

ASCENDING ORDER

EXP NO: 12

AIM:

To compute ascending order of an array using an 8085 processor.

ALGORITHM:

- 1) Initialize HL pair as memory pointer.
- 2) Get the count at memory and load it into C register
- 3) Copy it in D register (for bubble sort (N-1)) times required).
- 4) Get the first value in A register.
- 5) Compare it with the value at the next location.
- 6) If they are out of order, exchange the contents of A register and memory.
- 7) Decrement D register content by 1
- 8) Repeat steps 5 and 7 till the value in D register becomes zero.
- 9) Decrement the C register content by 1.
- 10) Repeat steps 3 to 9 till the value in C register becomes zero.

PROGRAM:

```
LOOP: LXI H,3500
```

```
MVI D,00
```

```
MVI C,05
```

```
LOOP1: MOV A,M
```

INX H

CMP M

JC LOOP2

MOV B,M

MOV M,A

DCX H

MOV M,B

INX H

MVI D,01

LOOP2: DCR C

JNZ LOOP1

MOV A,D

RRC
JC LOOP

HLT

INPUT:

0DAC	3500	6
0DAD	3501	3
0DAE	3502	8
0DAF	3503	12
0DB0	3504	25
0DB1	3505	9

OUTPUT:

The screenshot displays the GNUSim8085 - 8085 Microprocessor Simulator interface. The main window shows the assembly code being executed. The registers panel on the left shows the status of various registers, including A, BC, DE, HL, PSW, PC, SP, and Int-Reg. The memory panel on the right shows the memory contents, with the address 3500 highlighted. The assembly code is as follows:

```
1 ;<Program title>
2
3
4 jmp start
5
6 ;data
7
8
9 ;code
10 start: nop
11 LOOP: LDI H, 3500
12 MVI D, 00
13 MVI C, 05
14 LOOP1: MOV A, M
15 INX H
16 OMD M
17 JC LOOP2
18 MOV B, M
19 MOV M, A
20 DCR H
21 MOV M, B
22 INX H
23 MVI D, 01
24 LOOP2: DCR C
25 JNZ LOOP1
26 MOV A, D
27 RMO
28 JC LOOP
29 hlt
```

The memory panel on the right shows the following data:

Address (Hex)	Address	Data
0DAC	3500	3
0DAD	3501	6
0DAE	3502	8
0DAF	3503	9
0DB0	3504	12
0DB1	3505	25
0DB2	3506	0
0DB3	3507	0
0DB4	3508	0
0DB5	3509	0
0DB6	3510	0
0DB7	3511	0
0DB8	3512	0
0DB9	3513	0
0DBA	3514	0
0DBB	3515	0

The I/O Ports panel shows the current port value as 00. The Memory panel shows the current memory address as 00. The bottom status bar indicates the simulator is idle.

RESULT: Thus

The program was executed successfully using an 8085 processor simulator.