COMPUTER ARCHITECTURE REVIEW

I4GIC
2021-22 Semester 2
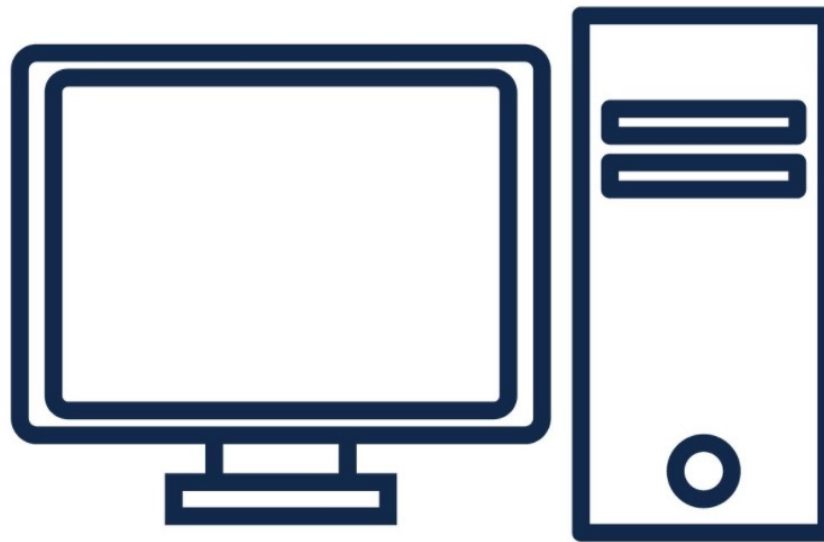
Computer is an electrical device which you can **input data, process data, store data** and **output data**
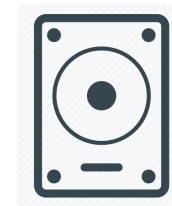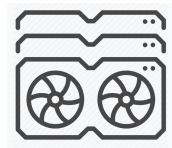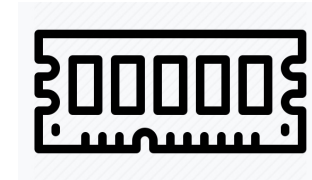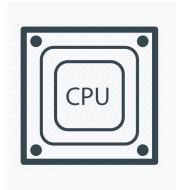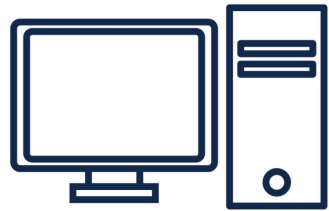
Computer is an electrical device which you can input data, process data, store data and output data

