Lab 12: Nested Loops in Assembly Language

Objective

- To learn about nested loops in assembly language
- To learn how to perform different operation using nested loops.

Introduction

Loop inside a loop is called nested loop. We can implement idea of nested loop in Assembly language. There are many uses of nested loop, to print data in table form or to perform operations on matrix or to print star patterns. In all these cases nested loop is very handy.

Activity Time boxing

Task No.	Activity Name	Activity time	Total Time
1	Lab Manual Lecture	60 mins	
2.	Example	10 mins	
3.	Walkthrough Tasks.	20 mins	
4.	Lab Tasks	60 mins	
5.	Evaluation	30 mins	180 mins

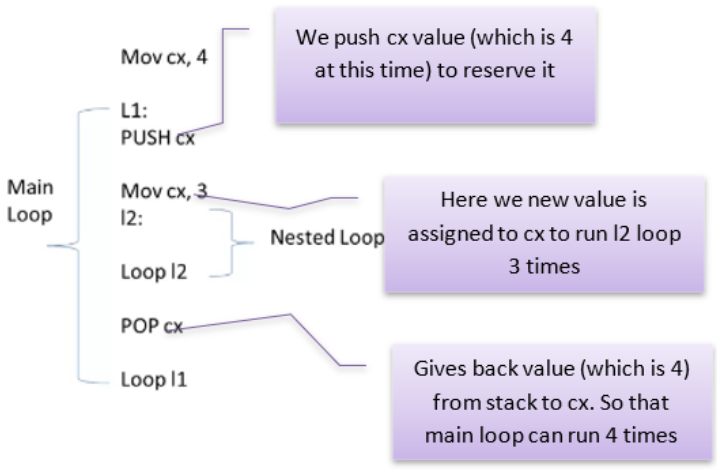
Concept Map

- Nested Loop
- Syntax and Structure
- Example

Nested Loop

Loop inside a loop is called nested loop. We can implement idea of nested loop in Assembly language. There are many uses of nested loop, to print data in table form or to perform operations on matrix or to print star patterns. In all these cases nested loop is very handy.

Syntax and Structure



The syntax and structure of loop remain same, we just need to put cx value (cx is counter loop that hands the loop) in stack in inner loop because it is being used in outer loop too.

Example: To print star patterns

*****
******
****
****
****

```
.model small
.stack 100h
.data
.code
main proc

mov bx, 1
mov cx, 5
L1:
    push cx
    mov cx, bx
    L2:
        Mov dl,'*'
         ; or you can pass value as ac ascii without quotes
        mov ah,2
        int 21h
    loop L2

mov dl,10
mov ah, 2
int 21h

mov dl,13
mov ah, 2
int 21h

Inc bx
pop cx
loop L1

mov ah,4ch
int 21h

main endp
end main
```

Practice Task

Practice Tasks will be available in separate document and will be uploaded on Moellim in relevant week.

Evaluation criteria

The evaluation criteria for this lab will be based on the completion of the following tasks. Each task is assigned the marks percentage which will be evaluated by the instructor in the lab whether the student has finished the complete/partial task(s).

Further Reading

The slides and reading material can be accessed from the folder of the class instructor available at Moellim.

Outcomes

The outcomes of this lab were:

1. Understanding of nested loops in Assembly Language.