شركـــة تحالــف الإمـــارات للحــلـــول التـقـنـيـــة ذ.م.م.
TAHALUF AL EMARAT TECHNICAL SOLUTIONS L.L.C.

C# Programming Essential

Tahaluf Training Center 2021

شركـــة تحالــف الإمـــارات للحــلـــول التـقـنـيـــة ذ.م.م.
TAHALUF AL EMARAT TECHNICAL SOLUTIONS L.L.C.

شركـــة تحالـف الإمــارات للحــلــول التـقـنـيــة ذ.م.م.
TAHALUF AL EMARAT TECHNICAL SOLUTIONS L.L.C.

Day 4

For Loop

- In programming, we need to execute certain block of statements for a specified number of times.

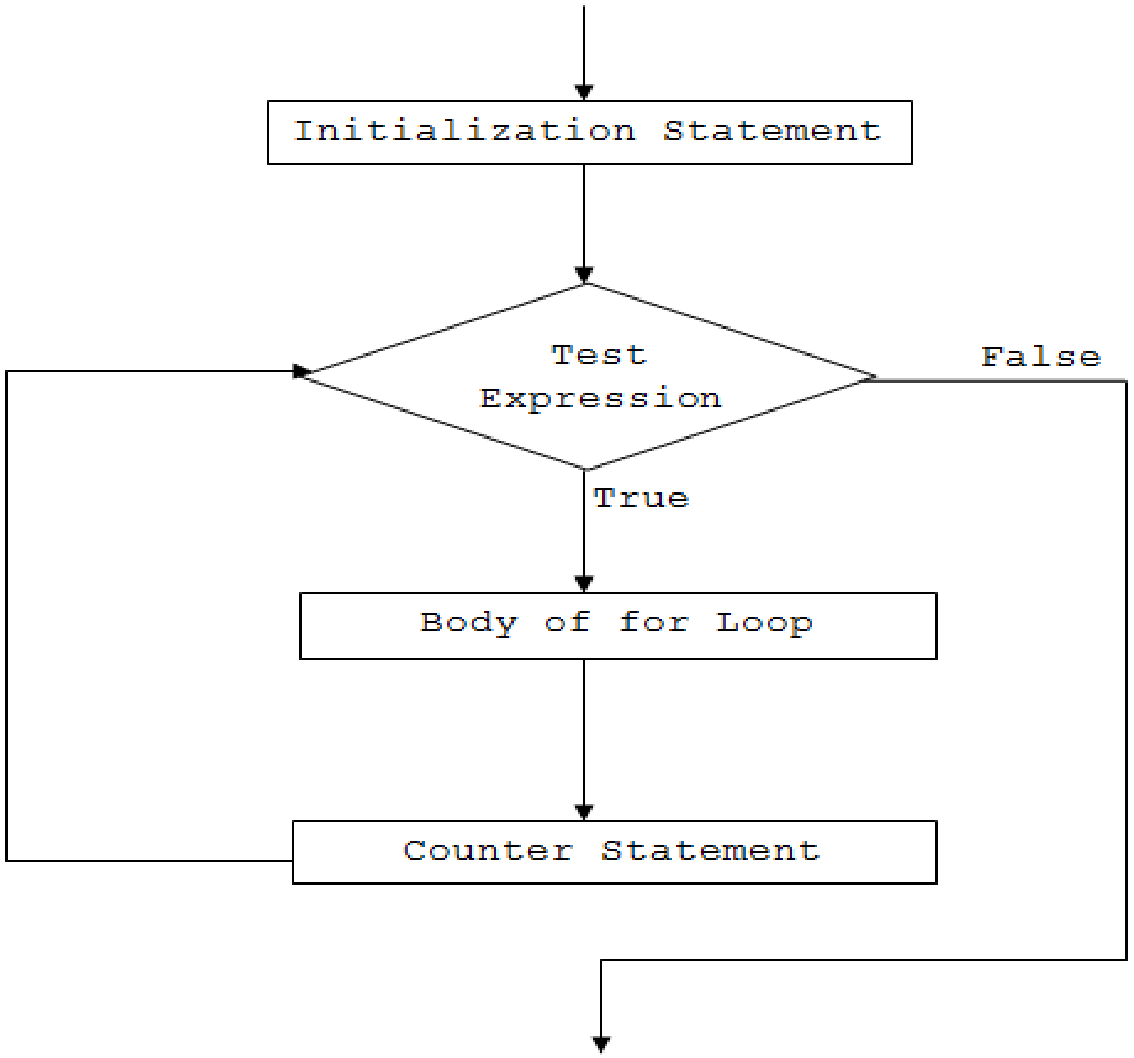
- The number of repetition may not be known in advance (during compile time) or maybe large enough (say 10000).