Motherboard

Program
and Data → **INPUT UNIT** → **STORAGE UNIT** → **OUTPUT UNIT** → RESULTS

CONTROL UNIT

ARITHMETIC LOGIC UNIT
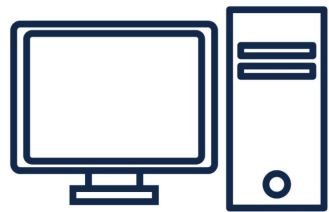
Central Processing Unit
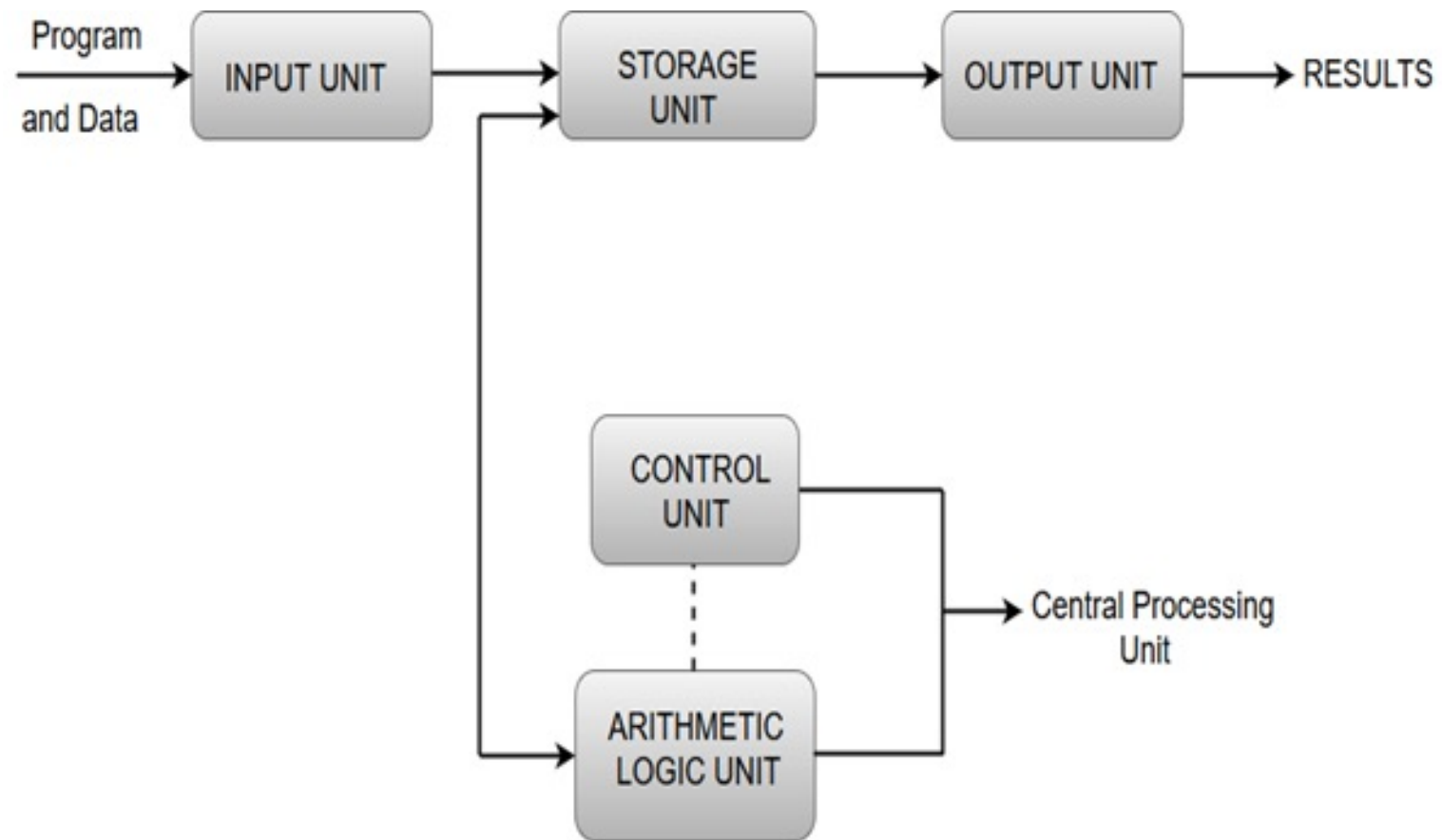
CENTRAL PROCESSING UNIT

