

# Scala programming

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1.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;

```
object MathUtils {  
  def factorial(n: Int): BigInt = {  
    if (n == 0 || n == 1) {  
      1  
  
    }  
    else {
```

$n * \text{factorial}(n - 1)$

}

}

}

object Main {

def main(args: Array[String]): Unit = {

val number1 = 4

val result1 = MathUtils.factorial(number1)

println(s"The factorial of \$number1 is: \$result1")

val number2 = 10

val result2 = MathUtils.factorial(number2)

println(s"The factorial of \$number2 is: \$result2")

}

}

Output;

The screenshot shows the OneCompiler website interface. The code editor contains the following Scala code:

```
1 object MathUtils {
2   def factorial(n: Int): BigInt = {
3     if (n == 0 || n == 1) {
4       1
5     }
6   }
7   else {
8     n * factorial(n - 1)
9   }
10 }
11 }
12 }
13 }
14 object Main {
15   def main(args: Array[String]): Unit = {
16     val number1 = 4
17     val result1 = MathUtils.factorial(number1)
18     println(s"The factorial of $number1 is: $result1")
19     val number2 = 10
20     val result2 = MathUtils.factorial(number2)
21     println(s"The factorial of $number2 is: $result2")
22   }
23 }
24 }
```

The output section displays the results of the program execution:

```
STDIN
Input for the program ( Optional )

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

Below the code editor, the text "Scala Online Compiler" is visible, followed by a description: "Write, Run & Share Scala code online using OneCompiler's Scala online compiler for free. It's one of".

Changing ,number1=0 and number2 = 1,

The screenshot shows the OneCompiler website interface with the code editor updated to calculate factorials of 0 and 1. The code is as follows:

```
1 object MathUtils {
2   def factorial(n: Int): BigInt = {
3     if (n == 0 || n == 1) {
4       1
5     }
6   }
7   else {
8     n * factorial(n - 1)
9   }
10 }
11 }
12 }
13 }
14 object Main {
15   def main(args: Array[String]): Unit = {
16     val number1 = 0
17     val result1 = MathUtils.factorial(number1)
18     println(s"The factorial of $number1 is: $result1")
19     val number2 = 1
20     val result2 = MathUtils.factorial(number2)
21     println(s"The factorial of $number2 is: $result2")
22   }
23 }
24 }
```

The output section shows the results for these inputs:

```
STDIN
Input for the program ( Optional )

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

Similar to the first screenshot, the text "Scala Online Compiler" and its description are present at the bottom.