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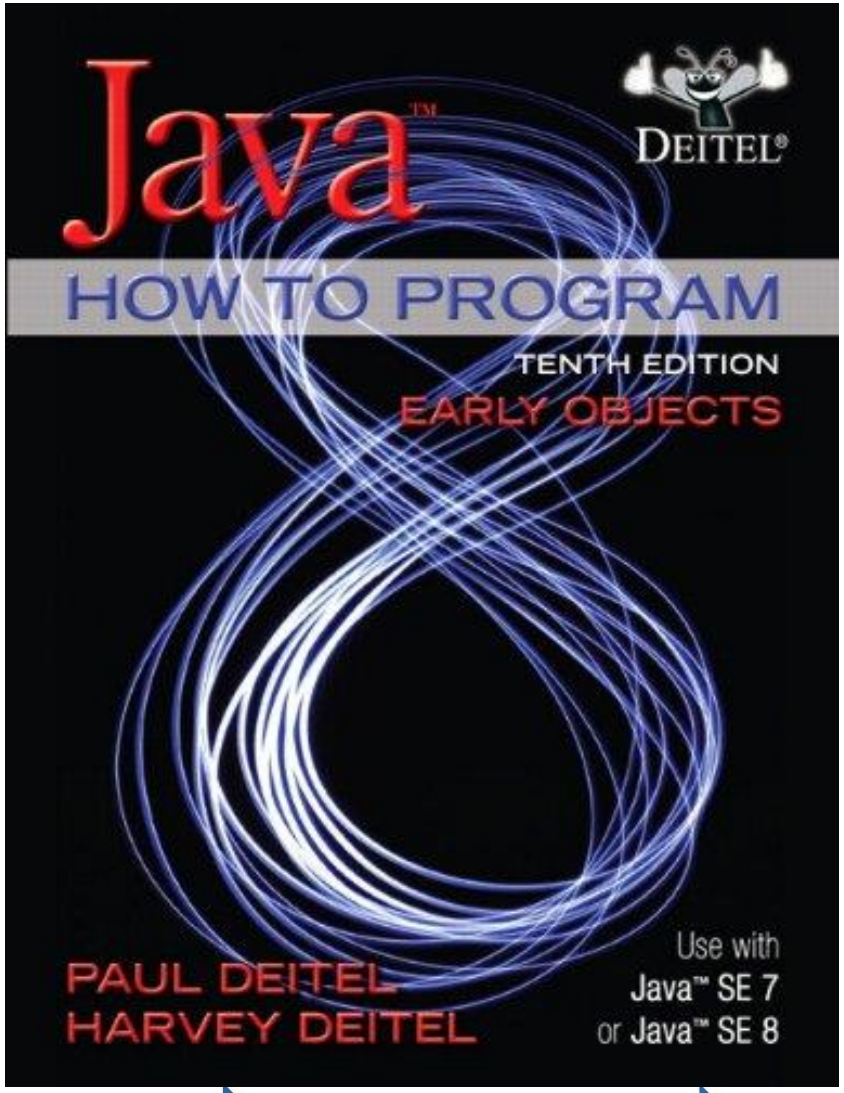
Object Oriented Programming (Java)

Loops in Java:
For loop

Text Book



Title: Java How to Program, Early Objects

Author(s): Paul Deitel, Harvey Deitel

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Object Oriented Programming using Java by Simon Kendal

Learning Outcomes

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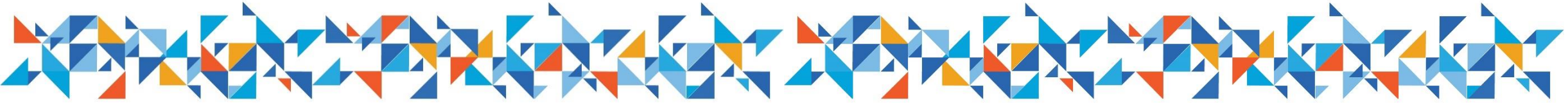
- **Students will be able to understand**
- **For Loop**
- **While Loop**
- **Do-while Loop**



- Loops in Java is a feature used to execute a particular part of the program repeatedly if a given condition evaluates to be true.

- Java provides three ways for executing the loops.

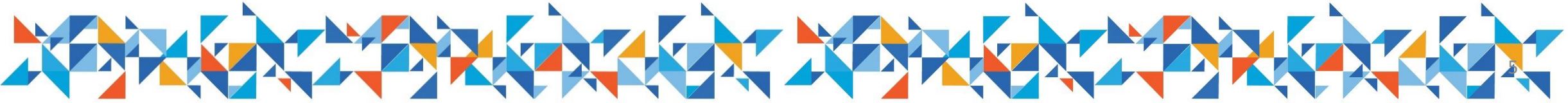
- While all the ways provide similar basic functionality, they differ in their syntax and condition checking time.

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.

- There are three types of for loops in Java.

