

- Computer Architecture
- Von-Neumann Architecture
- Architecture
- Idea of stored program.

Formation/  
constitution  
of microprocessor

### Key terms:

- **Definition**
- **Registers**
  - Special purpose
  - General purpose

### FDEC

- System Buses (IAS)

- Immediate Access Store work differently.

This was an idea for the general purpose computer that when given any program can execute it effortlessly.

You don't have to change a computer to make it work differently.

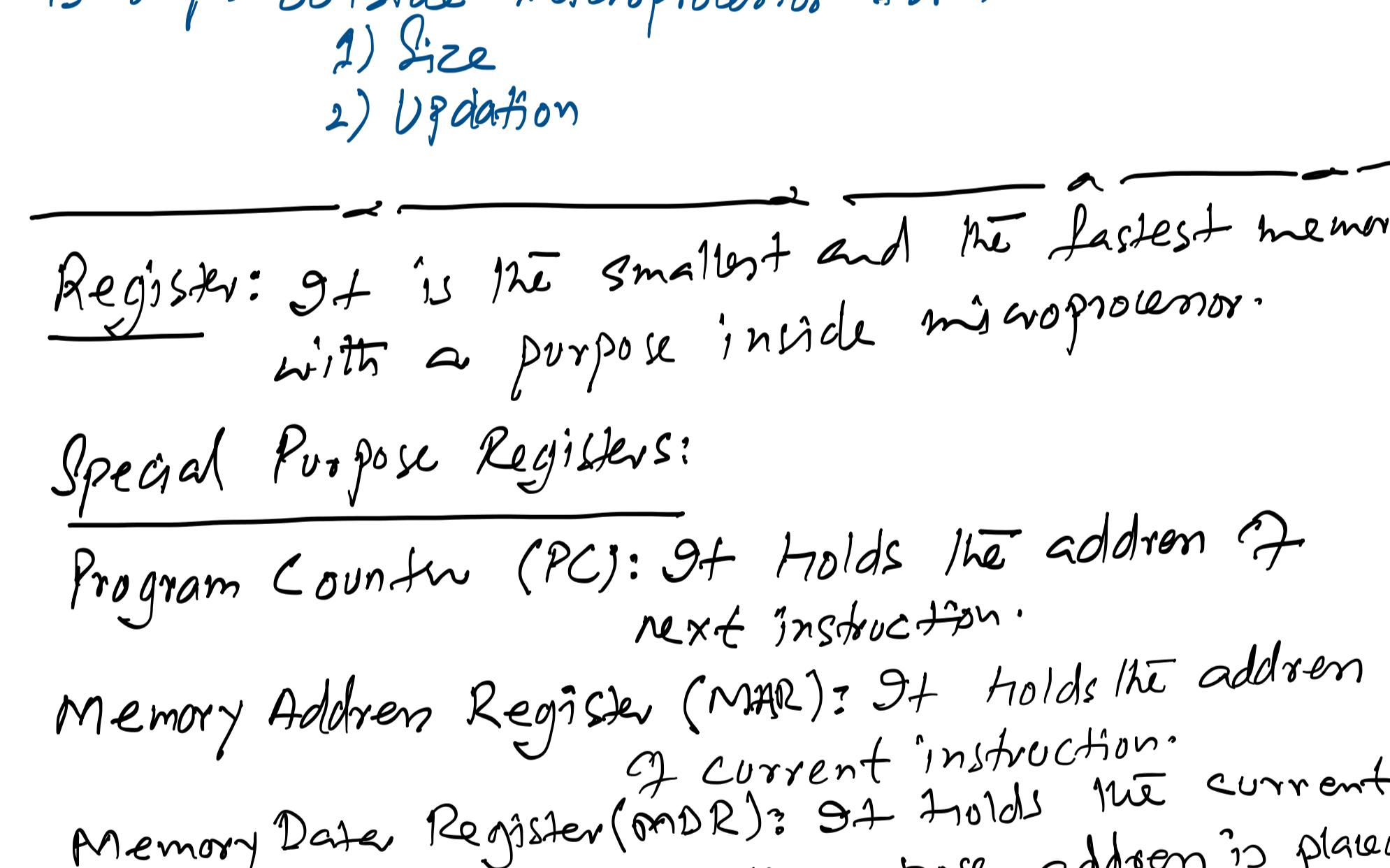
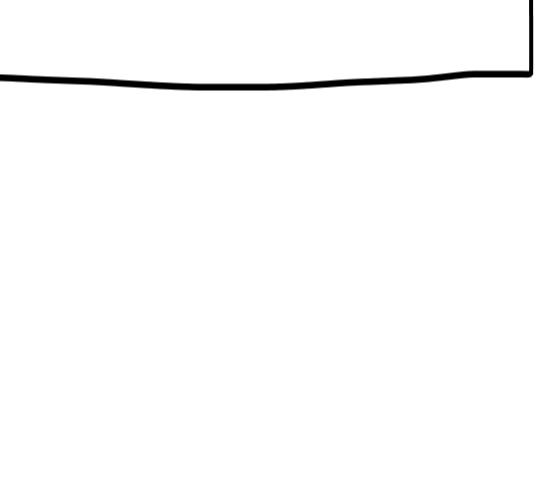
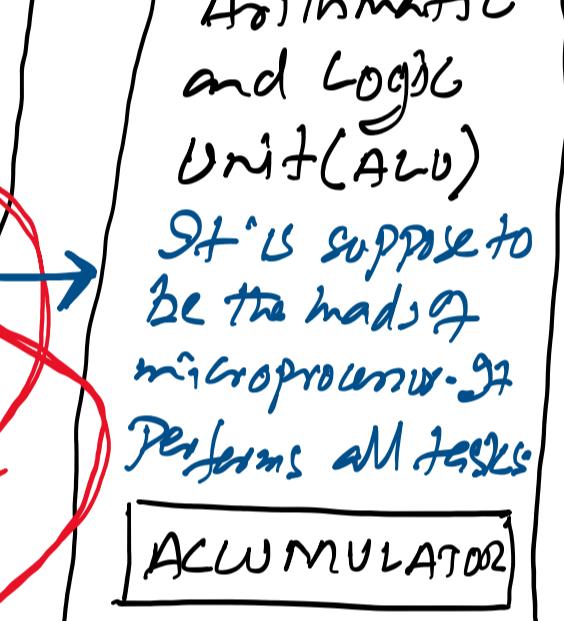
### Definition: What/State/Describe/Explain

