

## Java While Loop

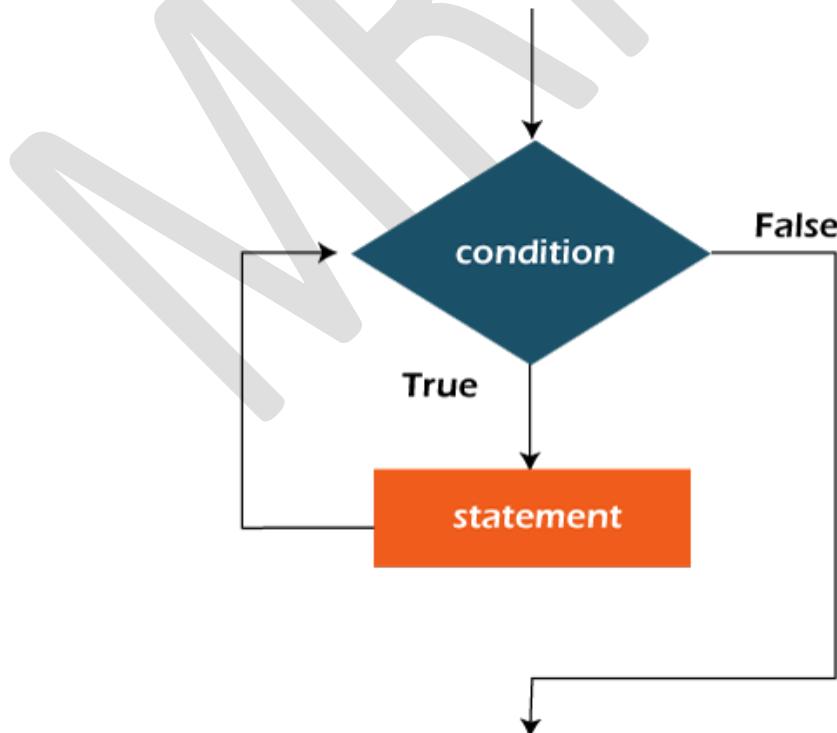
- ❖ The Java while loop is used to iterate a part of the program repeatedly until the specified Boolean condition is true. As soon as the Boolean condition becomes false, the loop automatically stops.
- ❖ The while loop is considered as a repeating if statement. If the number of iteration is not fixed, it is recommended to use the while loop.

## Syntax

```
while (condition) {  
    //statement or code to be executed  
}
```

**Increment / decrement statement**

```
}
```



**Example # 1:**

Write a program in Java to print the numbers between (1 to 10)?

The code is:

```
public class WhileLoopExample1 {  
    public static void main(String[] args ) {  
        int counter = 1;  
        while(counter <= 10)  
        {  
            System.out.print(counter + " ");  
            counter++;  
        } } }
```

The Output is: 1 2 3 4 5 6 7 8 9 10

**Example # 2:**

Write a program in Java to find the factorial of number 7 ?

The code is:

```
public class WhileLoopFactorial {  
    public static void main(String args[]){  
        int i = 1, fact = 1;  
        while(i <= 7)  
        {  
            fact = fact * i;  
            i++;  
        }  
        System.out.println("Factorial of 7 is: " + fact); } }
```

The Output is: Factorial of 7 is: 5040

**Example # 3:**

Write a program in Java to print the following pattern?

1

2 2

3 3 3

4 4 4 4

5 5 5 5 5

6 6 6 6 6 6

The code is:

