

## 6.25 Programs

Ex. 6.25.1 : Add two 8-bit numbers.

### Program statement :

Write a program to add the contents of memory locations D000H and D001H. Store in result in memory location D002H.

### Explanation :

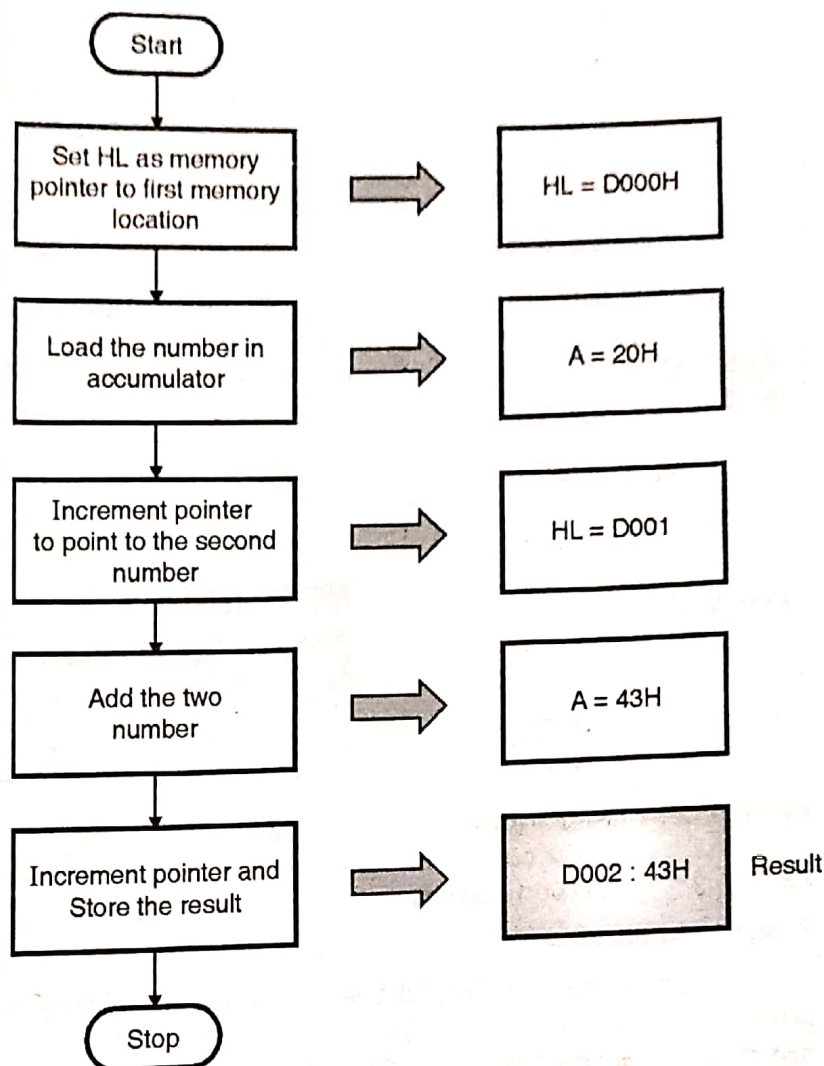
- We have two numbers at memory locations D000H and D001H. Let these numbers be 20H and 23H. We have to add these two numbers.
- Using ADD instruction we will add the two numbers.  
Store the result at memory location D002H.

e.g. D000H = 20H

D001H = 23H

Result D002H = 20H + 23H = 43H

Program :		
Instruction	Comment	Operation
LXI H, D000H	Set HL as memory pointer at memory location D000H.	H = D0H, L = 00H
MOV A, M	Load first operand in accumulator	A = 20 H
INX H	Increment HL to point next memory location i.e. D001H	H = D0H, L = 01H D001 : 23 H
ADD M	Add the second operand with first operand.	A = A + M A = 20 + 23 A = 43 H
INX H	Increment HL to point to next memory location	H = D0H, L = 02H
MOV M, A	Store the result	D002 : 43H Result
HLT	Terminate program execution	Stop.



