


Loops

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Loops in Java

a feature which facilitates **the execution of a set of instructions/functions repeatedly** while some **condition evaluates to true**.



Loops in Java

for loop

The Java for loop is used to iterate a part of the program several times. If the number of iteration is fixed, it is recommended to use for loop.

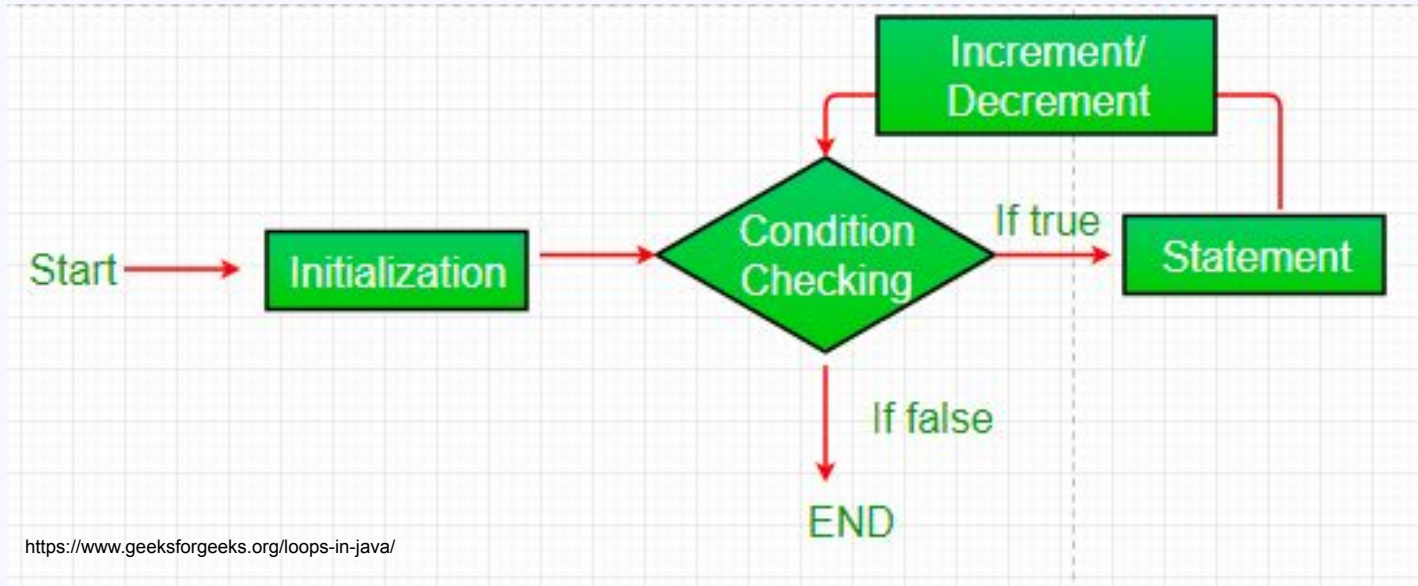
while loop

The Java while loop is used to iterate a part of the program several times. If the number of iteration is not fixed, it is recommended to use while loop.

do-while loop

The Java do-while loop is used to iterate a part of the program several times. Use it if the number of iteration is not fixed and you must have to execute the loop at least once.

for Loop



for Loop

Syntax

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

for Loop

PrintNumbers.java

```
1 public class PrintNumbers {
2
3     int batas;
4     public PrintNumbers(int batas) {
5         this.batas=batas;
6     }
7
8     public void NumbersShow() {
9         for(int i=1; i<=batas; i++)
10            {
11                System.out.println(i);
12            }
13     }
14 }
```

PrintNumbersDemo.java

```
1
2 public class PrintNumbersDemo {
3
4     public static void main(String[] args) {
5         // TODO Auto-generated method stub
6         PrintNumbers pn = new PrintNumbers(10);
7         pn.NumbersShow();
8     }
9 }
```



