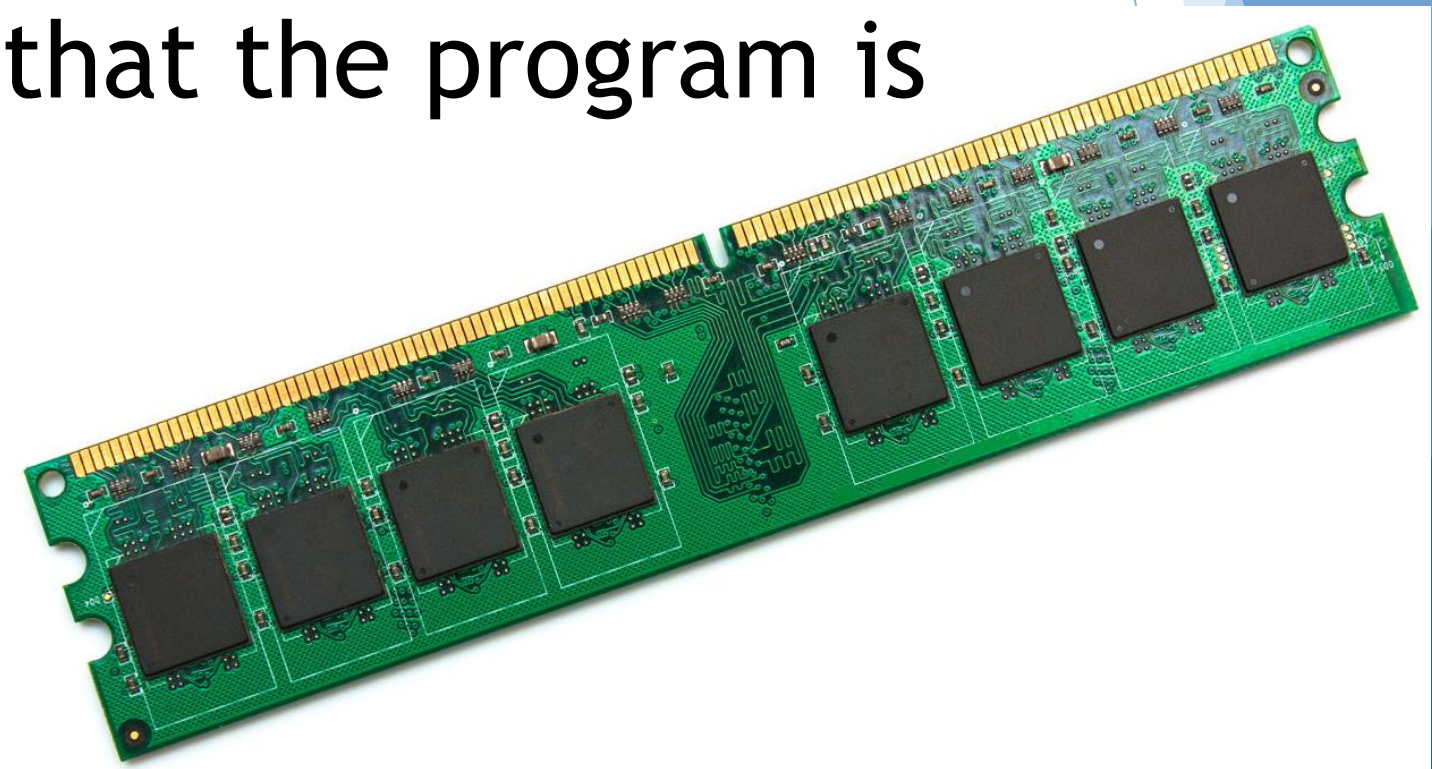
Let’s watch a video first!!!

(Source: How computer memory works - Kanawat Senanan - YouTube)

What is Main Memory?