For Loop

The **for** keyword is used to create for loop in C#. The syntax for **for loop** is:

```
for (initialization; condition; iterator)
                {
                    // body of for loop
                }
```

For Loop


Initialization Statement
Test Expression
False
True
Body of for Loop
Counter Statement

For Loop

Example:

```
int n = 5, sum = 0;

            for (int i = 1; i <= n; i++)
            {
                // sum = sum + i;
                sum += i;
            }

            Console.WriteLine("Sum of first
{0} numbers = {1}", n, sum);
```

For Loop (Exercise)

Write a program in C# that prints the even numbers from 1 to 100

And prints the odd numbers that divisible by 7

For Loop (Exercise)

شركـة تحالـف الإمـارات للحـلـول التقـنيـة ذ.م.م.
TAHALUF AL EMARAT TECHNICAL SOLUTIONS L.L.C.

solution:

```
for (int i = 0; i < 101; i+=2)
            {
                if (i%2==0)
                {
                    Console.WriteLine(i);
                }
            }
for (int i = 0; i < 101; i+=7)
            {
                if (i % 2 == 1)
                {
                    Console.WriteLine(i);
                }
            }
```

شركـــة تحالــف الإمـــارات للحـــلــول التـقـنـيــة ذ.م.م.
TAHALUF AL EMARAT TECHNICAL SOLUTIONS L.L.C.

