```
OBJECTIVE - 1 !-
```

Find the largest/smallest number (8-bit number) from a given array of size N:

For largest Number:

Pre-lab!-

· Assembly code:

· data

Array_length db 04h

value db 09h, 10h, 05h, 03h

result db ooh

· code

MAIN PROG

mov ax , data

mov ds, ax

mor cl, Array-length

dec cl

LEA st, value

mov al, [s?]

up: finc sî

cmp al, [s?]

jal down

mor al, [si]

down : dec cl

jnz up

LEA DI, result

mov [DI], al

END MAIN

Input /output of Assembly code: The comment of the second of the second Input 1-

81· No·	Memory location	operand (data)	
1	0710:0000	04	
a	0-710:0001	09	
3	0710:0002	10	ιΛ
4	0710:0003	05	1
5	0710:0004	03 at dipart no	10
		uso a constant of the cut	ili.

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Output:-

SINO.	Memory location	Operand (data)
1	0710 : 0005	10 company of
		Lo si

```
For smallest Number !-
 tre-lab:
 Assembly code :-
 . data
Array-length db 04h
 value db ogh, 10h, 05h, 03h
 result db ooh
 ·code
 MAIN PROC
     mov ax, data
     mov ds, ax
     mov cl , Array - length
     dec al
     LEA si, value
      mov al, [si]
up: înc sî
      cmp al, [5]
      je down
      mov al, [si]
down: dec cl
       jnz 4
       LEA DI, result
       mor [DI] ial
  END MAIN
```

Input/output for Assembly code:

Input!

SI: No:	Memory Location	operand (data)
1	0710 ! 0000	04
a	0710:0001	of the state of the second
3	0710:0002	10 (100 (1 110)
4	0710:0003	05 , He
5	0710:0004	03 what year y
		Sevel Vin

Output !-

SI.	Memory Location	Operand Cdata)
1	0710:0005	03

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by [19] in

Miller starg

```
OBJECTIVE 2 :
   Arrange the elements (8-bit number) of a given array of size N in
   ascending descending order.
For Ascending order 1-
 re-labs-
 Assembly code :-
 . DATA
 count DB 06
value DB 09H, OFH, 14H, 45H, 24H, 3FH
 . CODE
MAIN PROC
    MOV AX, DATA
    MOV DS, AX
    MOV ct, count
   dec cH
UP2 : MOV CL, CH.
    LEA SI, value
UP1: MOV AL, [SI]
    CMP AL, [SI+1]
     JC DOWN
     MOV DL, [SI+1]
    XCHG [SI], DL
     MOV [SI+1], DL
DOWN : INC SI
      DEC CL
      JNZ UPI
      DEC CH
      JNR UPA
```

END MAIN

· Input/output for Assembly code!

Input :-

No.	Memory Location	Operand (data)
1	0710:0000	06
a	0710:0001	09 0F
3	0710:0003	- No. 47
4	0710 ! 0003	14 40 64 must
5	0710:0004	9. 119 45,190 et . mico
6	0710:0005	24 344-4
7	8 000; 0170	3F

Inues (E) Vote

Output:

		Ma and
SI SI	Memory Location	Operand Colata)
1	0710:0000	Ob [Lagrap remil]
а	0710: 0001	[2409] WA THE
3	0710:0002	P.F. June your
4	0710:0003	AND THEY.
5	0710: 0004	112411 Value
6	0710:0005	3F 1
7	0710:0006	45
		512 034

```
For Descending Order:
 Pre-Lab!
 Assembly code !-
. DATA
COUNT DB 06
VALUE DB OTH, OFH , 14 H , 45H , 24H , 3FH
 . CODE
 MAIN PROC
   MOV AX, DATA
   MOV DS, AX
   MOV CHI COUNT
   DEC CH
   UPa:
    MOV CL, CH
    LEA SI, VALUE
    UP1:
    MOV AL, [S]
    CMP AL, [SI+1]
    JNC DOWN
    MOV DL, [SI+1]
     XCHG [SI] , DL
     MOV [SI+1], DL
     DOWN:
     INC SI
     DEC CL
     JNZ UPI
     DEC CH
     JNZ UPZ
   END MAIN
```

· Input/output for Assembly code:

Input)

SI No.	Hemory Location	Operand (data)
	V	06
'	0710:0000	09
a	0410:0001	OF
3	0710:0002	14
4	0710:0003	14
	0710:0004	45
5		24
4	0710:0005	
7	0710:0006	3 F
		20.0%, 11.6 14.7

SI-NO.	Hemory Location	Operand (data)
J	0710: 0000	06 Mart 187
a	0710; 0001	45
3	0710:0002	3F
4	0710:0003	ач
5	0710:0004	14
6	071010005	of to the
7	0710:0006	09

lab exercise on 8086 assembly language programming focused on any manipulation, particularly finding the smallest number in an array, largest number in an array. Sorting the dements of array in ascending order and sorting the elements of array in descending order. Through practical implementation, we depend our understanding of low-level programming concepts and learned essential skills in algorithmic thinking and precise coding practices for microprocessor-based systems.

Post LAB

Ol What are the directions available for data declaration in 8086 microprocessor?

Ans >> Directives available for data declaration in 8086 microprocessor are:

Bados Title

- ·DB(Define Byte) Defines one or more bytes of data.
 - · DW C Define Word) Defines one ormore words (16+bit data).
 - · DD (Define Doubleword) Defines one or more doublewords. (32-bit data).
 - · DQ (Define Quadword) Defines one ormore quadwords (64-bit data).
 - . DT Defines a variable that is 10 bytes.
 - · CRLF = Defines a carriage return , or terminator byte.

QQ State the difference between END, ENDP, and ENDS directions.

Ans >

END: Marks the end of the entire program.

ENDP: Marks the end of a procedure (similar to a bunction)

ENDS: Marks the end of a segment la logical division of the

Program).

```
03 Find the sum and average of a given array of size N.
                 problem with problem werter drag neither from parts
                  of employed property product and evidence is the
  ARRAY-LENGTH DB 04H
        DB 09H, 10H, 05H, 03H
            had not a fait with with the me hand the and the con-
   SUM DB OOH
            institt and treate of all the later to be decree
                     programm of pritary with the
  AVERAGE
. CODE
 MAIN
   MOV AX, DATA
   Mov Ds, AX
   MOV CX, ARRAY-LENGTH
   the war armen are ambel . It was with I
   MOV AL, [3]
  CALCULATE The SUM
   XOR BX, BX CLEAR BX
   SUM_LOOP: ADD BLIAL
         INC. SINCE SINCE I FOR MAKE OF A POSSES OF EAST
           MOV AL, [SI]
           DEC-CX, 1 My com to accel a small to
           JNZ SUM-LOOP
     ; CALCULATE THE AVERAGE
     MOV ALIBL
     MOV BL, ARRAY-LENGTH
     MOV AVERAGE, AL
     MAIN ENDP
```

END MAIN