

ASCENDING ORDER

EXP NO: 12

AIM: To compute ascending order of an array using 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 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 step 5 and 7 till the value in D register become 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:

 Data

 Stack

 Keypad

Memory

 I/O Ports

Start

Address (Hex)	Address	Data
0DAC	3500	1
0DAD	3501	4
0DAE	3502	6
0DAF	3503	25
0DB0	3504	32
0DB1	3505	33
0DB2	3506	0
0DB3	3507	0
0DB4	3508	0
0DB5	3509	0
0DB6	3510	0
0DB7	3511	0
0DB8	3512	0
0DB9	3513	0

Line No

Assembler Message

OUTPUT:

The screenshot displays the 8085 Microprocessor Simulator interface. The main window shows assembly code being loaded at address 0000. The code includes a program title, a jump to start, data declaration, code declaration, and a loop structure. The registers window shows the status of various registers, including A, BC, DE, HL, PSW, PC, SP, and nt-Reg. The memory window shows the address and data for the program. The assembler message window displays the message "Program assembled successfully".

Registers:

Register	Value
A	00
BC	06 00
DE	00 00
HL	0D B1
PSW	00 00
PC	42 22
SP	FF FF
nt-Reg	00

Flags:

Flag	Value
S	0
Z	1
AC	0
P	1
C	0

Assembly Code:

```
1 ;<Program title>
2 jmp start
3
4 ;data
5
6 ;code
7 start: nop
8 LOOP: LXI H, 3500
9
10 MVI D, 00
11
12 MVI C, 05
13
14 LOOP1: MOV A, M
15
16 INX H
17
18 CMP M
19
20 JC LOOP2
21
22 MOV B, M
23
24 MOV M, A
25
26 DCX H
27
28 MOV M, B
29
30 INX H
31
32
```

Memory:

Address (Hex)	Address	Data
0DAD	3500	1
0DAD	3501	4
0DAE	3502	6
0DAF	3503	25
0DB0	3504	32
0DB1	3505	33
0DB2	3506	0
0DB3	3507	0
0DB4	3508	0
0DB5	3509	0
0DB6	3510	0
0DB7	3511	0
0DB8	3512	0
0DB9	3513	0

Assembler Message:

```
Line No Assembler Message
0 Program assembled successfully
```

RESULT: Thus the program was executed successfully using 8085 processor simulator.