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## C# Loop

### Loops in C# programming language

Put simply, loop enables your program to execute the block of code repeatedly. In C# programming language, there are four types of loops:

**-For loop** for(start value;condition;increment){ statement1 statement2 } The code in **for loop** will be executed from the start value until the condition is met. The increment will be added continuously to the start value until the condition is met.

Example:

```
int i;
for (i = 1; i <=10; i++) Console.WriteLine("i={0}",i);/*The value of i will be printed 10 times */
```

### **-While Loop**

The **while loop** executes code repeatedly until a condition is met. You need to increment the loop variable inside the loop.

```
start value
while(condition){
    statement
    statement
    -----
    increment
}
```

Example:

```
int i = 1;
while (i <= 10) { Console.WriteLine("i2={0}",i*i); i = i + 1; }
```

### **-Do While Loop**

The do while loop tests the condition at the bottom of the loop. It executes at least one time although the condition is not true.

Example:

```
int i = 1;
do {
    Console.WriteLine("i3{0}=",i*i*i);
    i = i + 1;
} while (i <= 10);
```

### **-Foreach loop**

The **foreach loop** is used to iterate through a collection object, namely array.

Example:

```
string value;
string key;
foreach (DictionaryEntry ev in Environment.GetEnvironmentVariables()) {
    key = (string)ev.Key; value = (string)ev.Value;
    if (key.StartsWith("P"))

        Console.WriteLine("{0},{1}", key, value);
}
```

```
}
```

```
Console.WriteLine();
```

### Exercises

**Exercise 1:** Write C# code to produce the output shown below:

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

**Solution:**

```
using System;  
using System.Collections.Generic;  
using System.Linq;  
using System.Text;  
  
namespace Csharp_exercises  
{  
class Program  
{  
static void Main(string[] args)  
{  
int i,j;  
for(i=0;i<=6;i++){  
for(j=1;j<=7-i;j++) Console.Write("*");  
Console.Write("\n");  
}  
  
Console.ReadLine();  
  
}  
}
```

**Exercise 2:** Write C# code to print the following pattern:

1\*\*\*\*\*

12\*\*\*\*\*

123\*\*\*\*

1234\*\*\*

12345\*\*

123456\*

1234567

**Solution:**

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
```

```
namespace Csharp_exercises
{
class Program
{
static void Main(string[] args)
{
int i,j,k;
```

```
    for (i = 1; i <= 7; i++)
    {
        for (j = 1; j <= i; ++j)
            Console.Write(j);
```

```
        for (k = 7 - i; k >= 1; k--)
            Console.Write("*");
```

```
    Console.WriteLine("\n");
}
```

```
Console.ReadLine();
```

```

}
}
}
```