Central processing unit commonly known as CPU can be referred as an electronic circuitry within a computer that carries out 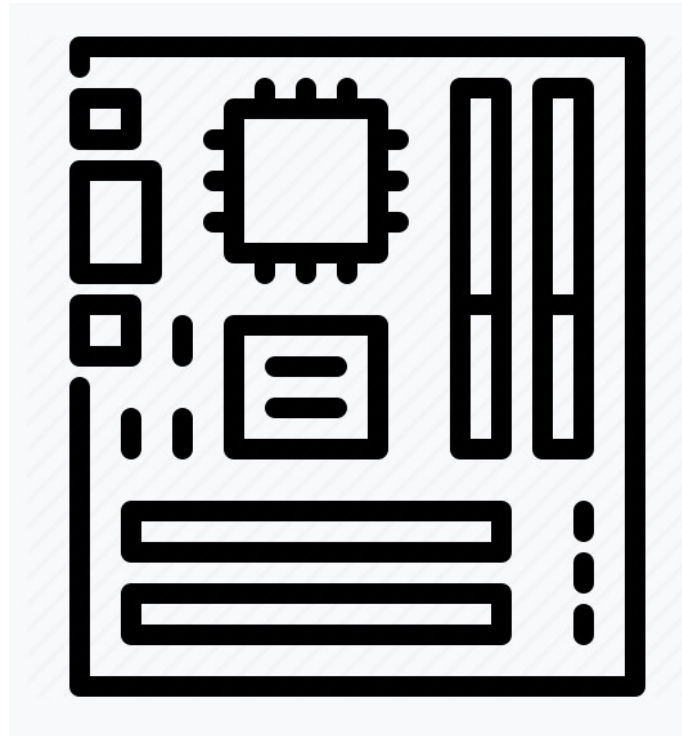the instructions given by a computer program by performing the basic arithmetic, logical, control and input/output (I/O) operations specified by the instructions.

ALU
CU
Registers
CPU Bus

MEMORY UNIT

The Memory unit can be referred to as the storage area in which programs are kept which are running, and that contains data needed by the running programs.

Registers	Cache	Primary Memory	Secondary Memory	External Memory
IR	L1	RAM	SSD	USB Flash
MAR	L2	ROM	Magnetism	CD
MAR	L3			
ACC	TLB			
....				
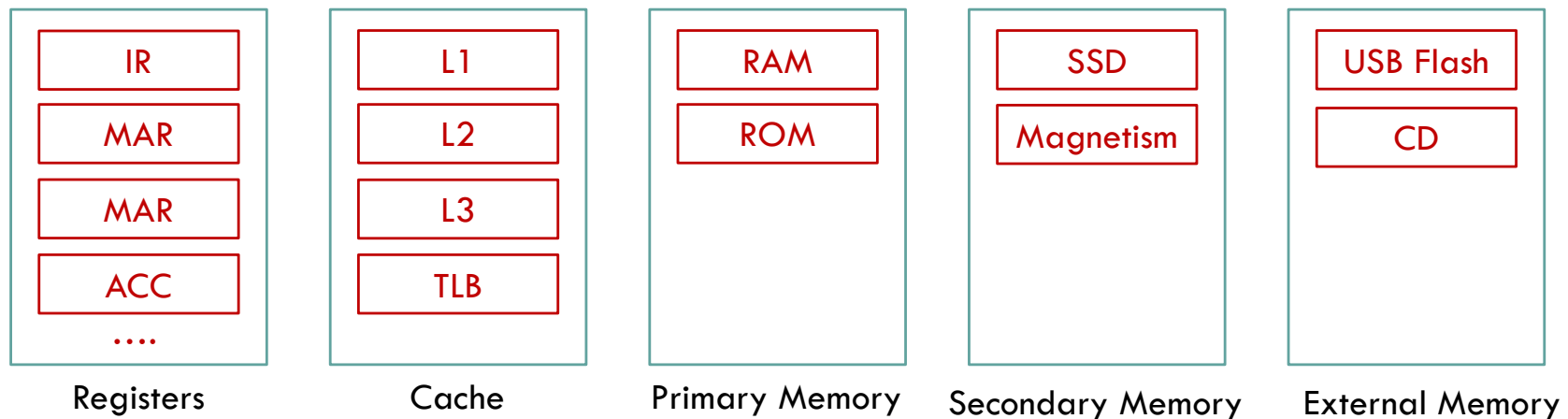
INPUT/OUTPUT UNITS

Input Unit

➤ Input units are used by the computer to read the data. The most commonly used input devices are keyboards, mouse, joysticks, trackballs, microphones, etc.