Flowchart : Refer Flowchart 1

Flowchart 1

Ex. 6.25.2 : Subtract two 8 bit numbers.

Program statement :

Subtract the contents of memory location D001H from memory location D000H and place the result in memory location D002H.

Explanation :

We have two numbers at memory locations D000H and D001H. Let these numbers be 50H and 20H. We have to subtract these numbers.

Using the SUB instruction we will subtract the two numbers. Store the result at memory location D002H.

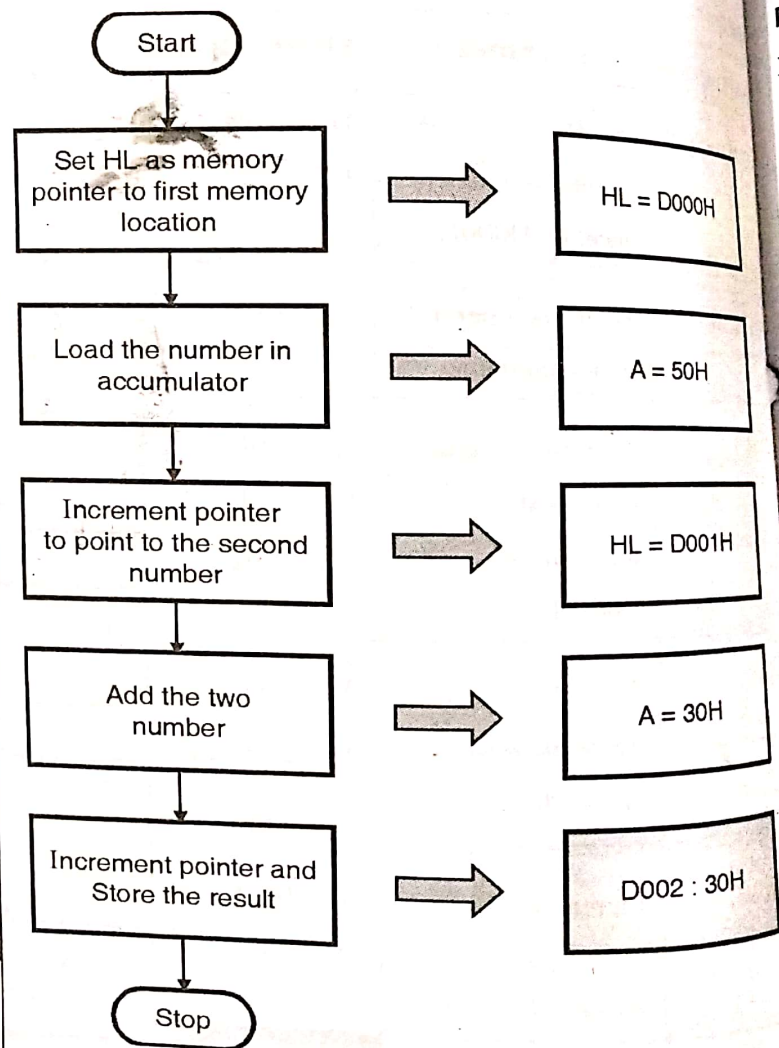
e.g. : D000H = 50 H

D001H = 20 H

(Result) D002H = 50 H - 20 H = 30H

**Program :**

Instruction	Comment	Operation
LXI H, D000H	Set HL as memory pointer at memory location D000H	H = D0H, L = 00H
MOV A, M	Load first operand in accumulator	A = 50 H
INX H	Increment HL to point to next memory location i.e. D001H	H = D0H, L = 01H D001 : 20H
SUB M	Subtract the second operand from first operand.	A = A - M A = 50 - 20 A = 30 H
INX H	Increment HL to point to next memory location i.e. D002 H	H = D0 H, L = 02 H
MOV M, A	Store the result	<b>D002 : 30H Result</b>
HLT	Terminate program execution	Stop.



**Flowchart :** Refer Flowchart 2.

**Flowchart 2**