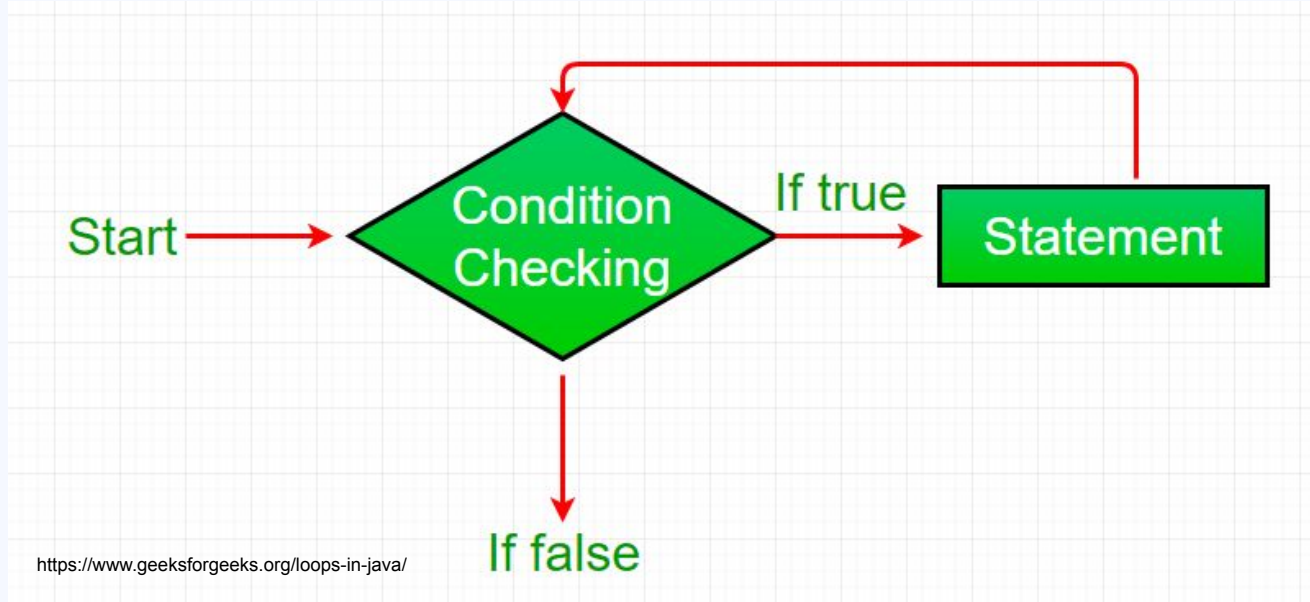
for Loop

When is **for loop** used?

When you know **exactly how many times you want to loop** through a block of code



while Loop



while Loop

Syntax

```
while (boolean condition)
{
    loop statements...
}
```



while Loop

The **while loop** loops through a block of code **as long as a specified condition is true**



while Loop

WhileLoop.java

```
1 public class WhileLoop {
2     int cond;
3     public WhileLoop(int cond) {
4         // TODO Auto-generated constructor stub
5         this.cond = cond;
6     }
7
8     public void PrintLoop() {
9         int i = 0;
10        while (i < 5) {
11            System.out.println(i);
12            i++;
13        }
14    }
15 }
```

WhileLoopDemo.java


```
2 public class WhileLoopDemo {
3
4     public static void main(String[] args) {
5         // TODO Auto-generated method stub
6         WhileLoop wl = new WhileLoop(6);
7         wl.PrintLoop();
8     }
9
10 }
```



