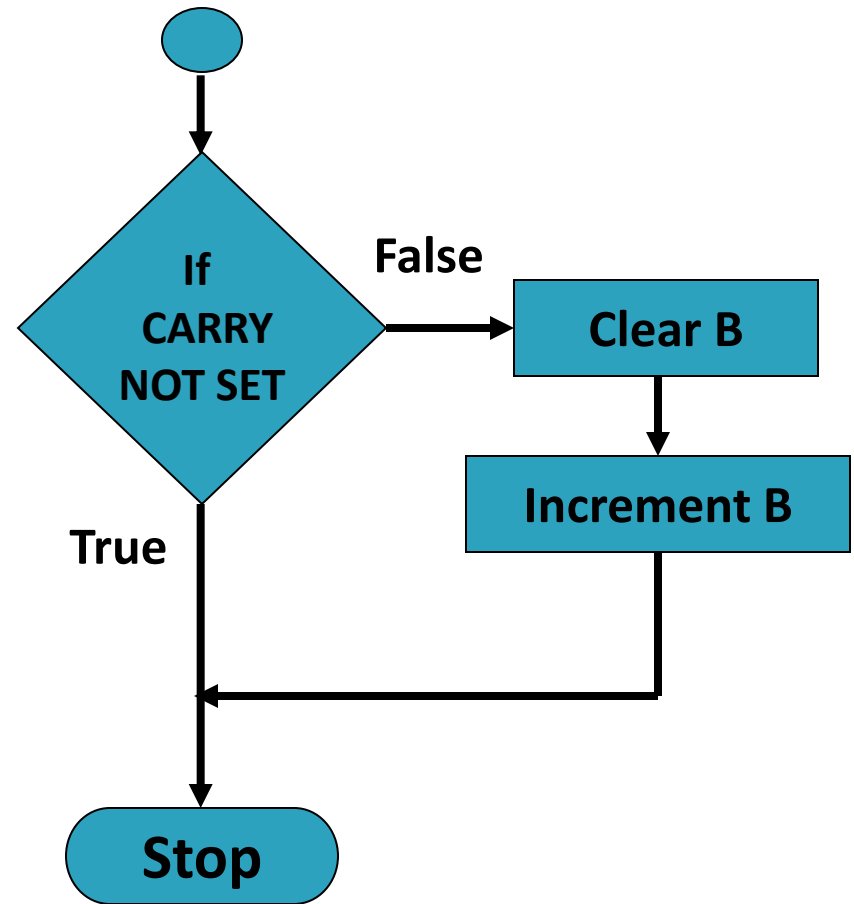
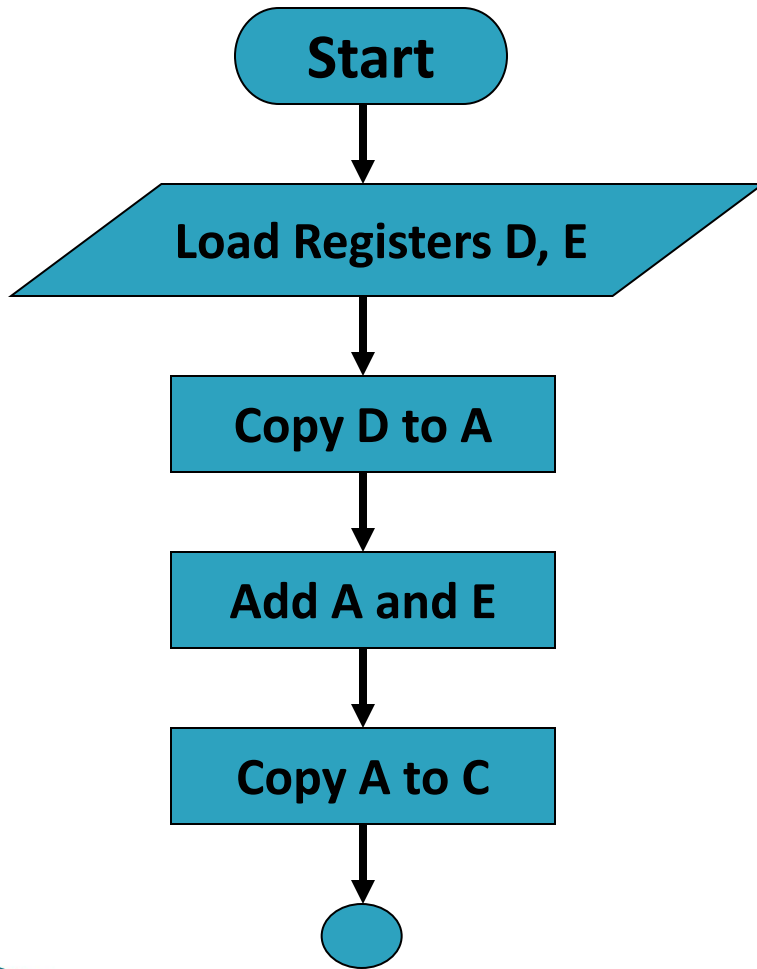