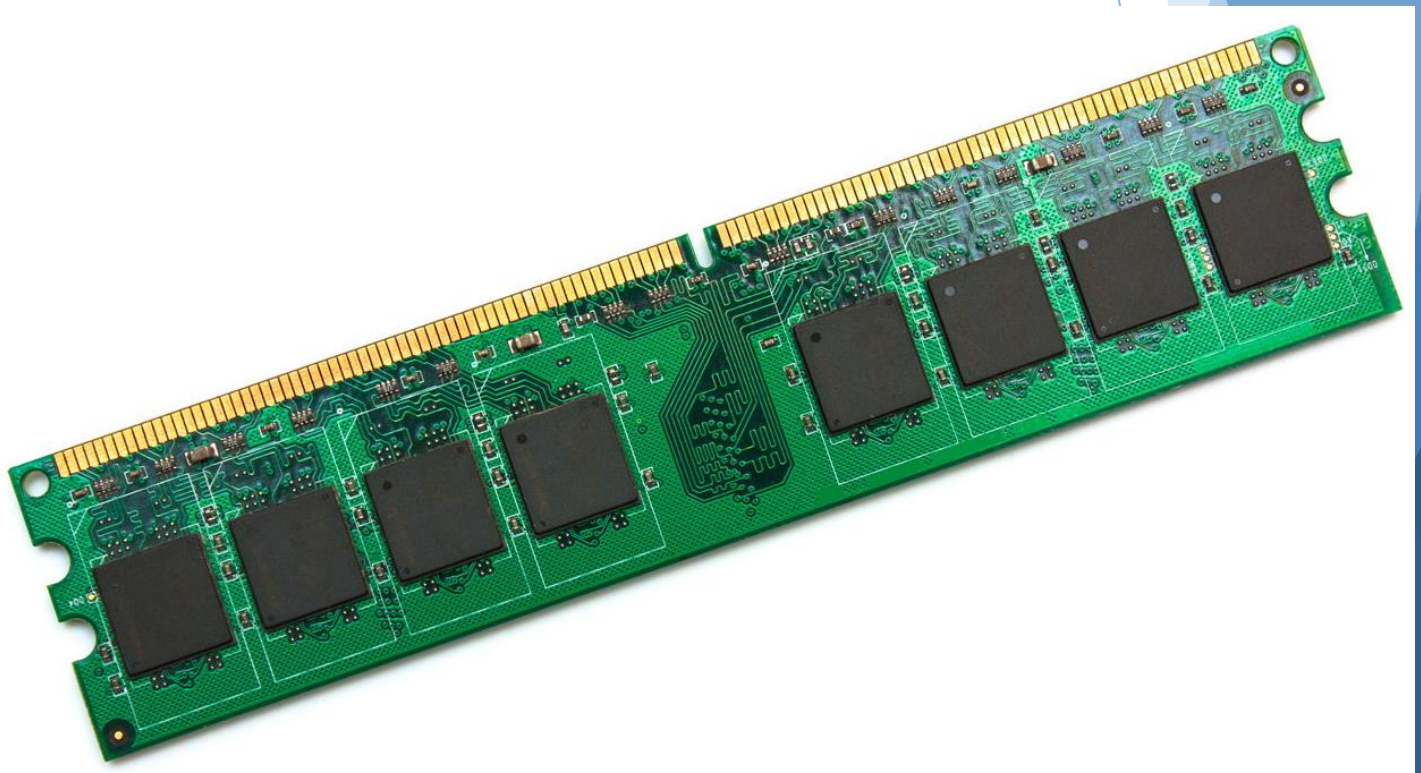
Main Memory

- the computer's work area.
- This is where the computer stores a program while the program is running, as well as the data that the program is working with.



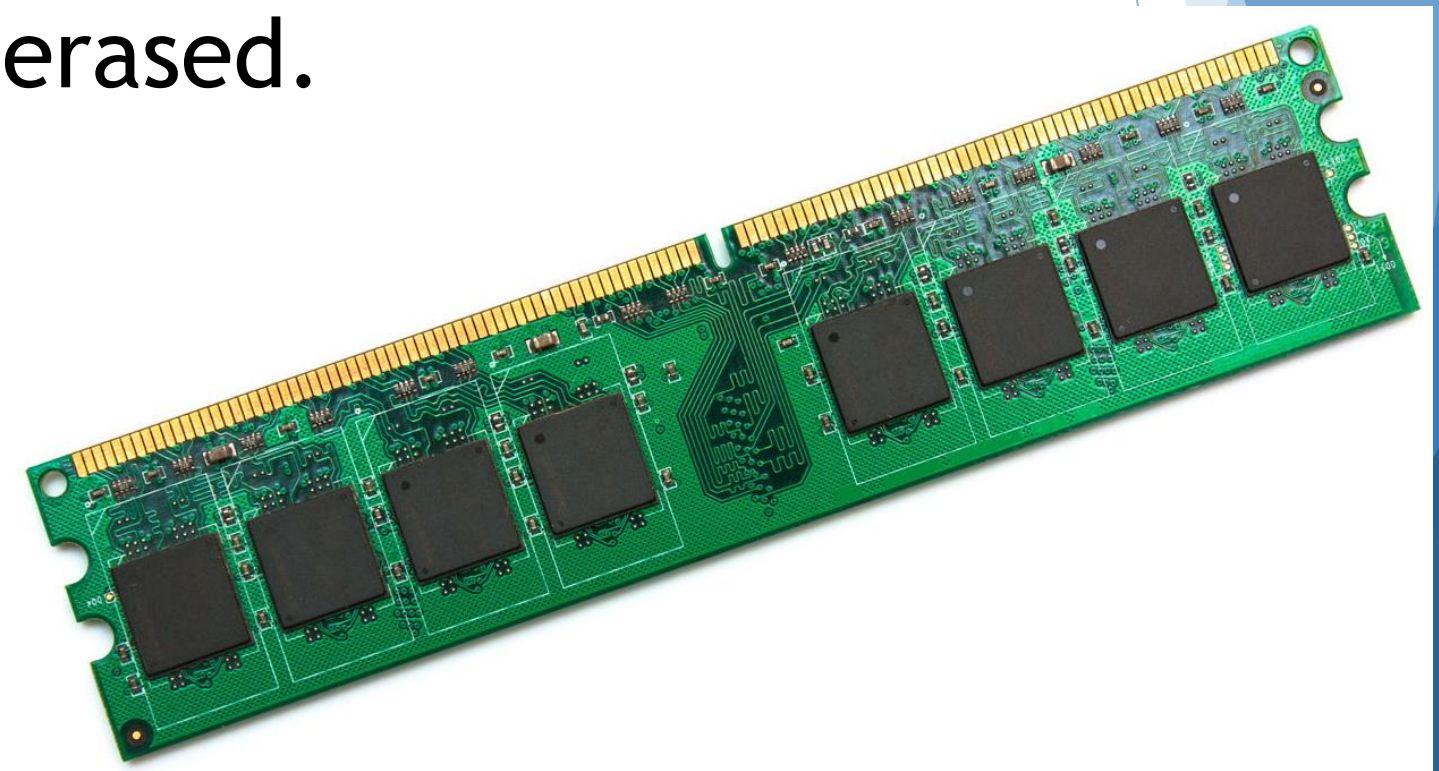
Main memory is commonly known as ***random-access memory***, or ***RAM***.

