



Vidyavardhini's College of Engineering & Technology
Department of Computer Science And Engineering (Data Science)

Experiment No.1
Basic programming constructs like branching and looping
Date of Performance:
Date of Submission:



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Aim:- To apply programming constructs of decision making and looping.

Objective :-

To apply basic programming constructs like Branching and Looping for solving arithmetic problems like calculating factorial of a no entered by user at command prompt .

Theory :-

Programming constructs are basic building blocks that can be used to control computer programs. Most programs are built out of a fairly standard set of programming constructs. For example, to write a useful program, we need to be able to store values in variables, test these values against a condition, or loop through a set of instructions a certain number of times. Some of the basic program constructs include decision making and looping.

Decision Making in programming is similar to decision making in real life. In programming also we face some situations where we want a certain block of code to be executed when some condition is fulfilled. A programming language uses control statements to control the flow of execution of program based on certain conditions. These are used to cause the flow of execution to advance and branch based on changes to the state of a program.

- if
- if-else
- nested-if
- if-else-if
- switch-case
- break, continue

These statements allow you to control the flow of your program's execution based upon conditions known only during run time.

A loop is a programming structure that repeats a sequence of instructions until a specific condition is met. Programmers use loops to cycle through values, add sums of numbers, repeat functions, and many other things. ... Two of the most common types of loops are the while loop and the for loop. The different ways of looping in programming languages are

- while
- do-while
- for loop



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- Some languages have modified for loops for more convenience eg :- Modified for loop in java.
For and while loop is entry-controlled loops. Do-while is an exit-controlled loop.

Code: -

```
class branchingExample
{
    public static void main(String args[])
    {
        int a=8,
        int b=10;
        if(a==b){
            System.out.println("a is equal to b");
        }
        else
        {
            System.out.println("a is not equal to b");
        }
    }
}
```

Output: -

```
C:\Users\student\Desktop\jdk-17\bin>javac branchingExample.java

C:\Users\student\Desktop\jdk-17\bin>java branchingExample.java
a is not equal to b

C:\Users\student\Desktop\jdk-17\bin>
```

Code:

```
class forLoopExample
{
    public static void main(String args[])
    {
        int n=6 ,i=1;
        for (i=0;i<n;i++)
        {
            System.out.println("loop excuted");
        }
    }
}
```



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```
}
```

Output:

```
C:\Users\student\Desktop\jdk-17\bin>javac forLoopExample.java  
C:\Users\student\Desktop\jdk-17\bin>java forLoopExample.java  
loop excuted  
loop excuted  
loop excuted  
loop excuted  
loop excuted  
loop excuted  
loop excuted
```

Conclusion:

Branching and looping are two of the most important control structures in Java. They allow you to control the flow of your program and execute different blocks of code based on different conditions.

Branching:

Branching statements allow you to execute different blocks of code based on the value of a Boolean expression. The most common branching statements in Java are the if and switch statements.

The **if statement** allows you to execute a block of code if a condition is true. Otherwise, the block of code is skipped.

The **switch statement** allows you to execute a block of code based on the value of an integer expression. Each case statement in the switch statement represents a different value of the integer expression.

Looping:

Looping statements allow you to execute a block of code repeatedly until a condition is met. The most common looping statements in Java are the for, while, and do-while statements.

The **for loop** allows you to execute a block of code a fixed number of times.

The **while loop** allows you to execute a block of code as long as a condition is true. The **do-while loop** is similar to the while loop, but it executes the block of code at least once, even if the condition is false.