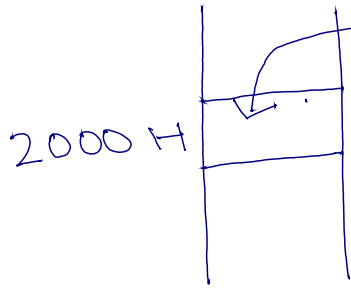
15/11/2021

MICROPROCESSOR

8085 ASSEMBLY PROGRAMMING EXAMPLES

21 : Store the data byte 52H into memory location 2000H.

Soln : Given → 8-bit data : 52H




```
MVI A, 52H.
STA 2000H
HLT.
```

6 byte → 2 byte, 3 byte, 1 byte

```
MVI H, 20H.
MVI L, 00H.
MVI A, 52H.
MOV M, A
HLT.
```

8 byte → 2, 2, 2, 1, 1

```
LXI H, 2000H.
MVI A, 52H.
MOV M, A
HLT.
```

7

```
LXI H, 2000H.
MVI M, 52H.
HLT.
```

3, 2, 1 → 6

(Comments).

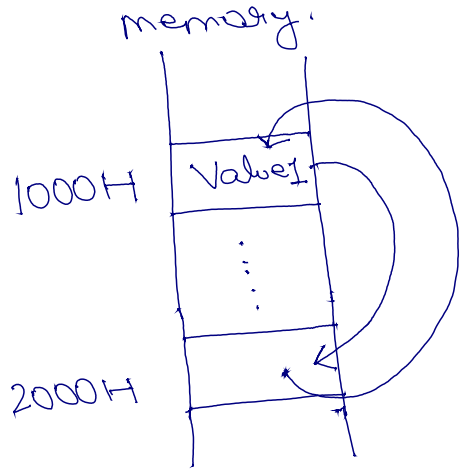
MVI A, 52H ; Copy value 52H to accumulator

STA 2000H ; Copy Accumulator value to memory.

HLT ; Stop the prog.

Q2 WAP to exchange the contents of memory location 1000H and 2000H.

Soln.



MOV M, M

no direct interaction or data copy b/w m to m.

① 1000H → A

② 2000H → B

③ A → 2000H

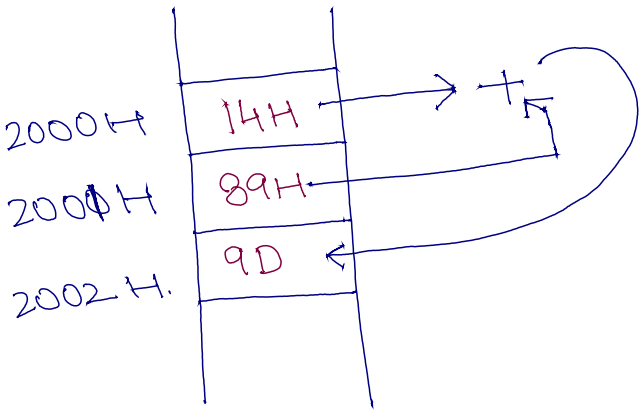
④ B → 1000H

```
LDA 1000H ; Copy contents of 1000H to A
LXI H,2000H ; HL → 2000H.
MOV B, M  ; Copy contents of 2000H to B
MOV M, A  ; Copy contents of A to 2000H.
MOV A, B  ; Copy B to A.
STA 1000H ; Copy A to 1000H.
```

Q3 WAP To Add the contents of memory location 2000H and 2001H and place the sum in memory location 2002H.

Soln :

Memory



14H + 89H
= 9DH.

① 2000H ⟶ A ② HL ⟶ 2001H.

③ ADD M ⟹ A + M = A ④ A ⟶ 2002H.

```
LDA  2000H ; Load value of 2000H in A
LXI  H, 2001H ; make HL = 2001H.
ADD  M  ; Add : A = A + M
STA  2002H ; copy A to memory 2002H.
HLT.
```

HL = 2001H. ← To make sure when we use M in our instruction it points to 2001H.

Q4 WAP to Subtract the Contents of memory 2001H from the Contents of memory 2000H and place the result in memory 2002H.

Soln:

```
LXI H, 2000H
MOV A, M
INX H
SUB M
INX H
MOV M, A
HLT.
```

Dry Run.

HL = 2000H.

A ← Value of memory 2000H

HL = 2001H.

A = A − M :

HL = 2002H.

A → M, M is 2002H.

↳ INR R → increment value of register.

INR B → B ← value of B + 1.

↳ INX Rp → increment value of register pair

INX H → HL ← Increase by 1.

Q5 WAP to add the contents of 3 memory locations 2000H, 2001H and 2002H. Place the result in 2003H.

Soln :

```
LXI   H, 2000H
MOV   A, M
INX   H
ADD   M
INX   H
ADC   M
INX   H
MOV   M, A
HLT.
```

Dry Run.

HL = 2000H.

A ← value of memory 2000H.

HL = 2001H

A = A + M : A ← (2000) + (2001)

HL = 2002H.

A = A + M + CY : A ← (2000) + (2001) + (2002)

HL = 2003H.

A → stored in memory 2003H.

ADC → Add with carry.

HW

Q6 WAP to add two 16 bit numbers stored at (2000 and 2001H.) (2002H and 2003H)
Number 1 Number 2

Store the result in memory (3000H and 3001H)
Result.