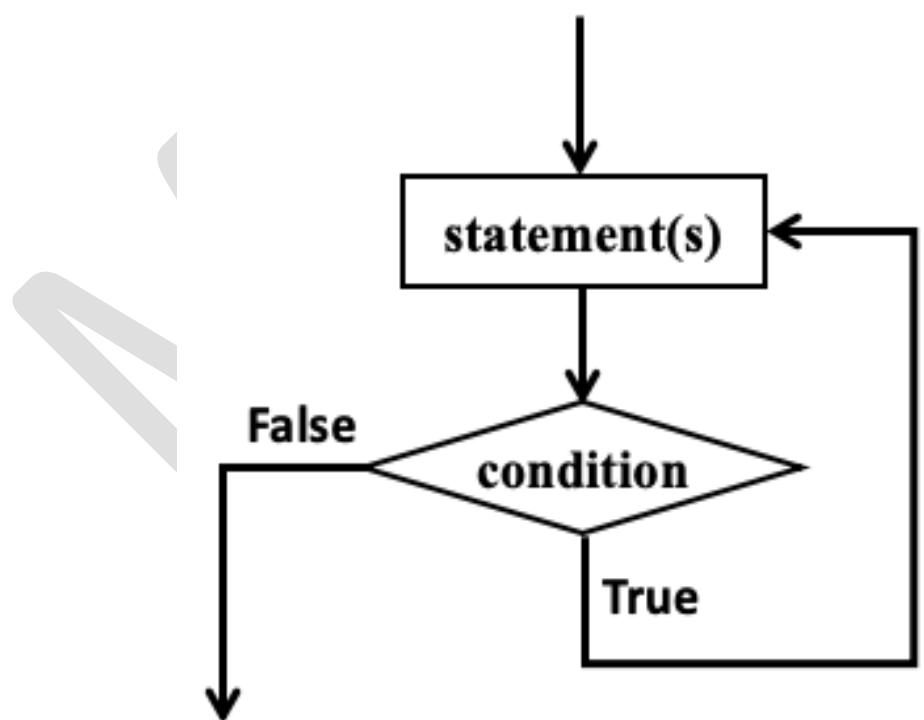
```
public class WhileLoopPattern {  
    public static void main(String[] args) {  
        int i = 1, j ;  
        while (i <= 6)  
        {  
            j = 1 ;  
            while (j <= i)  
            {  
                System.out.print(i + " ");  
                j++;  
            }  
            System.out.println();  
            i++;  
        } } }
```

## Do-while Statement

- It is similar to a while loop statement, except that the statement(s) in the loop is executed once even if the condition is false.

## Syntax

```
do {  
    statement (s);  
} while (condition);
```



**Example # 4:**

Write a program in Java to print the numbers between (1 to 10)?

The code is:

```
public class DoWhileLoopExample1 {  
    public static void main(String[] args ){  
        int c = 1;  
        do { System.out.print(c + " ");  
            c ++;  
        } while(c <= 10);  
    } }
```

The Output is: 1 2 3 4 5 6 7 8 9 10

**Example # 5:**

Write a program in Java to print the Multiplication table of number 8 ?

The code is:

```
public class DoWhileLoopExample2 {  
    public static void main(String[] args) {  
        int i = 1;  
        do {  
            System.out.println(8 + " * " + i + " = " + 8 * i);  
            i ++;  
        } while(i <= 10);  
    } }
```

**Example # 6:**

Write a program in Java to find the numbers are division by 3 and 5 between (1 to 100) ?

**The code is:**

```
public class DoWhileLoopExample3 {  
    public static void main(String[] args) {  
        int n = 1;  
        do {  
            if ((n % 3 == 0) && (n % 5 == 0))  
                System.out.print(n + " ");  
            n++;  
        } while(n <= 100);  
    } }
```

**The Output is:**

15 30 45 60 75 90

**Homework:**

1. Write a program in Java to enter five grades, then find the average.
2. Write a program in Java to calculate the value of Y from the following equation:

$$Y = 2! + 4! + 6! + \dots + 12!$$

**Note:** Solve these problems using (While and Do-While Statements).

3. Write a program in Java to print the following pattern:

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

4. Write a program in Java to print the following pattern using For Loop:

```
1
1 2
1 2 3
1 2 3 4
1 2 3 4 5
```

5. Write a program in Java to print the following series using Do-While:

```
2     4     8     16    32    64   128   256
```

*Thank You*

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