

LAB MANUAL 13th PROBLEM STATEMENT

AVANI SHAJI KRISHNA

22BTRAD007

GITHUB: <https://github.com/avaniskrishna/ScalaProgramming>

PROBLEM STATEMENT:

The "MathUtils" object contains the factorial method. This method calculates the factorial of a given number using recursion. If the number is 0 or 1, it returns 1. Otherwise, it recursively calls itself with n - 1 and multiplies the result by n. The "Main" object contains the main method where you can test the factorial method. In this example, it calculates the factorial of the number 4 and 10 and prints the result.

CODE:



The screenshot shows the OneCompiler IDE interface. The editor displays a Scala file named 'HelloWorld.scala' with the following code:

```
1 object MathUtils {
2   def factorial(n: Int): BigInt = {
3     if (n == 0 || n == 1) {
4       1
5     } else {
6       n * factorial(n - 1)
7     }
8   }
9 }
10
11 object Main {
12   def main(args: Array[String]): Unit = {
13     val number1 = 4
14     val result1 = MathUtils.factorial(number1)
15     println(s"The factorial of $number1 is: $result1")
16     val number2 = 10
17     val result2 = MathUtils.factorial(number2)
18     println(s"The factorial of $number2 is: $result2")
19   }
20 }
21
```

The right-hand pane shows the 'Output' section with the following text:

```
The factorial of 4 is: 24
The factorial of 10 is: 3628800
```

Modifications:



The screenshot shows the OneCompiler IDE interface with the same Scala file 'HelloWorld.scala'. The code has been modified to calculate factorials for 0 and 1:

```
1 object MathUtils {
2   def factorial(n: Int): BigInt = {
3     if (n == 0 || n == 1) {
4       1
5     } else {
6       n * factorial(n - 1)
7     }
8   }
9 }
10
11 object Main {
12   def main(args: Array[String]): Unit = {
13     val number1 = 0
14     val result1 = MathUtils.factorial(number1)
15     println(s"The factorial of $number1 is: $result1")
16     val number2 = 1
17     val result2 = MathUtils.factorial(number2)
18     println(s"The factorial of $number2 is: $result2")
19   }
20 }
21
```

The right-hand pane shows the 'Output' section with the following text:

```
The factorial of 0 is: 1
The factorial of 1 is: 1
```