

# NIELIT GORAKHPUR

**Course Name:** O Level (2nd Sem B1)

**Topic:** Nesting of Loops

**Subject:** C Language

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## Nested loop

A loop inside another loop is known as nested loop. We can write any loop inside any loop in c i.e. we can write for loop inside the loop or while loop or do while loop etc.

### Syntax:

#### While loop

```
while(expression)
{
statements;
|
|
|
while(expression)
{
statements;
}
}
```

#### For loop

```
for(initialization; test; increment)
{
statements;
for(initialization; test; increment)
{
statements;
}
}
```

#### Do while loop

```
do
{
statements;
statements;
|
|
|
do
{
statements;
}while(expression);
}
}while(expression);
```

**Example 1: Print the following pattern :**

```
* * * * *
* * * * *
* * * * *
* * * * *
* * * * *
```

#### While loop

```
#include<stdio.h>
#include<conio.h>
main()
{
int r=1,c;
while (r<=5)
{
c=1;
while(c<=5)
{
printf("*");
c++;
}
r++;
printf("\n");
}
getch();
}
```

#### For loop

```
#include<stdio.h>
#include<conio.h>
main()
{
int r,c;
for (r=1;r<=5;r++)
{
for(c=1;c<=5;c++)
printf("*");
printf("\n");
}
getch();
}
```

**Example 2: Print the table from 1 to 10.**

```
#include<stdio.h>
#include<conio.h>
main()
{
int i,j;
clrscr();
for(i=1;i<=10;i++)
{
for(j=1;j<=10;j++)
printf("%2d\t",i*j);
printf("\n");
}
getch();
}
```

**Do yourself:**

1. Print the following patterns:

```
*
* *
* * *
* * * *
* * * * *
* * * * *
* * * * *
* * * * *
* * * * *
* * * * *
```