Jawahar Education Society's
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Where knowledge is second nature

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Semester: 3

Experiment Evaluation Sheet

Experiment No.: 1

Experiment Name:
Programs on Basic programming constructs like looping

Sr No.	Evaluation Criteria	Marks (Out of 9)	Performance Date	Correction Date and Signature of Instructor
1	Experiment Performance			
2	Journal Performance			
3	Punctuality			
Total				

Aim : Programs on Basic programming constructs like looping

Software required : Java, Javac.

Theory :

Looping in programming languages is a feature which facilitates the execution of a set of instructions/functions repeatedly while some condition evaluates to 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.
Java provides Three types of Conditional statements this second type is loop statement .

1] while loop: A while loop is a control flow statement that allows code to be executed repeatedly based on a given Boolean condition. The while loop can be thought of as a repeating if statement.

Syntax:

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

2] for loop: for loop provides a concise way of writing the loop structure. Unlike a while loop, a for statement consumes the initialization, condition and increment/decrement in one line thereby providing a shorter, easy to debug structure of looping.

Syntax:

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

Initialization condition: Here, we initialize the variable in use. It marks the start of a for loop. An already declared variable can be used or a variable can be declared, local to loop only.
Testing Condition: It is used for testing the exit condition for a loop. It must return a boolean value. It is also an Entry Control Loop as the condition is checked prior to the execution of the loop statements.
Statement execution: Once the condition is evaluated to true, the statements in the loop body are executed.
Increment/ Decrement: It is used for updating the variable for next iteration.
Loop termination:When the condition becomes false, the loop terminates marking the end of its life cycle.

3] do while loop: do while loop is similar to while loop with only difference that it checks for condition after executing the statements, and therefore is an example of Exit Control Loop.

Syntax:

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

Code 1.a :

```
public class Pyramid01 {

    public static void main(String... args) {
        int n = 5;
        for(int i = 0; i <= n; i++){
            for(int j = 0; j<i; j++){
                System.out.print("* ");
            }
            System.out.println();
        }
    }
}
```

Output 1.a :

```
student@csiot-ThinkCentre-M70s:~/Chetan17$ javac Pyramid01.java
student@csiot-ThinkCentre-M70s:~/Chetan17$ java Pyramid01

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

Code 1.b :

```
public class Pyramid02 {

    public static void main(String... args) {
        int n = 5;
        for(int i = n; i > 0; i--){
            for(int j = i; j>0; j--){
                System.out.print("* ");
            }
            System.out.println();
        }
    }
}
```

Output 1.b :

```
student@csiot-ThinkCentre-M70s:~/Chetan17$ javac Pyramid02.java
student@csiot-ThinkCentre-M70s:~/Chetan17$ java Pyramid02
* * * * *
* * * *
* * *
* *
*
```

Code 1.c :

```
public class Pyramid01 {

    public static void main(String... args) {
        int n = 5;
        for(int i = 0; i <= n; i++){
            for(int j = 0; j<i; j++){
                System.out.print("* ");
            }
            System.out.println();
        }
    }
}
```

Output 1.c :

```
student@csiot-ThinkCentre-M70s:~/Chetan17$ javac Pyramid03.java
student@csiot-ThinkCentre-M70s:~/Chetan17$ java Pyramid03

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

Conclusion :

With this programs we learn how to implement loops in java programming language.