

## JAVA Notes 6 – Loops

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In programming languages, loops are used to execute a set of instructions/functions repeatedly when some conditions become true. There are three types of loops in Java.

- for loop
- while loop
- do-while loop

At this stage it is important to understand WHEN to use one loop or the other:

for loop	while loop	do while loop
If the number of iteration is fixed, it is recommended to use for loop.	If the number of iteration is not fixed, it is recommended to use while loop.	If the number of iteration is not fixed and you must have to execute the loop at least once, it is recommended to use the do-while loop.

### FOR loop

The for loop continues to be executed until the condition in the test is true, when it is false it stops.

#### Syntax:

```
for (initialization condition; testing condition; increment/decrement)
{
    statement(s)
}
```

#### Example:

```
class ForLoopDemo{
    public static void main(String args[]){

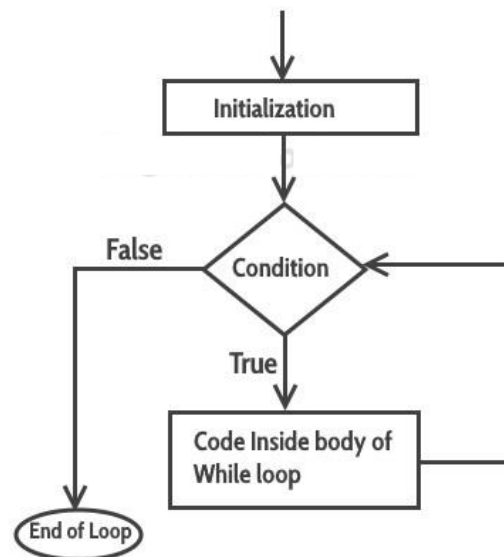
        // for loop begins when x=1 and runs till x<=4
        for (int x = 2; x <= 4; x++)
            System.out.println("Value of x:" + x);
    }
}
```

## WHILE loop

In while loop, a condition is evaluated first and if it returns true then the statements inside while loop execute. When condition returns false, the loop stops and the program jumps to the next statement after the while loop.

Note: The important point to note when using while loop is that we need to use increment or decrement statement inside while loop so that the loop variable gets changed on each iteration (loop), and at some point condition returns false. This way we can end the execution of while loop otherwise the loop would execute indefinitely.

### Flowchart:



### Syntax:

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

### Example:

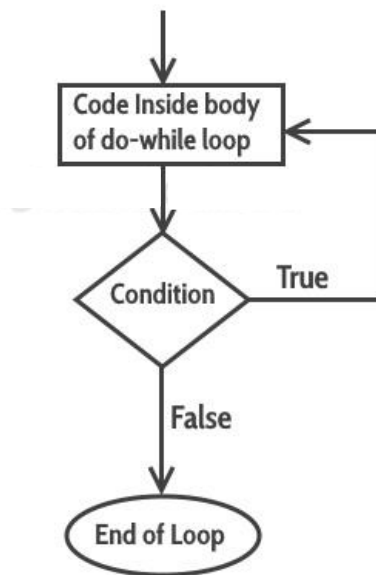
```
class WhileLoopExample {  
    public static void main(String args[]){  
        int i=10;  
        while(i>1){  
            System.out.println(i);  
            i--;  
        }  
    }  
}
```

## DO-WHILE loop

The do-while loop is similar to while loop, however there is a difference between them: In while loop, condition is evaluated before the execution of loop's body but in do-while loop condition is evaluated after the execution of loop's body.

First, the statements inside loop execute and then the condition gets evaluated, if the condition returns true then the control gets transferred to the "do" else it jumps to the next statement after do-while. So, in a do-while loop, the statements inside the loop are always executed at least once.

### Flowchart:



### Syntax:

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

### Example:

```
class DoWhileLoopExample {
    public static void main(String args[]){
        int i=10;
        do{
            System.out.println(i);
            i--;
        }while(i>1);
    }
}
```