KHULNA UNIVERSITY OF ENGINEERING AND TECHNOLOGY, KUET

SESSIONAL REPORT

Course No: CSE 2204

Department of: Computer Science and Engineering

Experiment No: **05**

Name of the Experiment: Developing a program that finds the maximum and minimum number from some given number by using array in assembly language

Remarks

Date of Performance: 21.04.21

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Year: 2nd

Semester: 2nd

No. of experiment: 05

Name of experiment: Developing a program that finds the maximum and minimum digit from some given number by using registers and array in assembly language.

Objectives:

1. To learn about array
2. To obtain maximum and minimum number from some given numbers in assembly language.
3. To practice the proper use of jump instruction.

Introduction: Array is a collection of same type of data elements. In this program, we use jump instructions. We use a logic that there is a temporary register which is used to hold every data elements of the

array and compare with all the elements then we have to select maximum or minimum number and keep this in the temporary register which should be our answer.

Apparatus Required: emu 8086, laptop.

Methodology:

Code:

```
org 100h
mov si, offset array ; store the offset of the
                       array.
mov cx, len ; store the length of array in cx
mov dh, 0h ; store 0 in dh register
mov dl, 0ffh ; store ffh in the dl register
Lup:
    mov al, [si] ; we assign the al with the
                   value inside the memory [si].
    cmp al, dl ; comparing the values stored in
                 al and dl (for minimum
                 number)
```

jb min ; if the value of al is less than dl then go to 'min'

X:

cmp al, dh ; Comparing the values stored in al and dh

ja max ; if the value of al is greater than the value of dl then go to 'max'.

Y:

dec cx ; we have to decreas the value of cx ~~to~~ because this comparison to find maximum and minimum numbers untill cx is zero(0).

inc si ; we have to increase si to point the next element of the array.

~~jne~~

cmp cx, 0h ; Compare that cx is zero or not.

jne Lup ; if cx is zero then jump to Lup.

ret.

min:

mov dl, al ; assign dl with the value of al.

jmp X ; jump to 'X' for next comparison.

max:
    mov dh, al ; assigning dh with the value of al
    jmp Y ; for future comparison.

array db 1h, 2h, 3h, 4h, 5h ; An array containing same types of data

len equ ($-array) ; This instruction is used to find the length of the array. '$' sign is used at the last of the array and so ($-array) should show the length of the array.

Result and Discussion: From this experiment, we learnt about array and from the array we found the maximum and minimum number. We used different data for experimental purpose and every time

we found as expected result. In this experiment, we used jump instructions. So performing this experiment, helped us to use jump instruction very clearly and perfectly.

Conclusion: This experiment helps us to have a cristal ~~and~~ clear idea about array. We used jump instructions to find the maximum and minimum number and thats why we can use different jump instructions properly.

Reference:

1. Microprocessor and Interfacing - by D.V. Hall
2. emu 8086 / documentation . html.