

# Java - Introduction to Programming

## Lecture 4

### Loops

A loop is used for executing a block of statements repeatedly until a particular condition is satisfied. A loop consists of an initialization statement, a test condition and an increment statement.

#### For Loop

The syntax of the for loop is :

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

```
for (int i=1; i<=20; i++) {  
    System.out.println(i);  
}
```

#### While Loop

The syntax for while loop is :

```
while(condition) {  
    // body of the loop  
}
```

```
int i = 0;  
while (i<=20) {  
    System.out.println(i);  
    i++;  
}
```

#### Do-While Loop

The syntax for the do-while loop is :

```
do {  
    // body of loop;  
}  
while (condition);
```

```
int i = 0;  
do {  
    System.out.println(i);
```

```
i++;  
} while(i<=20);
```

## Homework Problems

1. Print all even numbers till n.
2. Run

```
for(;;) {  
  
    System.out.println("Apna College");  
  
}
```

loop on your system and analyze what happens. Try to think of the reason for the output produced.

3. Make a menu driven program. The user can enter 2 numbers, either 1 or 0.

If the user enters 1 then keep taking input from the user for a student's marks(out of 100).

If they enter 0 then stop.

If he/ she scores :

**Marks  $\geq 90$**  -> print "This is Good"

**89  $\geq$  Marks  $\geq 60$**  -> print "This is also Good"

**59  $\geq$  Marks  $\geq 0$**  -> print "This is Good as well"

Because marks don't matter but our effort does.

(Hint : use do-while loop but think & understand why)

## BONUS

- Qs. Print if a number is prime or not (Input n from the user).

[In this problem you will learn how to check if a number is prime or not]

## Homework Solution (Lecture 3)

```
import java.util.*;

public class Conditions {

    public static void main(String args[]) {

        Scanner sc = new Scanner(System.in);

        int a = sc.nextInt();
        int b = sc.nextInt();
        int operator = sc.nextInt();

        /**
         * 1 -> +
         * 2 -> -
         * 3 -> *
         * 4 -> /
         * 5 -> %
         */

        switch(operator) {

            case 1 : System.out.println(a+b);
                    break;

            case 2 : System.out.println(a-b);
                    break;

            case 3 : System.out.println(a*b);
                    break;

            case 4 : if(b == 0) {
                        System.out.println("Invalid Division");
                    } else {
                        System.out.println(a/b);
                    }

                    break;

            case 5 : if(b == 0) {
                        System.out.println("Invalid Division");
                    } else {
                        System.out.println(a%b);
                    }

                    break;

            default : System.out.println("Invalid Operator");

        }

    }

}
```

```
}
```