



DHA Suffa University
CS 1001L – Programming Fundamentals Lab
Fall 2021



Lab 08 - Nested Loops - II

Objective(s):

To learn how to use nested loop constructs for printing Alphabets pattern.

While Loop:

The **while** loop is used when you want to execute a block of statements repeatedly, checking the condition before making iteration.

Nested while loop

A while loop inside another while loop is called nested while loop.

Example.01 (example01.c):

C program to print the alphabets pattern.

Code implementation in C

```
#include <stdio.h>
int main()
{
    int i=1, j;
    while(i<=5)
    {
        j=1;
        while(j<=i)
        {
            printf("%c", 'A' + j-1);
            j++;
        }
        printf("\n");
        i++;
    }
    return 0;
}
```



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Output:

```
A
A B
A B C
A B C D
A B C D E
```

Task.01 (task1.c): Write C programs to print the above pattern using nested do-while and for loop.

Do-While Loop: The **do-while** loop is used when you want to execute a block of statements repeatedly, checking the condition at the end of statement.

Nested do-while loop

A do-while loop inside another do-while loop is called nested do-while loop.

Example.02 (example02.c):

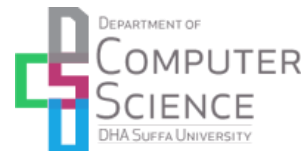
C program to print the given alphabets pattern.

Code implementation in C

```
#include <stdio.h>
int main()
{
    int i=1,j;
    char ch='A';
```



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```
do
{
    j=1;
    do
    {
        printf("%c ",ch++);
        j++;
    }while(j<=i);
    printf("\n");
    i++;
}while(i<=5);

return 0;
}
```

Output:

```
A
B C
D E F
G H I J
K L M N O
```

Task.02 (task2.c): Write a C program to print the following pattern using do-while loop.

```
E D C B A
D C B A
C B A
B A
A
```



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For Loop:

A for loop statement allows you to execute a statement or block of statements repeatedly for the fixed no of times.

Nested for loop: A for loop inside another for loop is called nested for loop.

Example.03 (example03.c):

C program to print the given alphabets and star pattern.

```
#include<stdio.h>
void main()
{
    int i, j;
    for(i=1;i<=5;i++)
    {
        for(j=1;j<=i;j++)
        {
            if(j%2==0)
            {
                printf("A");
            }
            else
            {
                printf("*");
            }
        }
        printf("\n");
    }
}
```

Output:

```
*
* A *
* A * A *
* A * A * A *
```



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Task.03 (task3.c): Write a C program to print the following pattern using for loop.

```
A A A A A
B B B B B
C C C C C
D D D D D
E E E E E
```



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Lab 08 Assignments

Problem01 (.c)

Write a C program to generate the following patterns given below using nested while, do-while and for loop:

(a)

```
  A
  B B B
  C C C C C
  D D D D D D D
  E E E E E E E E E
```

(b)

```
                A
              B B B
            C C C C C
          D D D D D D D
        E E E E E E E E E
```

Lab Assignment Submission Instructions:

1. Create a new **folder named** your roll number and lab number e.g. RollNo_Lab8.zip
2. Copy all the C files into this folder.
3. Right-click on the folder you created and create a **zip file** by selecting the appropriate option.
4. Now make sure that your zip file is saved with the name RollNo_Lab8.zip.
5. Submit the zip file on LMS.
6. **-100** policy for plagiarism