It is called this because the CPU is able to quickly access data stored at any random location in RAM.



RAM is usually a ***volatile*** type of memory that is used only for temporary storage while a program is running.

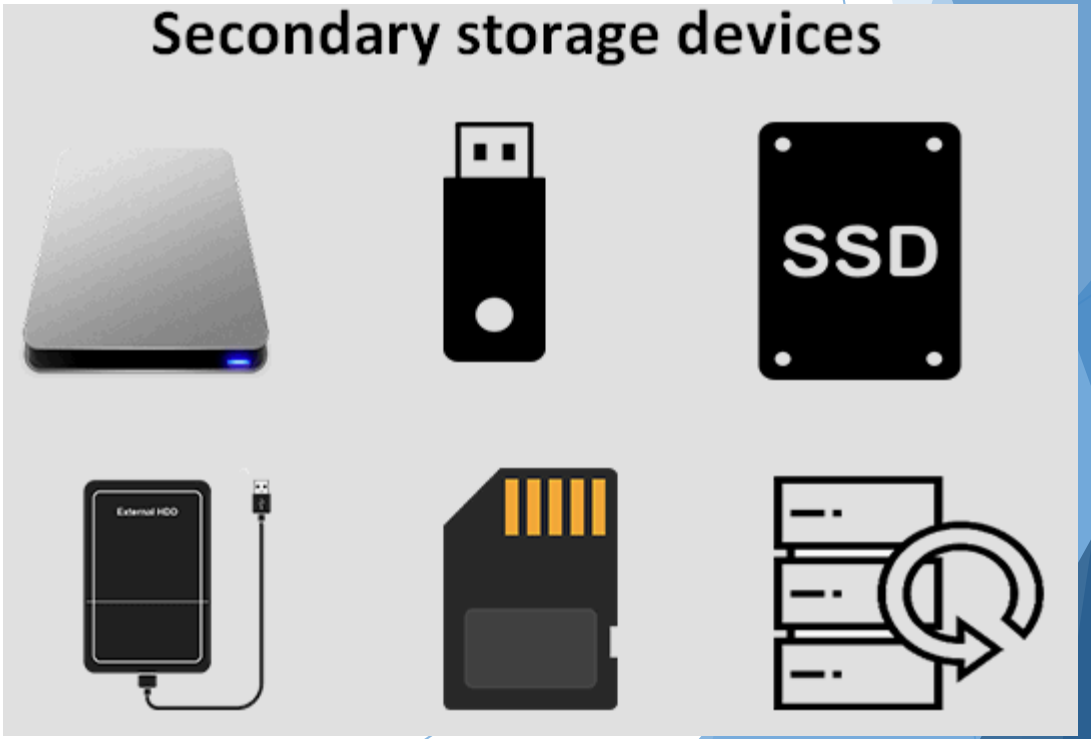
When the computer is turned off, the contents of RAM are erased.



What is Secondary Storage Devices?

Secondary Storage Devices

- is a type of memory that can hold data for long periods of time, even when there is no power to the computer



What is Input Devices?

Input Devices

Input is any data the computer collects from people and from other devices.

The component that collects the data and sends it to the computer is called an ***input device***.

What is Output Devices?

Output Devices

Output is any data the computer produces for people or for other devices.

MONITOR

PRINTER

SPEAKER

HEADPHONE

PROJECTOR

The data is sent to an ***output device***, which formats and presents it.

Any Questions?

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