Day 4

1 For Loop

2 **While Loop**

3 Break and Continue

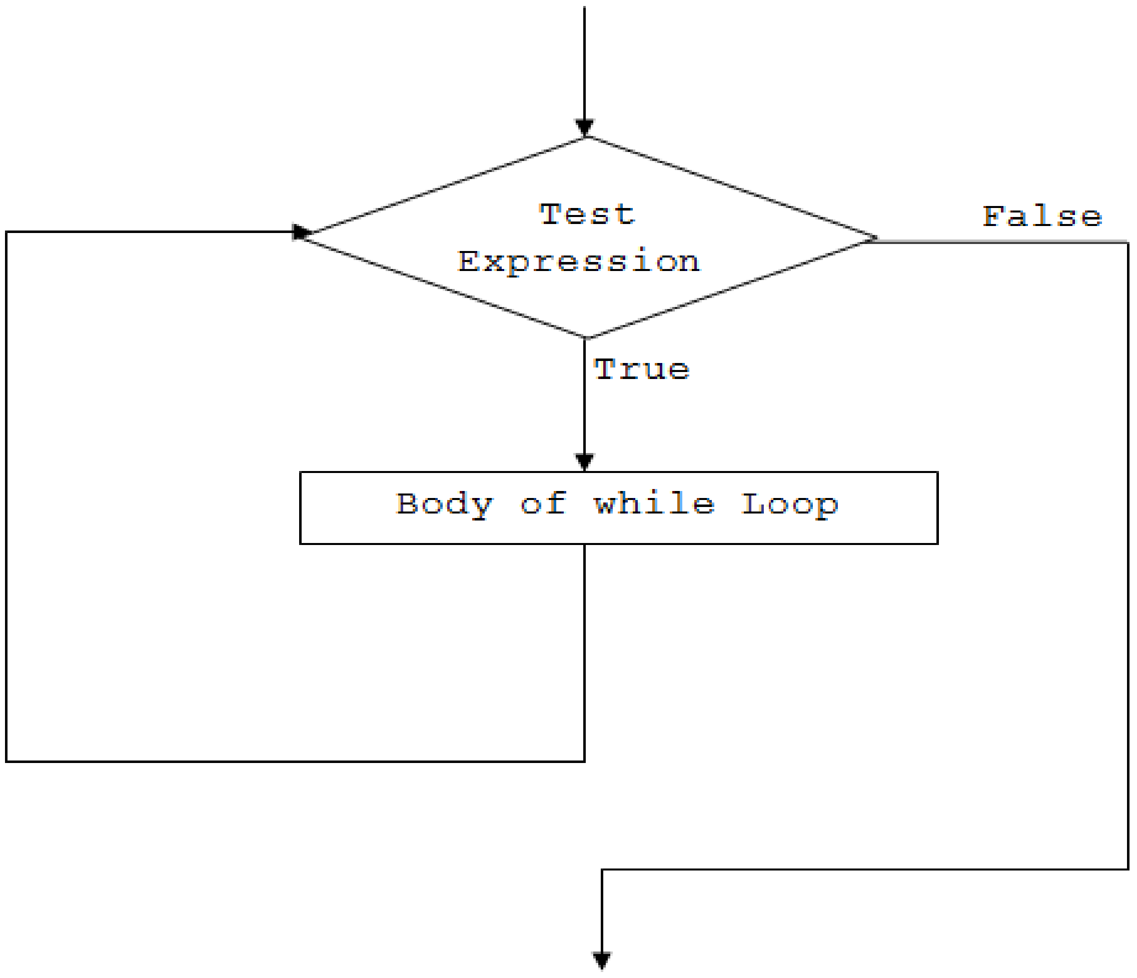
4 Arrays

While Loop

The **while** keyword is used to create while loop in C#. The syntax for while loop is:

```
while (test - expression)
{
  // body of while
}
```

While Loop



While Loop

Example:

```
int i = 1;
while (i <= 5)
{
    Console.WriteLine("i = "+ i);
    i++;
}
```

While Loop (Exercise)

Create a program in C# that requests a number (x) and displays the square number, Must be repeated until the user enters 0.

While Loop (Exercise)

Result :

```
int x = Convert.ToInt32(Console.ReadLine());

           while (x != 0)
           {
               Console.WriteLine(x * x);
               x = Convert.ToInt32(Console.ReadLine());
           }
```

