KHULNA UNIVERSITY OF ENGINEERING AND TECHNOLOGY, KUET

SESSIONAL REPORT

Course No: CSE 2204

Department of: Computer Science and Engineering

Experiment No: **06**

Name of the Experiment: Developing a program that performs loop operation in assembly language and counting the sum of a series

Remarks

Date of Performance: 26.04.21

Date of Submission: 28.04.21

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Year: 2nd

Semester: 2nd

No. of Experiment: 06

Name of experiment: Developing a program that performs loop operation in assembly language and by using loop, counting the sum of a series in assembly language.

Objectives:

1. To learn how to implement loop instruction.
2. To learn how to use loop instruction and then solve a problem using loop instruction.
3. To obtain better knowledge about jump instruction.

Introduction:

Loop instruction is used to repeat a series of instructions some number of times. The number of times the instruction sequence is to be repeated ~~into~~ loaded into cx register.

Every time the loop instruction executes, cx is

automatically decremented by 1. If cx is not zero(0) the execution will jump to the destination specified by the label in the instruction. If cx=0 then the execution control is directly go to the next instruction after LOOP.

To perform using loop, we have to assign the value of cx, which indicates the number of time the loop executes.

In this experiment, we have to find the sum of a series. So for this reason, we should take a temporary register where the sum should be stored. Initially the register will be assigned with zero (0).

Apparatus required: emu 8086, laptop

Methodology:

Code:

```
org 100h
; program for finding the sum of 1+2+3+...+10
mov cx, 0ah; we initialize cx with 10 because
           we have to execute loop for
           10 times.
mov dx, 00h; we store the sum in dx register
           and this is initialized with 0.
mov ax, 01h; we store the value to be added each
           time in ax register so it is initia-
           lized with 1
Lup:
    add dx, ax  ; adding every value of ax with
                  dx
    inc ax      ; increasing the value of ax
    Loop Lup    ; 'loop' instruction executes and
                  cx will autometically decreased.
ret.
```

Output:

DX: 37h (sum of 1 to 10 in hexa-decimal unit)

Result and Discussion: From the experiment, we found that our result was 37h. This was the sum of 1 to 10 all numbers. ~~Here~~ We used loop instruction for adding in multiple times. Thats why we must have clear idea about loop. In this program we used various values of cx and every time we got expected result. So finally we can ensure that we ~~have~~ had performed our experiment perfectly

Conclusion: Loop is an important instruction and a basic instruction for programming in assembly language. And using loop, we can execute an instructon or more than one instructions for multiple times. So we must have cristal clear idea about Loop.

References:

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