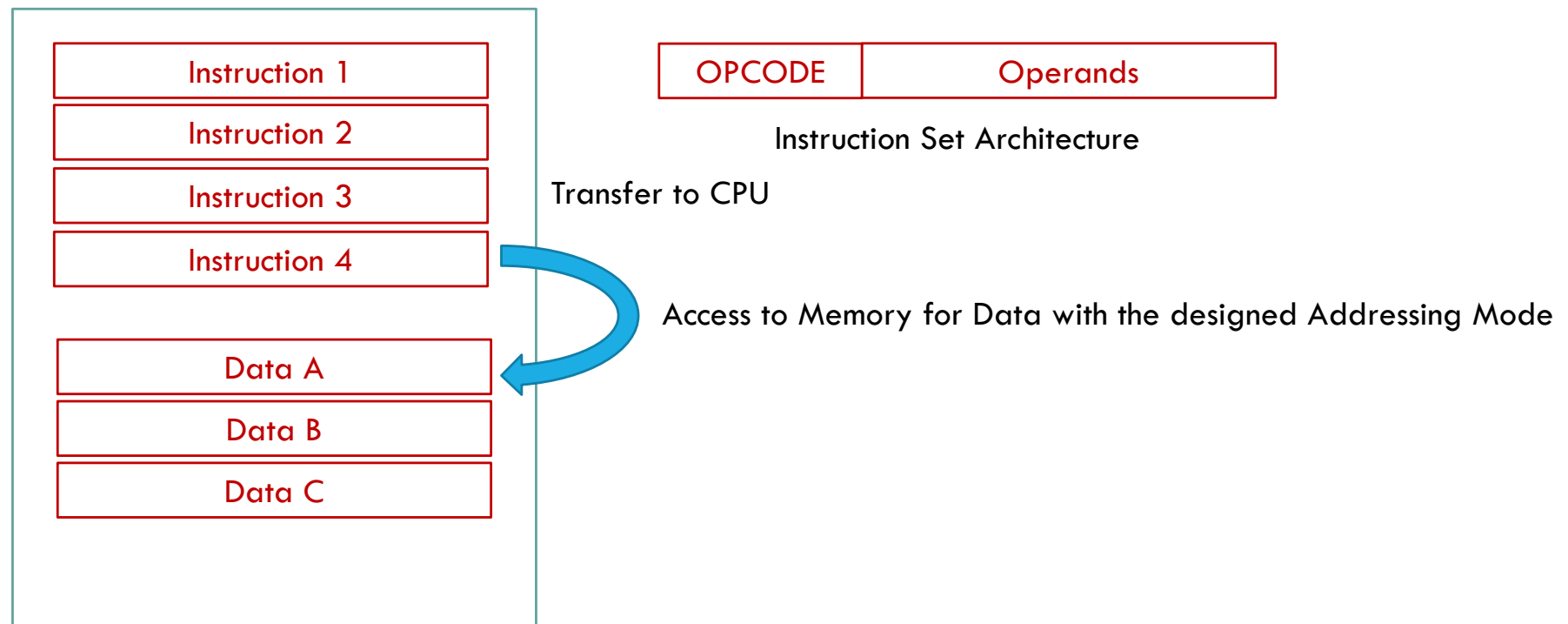➤ However, the most well-known input device is a keyboard. Whenever a key is pressed, the corresponding letter or digit is automatically translated into its corresponding binary code and transmitted over a cable to either the memory or the processor.

Output Unit

➤ The primary function of the output unit is to send the processed results to the user. Output devices display information in a way that the user can understand.

➤ Output devices are pieces of equipment that are used to generate information or any other response processed by the computer. These devices display information that has been held or generated within a computer.

SOFTWARE: PROGRAM

Instruction 1
Instruction 2
Instruction 3
Instruction 4

Data A
Data B
Data C

OPCODE	Operands

Instruction Set Architecture

Transfer to CPU

Access to Memory for Data with the designed Addressing Mode

ADDRESSING MODES

There are different type of addresing modes:

➢ Immediate addresing

➢ Direct addressing

➢ Indirect addressing

➢ Register direct addressing

➢ Register indirect addressing

➢ Diplacement addressing