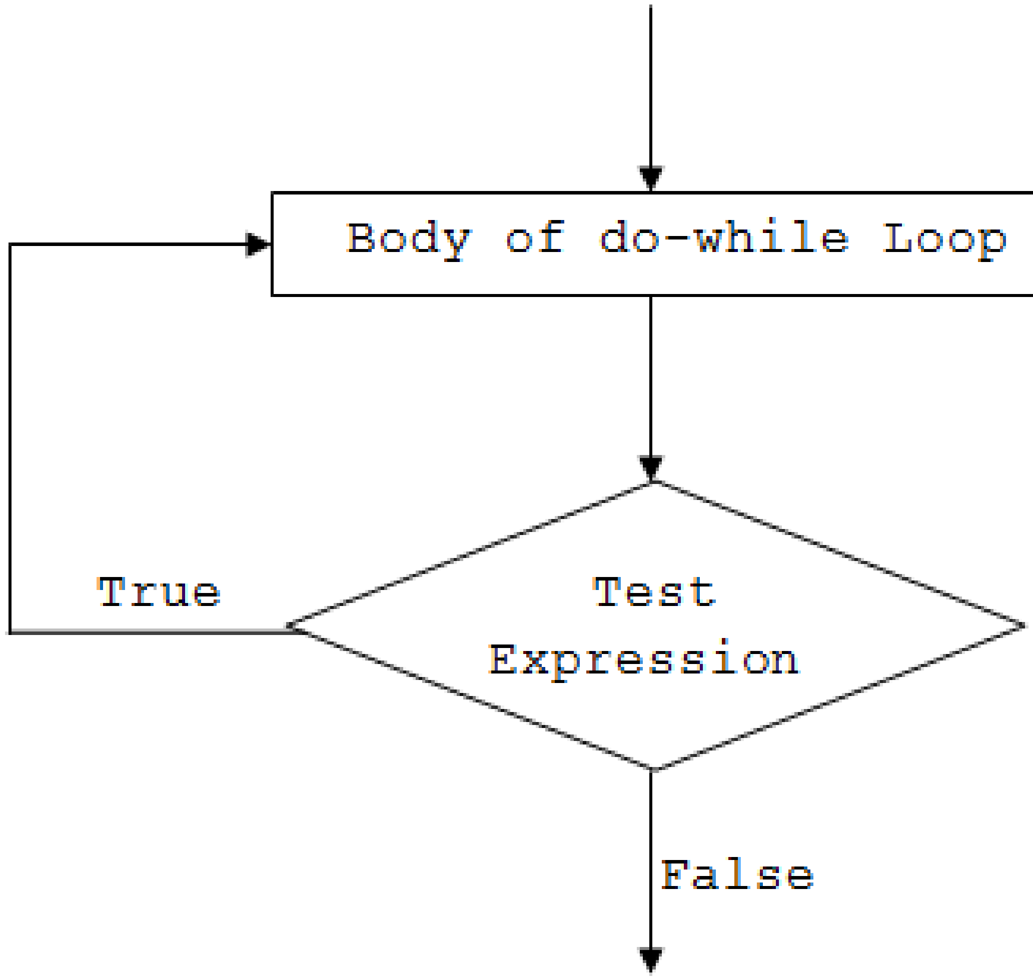
Do- While Loop

- The **do** and **while** keyword is used to create a do...while loop. It is similar to a while loop, however there is a major difference between them.

- In do while loop, the **condition is checked before the body is executed**. It is the exact opposite in do...while loop, i.e. condition is checked after the body is executed.

Do- While Loop

شركـــة تحالـف الإمـــارات للحــلـــول التـقـنـيــة ذ.م.م.
TAHALUF AL EMARAT TECHNICAL SOLUTIONS L.L.C.



Do- While Loop

Example :

```
int i = 1, n = 5, mult;

            do
            {
                mult = n * i;
                Console.WriteLine("{0} * {1} = {2}", n, i, mult);
                i++;
            } while (i <= 10);
```

شركة تحالف الإمارات للحلول التقنية ذ.م.م.
TAHALUF AL EMARAT TECHNICAL SOLUTIONS L.L.C.

Day 4

Break And Continue

- We have already seen in the Last Lecture the `break` statement used in **Switch** to "jump out" of a `switch` statement.

- The `break` statement can also be used to jump out of a **loop**.

```
for (int i = 0; i < 10; i++)
            {
                if (i == 4)
                {
                    break;
                }
                Console.WriteLine(i);
            }
```

Break And Continue

The continue statement breaks one iteration (in the loop), if a specified condition occurs, and continues with the next iteration in the loop.

```
for (int i = 0; i < 10; i++)
            {
                if (i == 4)
                {
                    continue;
                }
                Console.WriteLine(i);
            }
```

Break And Continue (Exercise)

Create a program to write the even numbers from 10 to 20 both included, except 16.

Break And Continue (Exercise)

Solution :

```
 for (int i = 10; i <= 20; i += 2)
{
    if (i == 16)
    continue;
    Console.WriteLine(i);
}
```

Day 4

Array

Arrays are used to store multiple values in a single variable, instead of declaring separate variables for each value.

To declare an array, define the variable type with **square brackets**:

```
string[] Names;
```

Array

```
string[] cars = { "Volvo", "BMW", "Ford", "Mazda" };

int[] Numbers = { 10, 20, 30, 40 };
```

- You access an array element by referring to the index number.
- This statement accesses the value of the first element in **Names**:

```
Console.WriteLine(Numbers[0]);
```

Array (Exercise)

Create a C# program that asks the user for N integers to store them in an array of integers and display them in reverse order.

Array (Exercise)

Result :

```
int total = Convert.ToInt32(Console.ReadLine());
int[] numbers = new int[total];

for (int i = 0; i < total; i++)
{
    numbers[i] = Convert.ToInt32(Console.ReadLine());
}

Array.Reverse(numbers);

for (int i = 0; i < total; i++)
{
    Console.Write("{0} ", numbers[i]);
}
```

شركـــة تحالــف الإمـــارات للحـــلـــول التـقـنـيـــة ذ.م.م.
TAHALUF AL EMARAT TECHNICAL SOLUTIONS L.L.C.

Any Question?