

13. Write an assembly language program to find the largest number in an array.

AIM: To find the largest number in an array of data using 8085 instruction set

ALGORITHM:

- 1) Load the address of the first element of the array in HL pair
- 2) Move the count to B – reg.
- 3) Increment the pointer
- 4) Get the first data in A – reg.
- 5) Decrement the count.
- 6) Increment the pointer
- 7) Compare the content of memory addressed by HL pair with that of A - reg.
- 8) If Carry = 0, go to step 10 or if Carry = 1 go to step 9
- 9) Move the content of memory addressed by HL to A – reg.
- 10) Decrement the count
- 11) Check for Zero of the count. If ZF = 0, go to step 6, or if ZF = 1 go to next step.
- 12) Store the largest data in memory.
- 13) Terminate the program

PROGRAM:

```
LDA 2001
MOV b,a
MVI c,#01
MVI e,#01
loop: MOV d,c
MVI a,00h
lp: ADD e
DCR d
JNZ lp
MOV e,a
INR c
DCR b
JNZ loop
MOV a,e
STA 2010
HLT
```

GNUSim8085 - 8085 Microprocessor Simulator

File Reset Assembler Debug Help

Registers

A	78
BC	00 06
DE	00 78
HL	00 00
PSW	00 00
PC	42 1B
SP	FF FF
Int-Reg	00

Flag

S	0
Z	1
AC	0
P	1
C	0

Load me at

```

1 LDA 2001
2 MOV b,a
3 MVI c,#01
4 MVI e,#01
5 loop: MOV d,c
6 MVI a,00h
7 lp: ADD e
8 DCR d
9 JNZ lp
10 MOV e,a
11 INR c
12 DCR b
13 JNZ loop
14 MOV a,e
15 STA 2010
16 HLT

```

Start 2001 OK

Address (Hex)	Address	Data
07D1	2001	5
07D2	2002	0
07D3	2003	0
07D4	2004	0
07D5	2005	0
07D6	2006	0
07D7	2007	0
07D8	2008	0
07D9	2009	0
07DA	2010	120

Decimal - Hex Conversion

Decimal 0 Hex 0

To Hex To Dec

I/O Ports

0 - + 00

Update Port Value

Memory

0 - + 00

Update Memory

Line No Assembler Message

0 Program assembled successfully

Simulator: Idle

OBSERVATION:

INPUT: 05(2001)

OUTPUT: 120(2010)

RESULT: Thus the program to find the largest number in an array of data was executed