✓Simple for Loop
✓For-each or Enhanced for Loop
✓Labeled for Loop



Java Simple for Loop

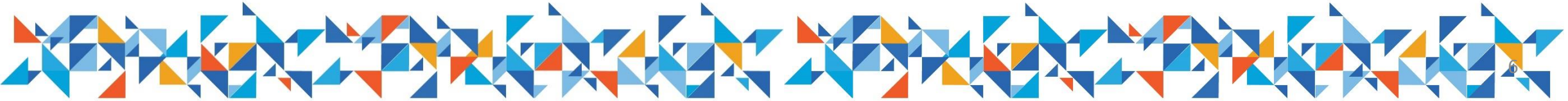
- A simple for loop is the same as C/C++.
- We can initialize the variable, check condition and increment/decrement value.
- It consists of four parts:

1. **Initialization**: It is the initial condition which is executed once when the loop starts.

- Here, we can initialize the variable, or we can use an already initialized variable.
- It is an optional condition.

2. **Condition**: It is the second condition which is executed each time to test the condition of the loop.

- It continues execution until the condition is false.
- It must return boolean value either true or false.
- It is an optional condition.



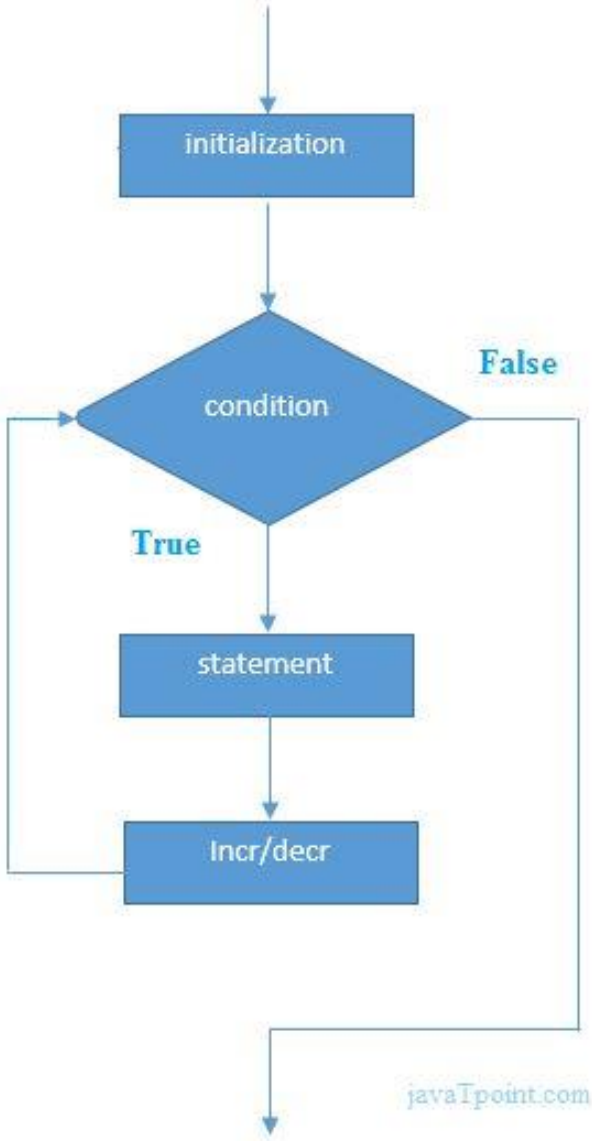
3. **Increment/Decrement**: It increments or decrements the variable value.

4. **Statement**: The statement of the loop is executed each time until the condition is false.

Syntax:

```
for(initialization; condition; increment/decrement){
//statement or code to be executed
}
```

Flowchart:


initialization
condition
False
True
statement
Incr/decr
javaTpoint.com

A program that prints a message 10 times

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```
public class forloop_to_print_a_message_10_times {
    public static void main(String[] args) {

        for(int i=1; i<=10;i++){
            System.out.println(" I am a programmer");
        }
    }
}
```

Program to print table of 1

```
public class tableof1 {
    public static void main(String[] args) {


    for (int i=1; i<=10; i++){
        System.out.println(i+"* 1 = "+i*1);
    }
}
}
```

Program to print table of 2

```
public class tableof2 {
    public static void main(String[] args) {
        for(int i=1; i<=10; i++){
            System.out.println(i+" * 2 = "+i*2);
        }
    }
}
```

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Write a program to print the table of any number & any size that you enter.

```java
//Program to print any table of any size
import java.util.Scanner;
public class table_of_any_number {
    public static void main(String[] args) {
        Scanner obj=new Scanner(System.in);
        System.out.println("Enter a number to print table for that number");
        int table=obj.nextInt();
        System.out.println("Enter size of the table ");
        int tablesize=obj.nextInt();
        System.out.println("\n");
        for(int i=1;i<=tablesize; i++){
            System.out.println(i+"*"+ table+"="+i*table);
        }
    }

}
```

```java
//This program prints the sum of first 10 natural numbers
public class Sumofnumbers {
    public static void main(String[] args) {
        int sum = 0;
        for (int i = 1; i <= 10; i++) {
            sum += i;
        }
        System.out.println("Sum = " + sum);
    }
}
```

```java
//This program finds all divisors of a number (e.g., 12)
public class Divisor {
    public static void main(String[] args) {
        int number = 12;

        System.out.println("Divisors of " + number + ":");
        for (int i = 1; i <= number; i++) {
            if (number % i == 0) {
                System.out.println(i);
            }
        }
    }
}
```

Questions ?

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Thank You…!