Unit 2

Lecture 6

Make a Flowchart



Assembly Language Program

- Load registers D, E
- Copy register D to A
- Add register E to A
- Copy A to register C
- Use Conditional Jump instructions
- Clear register B
- Increment B
- Stop processing

```
MVI D, 2H
MVI E, 3H
MOV A, D
ADD E
MOV C, A
JNC END
MVI B, 0H
INR B
END: HLT
```

Addressing Modes of 8085

- Format of a typical Assembly language instruction is given below–

[Label:] Mnemonic [Operands] [;comments]

HLT

MVI A, 20H

MOV M, A ;Copy A to memory location

whose address is stored in
register pair HL

LOAD: LDA 2050H ;Load A with contents of memory
location with address 2050H

READ: IN 07H ;Read data from Input port with
address 07H

- ▶ The various formats of specifying operands are called addressing modes
- ▶ Addressing modes of 8085
 1. **Register** Addressing
 2. **Immediate** Addressing
 3. **Memory** Addressing
 4. **Input/Output** Addressing

1. Register Addressing

- ▶ Operands are one of the internal registers of 8085
- ▶ Examples–

MOV A, B

ADD C

2. Immediate Addressing

- ▶ Value of the operand is given in the instruction itself

- ▶ Example–

MVI A, 20H

LXI H, 2050H

ADI 30H

SUI 10H

3. **Memory** Addressing

- ▶ One of the operands is a memory location
- ▶ Depending on how address of memory location is specified, **memory** addressing is of two types
 - **Direct** addressing
 - **Indirect** addressing

3(a) Direct Addressing

- ▶ 16-bit Address of the memory location is specified in the instruction directly

- ▶ Examples–

LDA 2050H ;load A with contents of memory location with address 2050H

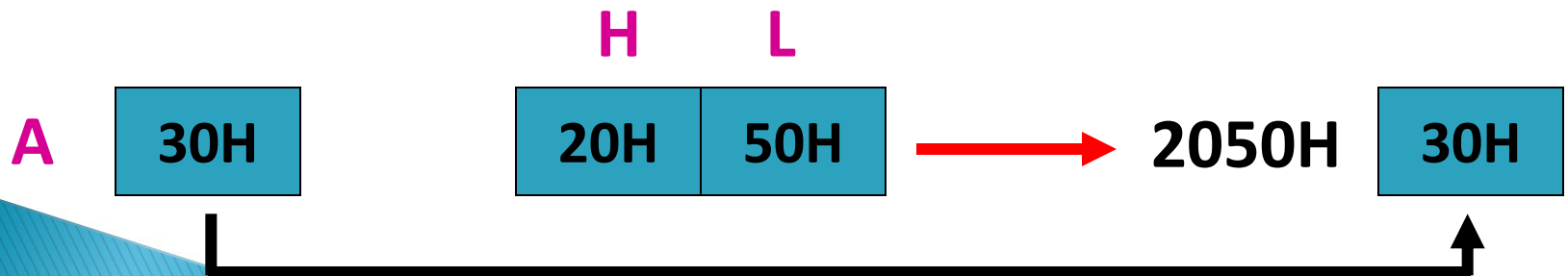
STA 3050H ;store A with contents of memory location with address 3050H

3(b) Indirect Addressing

- ▶ A **memory pointer** register is used to store the address of the memory location

- ▶ Example–

MOV M, A ; copy register A to memory location whose address is stored in register pair HL



4. **Input/Output** Addressing

- ▶ **8-bit** address of the port is directly specified in the instruction

- ▶ Examples–

IN 07H

OUT 21H