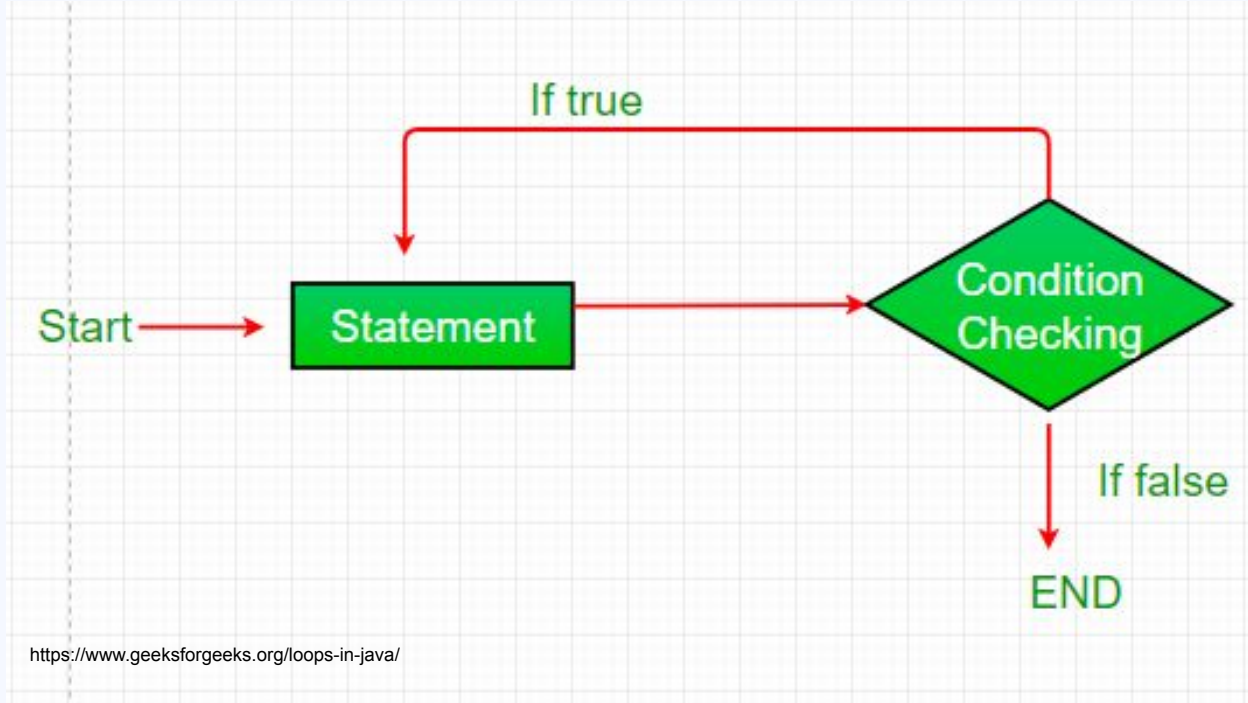
while Loop

When is **while** loop used?

A while loop is used to repeat a specific block of code **an unknown number of times**, until a condition is met



do-while Loop



while Loop


Syntax

```
do
{
    statements..
}
while (condition);
```



while Loop

The **do-while loop** is similar to while loop with only difference that **it checks for condition after executing the statements**



do-while Loop

DoWhileLoop.java

```
2 public class DoWhileLoop {
3     int cond;
4     public DoWhileLoop(int cond) {
5         // TODO Auto-generated constructor stub
6         this.cond = cond;
7     }
8
9     public void PrintLoop() {
10        int i=1;
11        do{
12            System.out.println(i);
13            i++;
14        }while(i<=10);
15    }
16 }
```

DoWhileLoopDemo.java


```
1 public class DoWhileLoopDemo {
2
3     public static void main(String[] args) {
4         // TODO Auto-generated method stub
5         DoWhileLoop dwl = new DoWhileLoop(10);
6         dwl.PrintLoop();
7
8     }
9
10 }
```




do-while Loop

When is do-while loop used?

If the number of iteration is not fixed and you must have to **execute the loop at least once**





Nested Loop

A loop inside another loop

The "inner loop" will be executed one time for each iteration of the "outer loop"



Nested Loop

NestedLoop.java

```
1 public class NestedLoop {
2     int out,in;
3     public NestedLoop(int out, int in) {
4         this.out=out;
5         this.in=in;
6     }
7
8     public void PrintLoop() {
9         // Outer loop
10        for (int i = 1; i <= out; i++) {
11            // Executes "out" times
12            System.out.println("Outer: " + i);
13
14            // Inner loop
15            for (int j = 1; j <= in; j++) {
16                // Executes "out"*"in" times
17                System.out.println(" Inner: " + j);
18            }
19        }
20    }
21 }
```

NestedLoopDemo.java

```
1
2 public class NestedLoopDemo {
3
4     public static void main(String[] args) {
5         // TODO Auto-generated method stub
6         NestedLoop nl = new NestedLoop(3,2);
7         nl.PrintLoop();
8     }
9 }
```

Nested Loop

Triangle.java

```
1 public class Triangle {
2
3     int out;
4     public Triangle(int out) {
5         // TODO Auto-generated constructor stub
6         this.out = out;
7     }
8
9
10    public void PrintTriangle() {
11        for(int i=1;i<=out;i++){
12            for(int j=1;j<=i;j++){
13                System.out.print("* ");
14            }
15            System.out.println();//new line
16        }
17    }
18 }
```

TriangleDemo.java



```
2 public class TriangleDemo {
3
4     public static void main(String[] args) {
5         // TODO Auto-generated method stub
6         Triangle tg = new Triangle(5);
7         tg.PrintTriangle();
8     }
9
10 }
11 }
```



Thanks !

Ada pertanyaan?

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References

<https://www.geeksforgeeks.org/>
<https://www.baeldung.com/>
<https://www.w3schools.com/>
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