- It is a single processor made up of Control unit (CU), Arithmetic Logic unit (ALU) and Memory unit (MU).

- Both programs (instructions) and data are indistinguishable in binary form and will be kept in the same main memory.

- Use of input, output, and storage.

- It's a sequential/serial machine



- Main memory is part of the microprocessor and it is kept outside microprocessor for two reasons:

- 1) Size
- 2) Updation

### Special Purpose Registers:

Program Counter (PC): It holds the address of next instruction.

Memory Address Register (MAR): It holds the address of current instruction.

Memory Data Register (MDR): It holds the current instruction whose address is placed in MAR.

Current Instruction Register (CIR): It decodes & executes current instruction.

### General Purpose Registers:

Accumulator: All the data produced during the execution of current program is kept in accumulator.

Fetch Decode Execute Cycle (FDEC):

- Address of the next instruction from PC goes to MAR.

- Instruction in memory whose address is in MAR arrives in MDR.

- From MDR, current instruction goes to CIR.

- PC increments itself by 1.

- CIR decodes and executes current instruction.

Fetch

Fetch.  $\xrightarrow{\text{Decode \& Exec.}}$

$\frac{\text{PC} \rightarrow \text{MAR}}{30} \quad \frac{\text{MDR} \rightarrow \text{CIR}}{\text{LDD} \rightarrow \text{LDD}}$

$\frac{31 \text{ Add. Bus}}{\text{Main Memory}}$

$\frac{\text{Main Memory}}{\text{Main Memory}}$