DESCENDING ORDER

EXP NO: 13

AIM:
To compute descending 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:

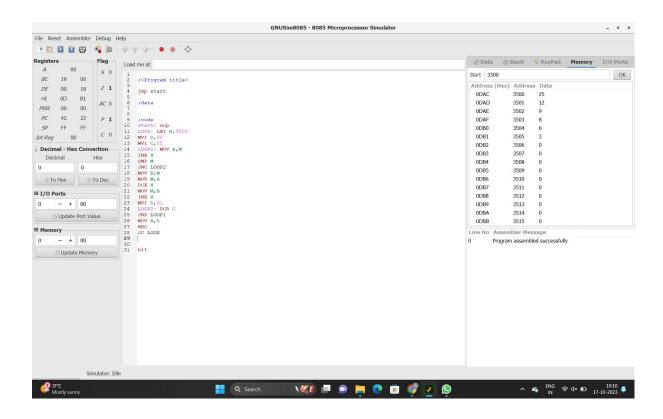LOOP: LXI H,3500

MVI D,00

MVI C,05

```
LOOP1: MOV A,M

INX H

CMP M

JNC 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:


```
GNUSim8085 - 8085 Microprocessor Simulator                                    _  □  ×
File   Reset   Assembler   Debug   Help

Registers        Flag     Load me at
  A      00      S  0      1
 BC   19   00             2   ;<Program title>
 DE   00   18    Z  1     3
 HL   0D   B1            4   jmp start
PSW   00   00    AC 0    5
 PC   42   22            6   ;data
 SP   FF   FF    P  1    7
Int-Reg    00            8
                C  0     9   ;code
                        10   start: nop
Decimal - Hex Convertion 11   LOOP: LXI H,3500
  Decimal      Hex       12   MVI D,00
                         13   MVI C,05
  0          0           14   LOOP1: MOV A,M
 →To Hex    ←To Dec      15   INX H
                         16   CMP M
I/O Ports                17   JNC LOOP2
  0    −  +   00         18   MOV B,M
                         19   MOV M,A
 Update Port Value       20   DCX H
Memory                   21   MOV M,B
  0    −  +   00         22   INX H
                         23   MVI D,01
 Update Memory           24   LOOP2: DCR C
                         25   JNZ LOOP1
                         26   MOV A,D
                         27   RRC
                         28   JC LOOP
                         29   |
                         30
                         31   hlt

                    Simulator: Idle
```

Memory panel:

Address (Hex)	Address	Data
0DAC	3500	25
0DAD	3501	12
0DAE	3502	9
0DAF	3503	8
0DB0	3504	6
0DB1	3505	3
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

Line No	Assembler Message
0	Program assembled successfully

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