

Task to Calculate a factorial:

```
package factorial;

import java.util.*;

public class factorial{
    public static void main(String[] args) {
        //taking an input from the user
        System.out.println("Enter a number ");
        Scanner sc = new Scanner(System.in);

        //reading the number
        int number = sc.nextInt();
        //calling the factorial method and storing it in a variable
        int result = calculateFactorial(number);

        //printing the result
        System.out.println("Factorial of "+number+" is "+result);
        sc.close();
    }

    public static int calculateFactorial(int number){
        int result = 1;
        int iterator = number;
        if(number == 0 || number == 1){
            result = 1;
        }

        else{
            while(iterator > 0){
                result = result * iterator;
                iterator --;
            }
        }
        return result;
    }
}
```

Task to Calculate a factorial:

//Testing using Junit Testing

```
package lib;
import factorial.factorial;

import static org.junit.Assert.assertEquals;

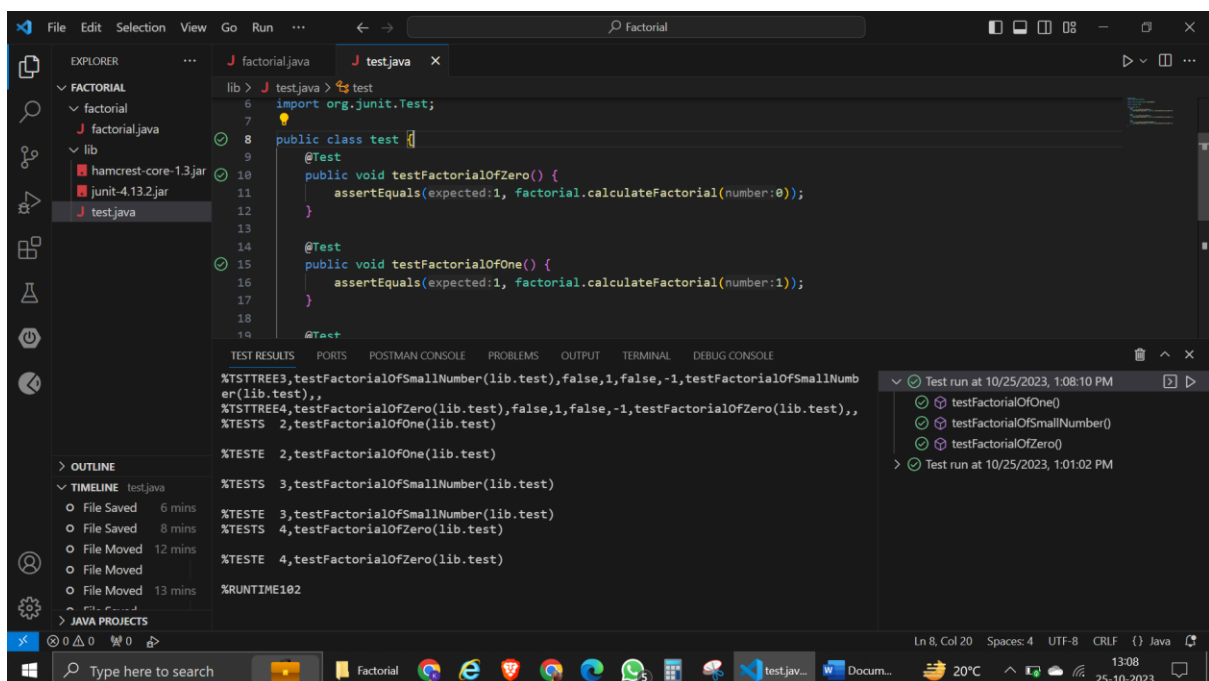
import org.junit.Test;

public class test {
    @Test
    public void testFactorialOfZero() {
        assertEquals(1, factorial.calculateFactorial(0));
    }

    @Test
    public void testFactorialOfOne() {
        assertEquals(1, factorial.calculateFactorial(1));
    }

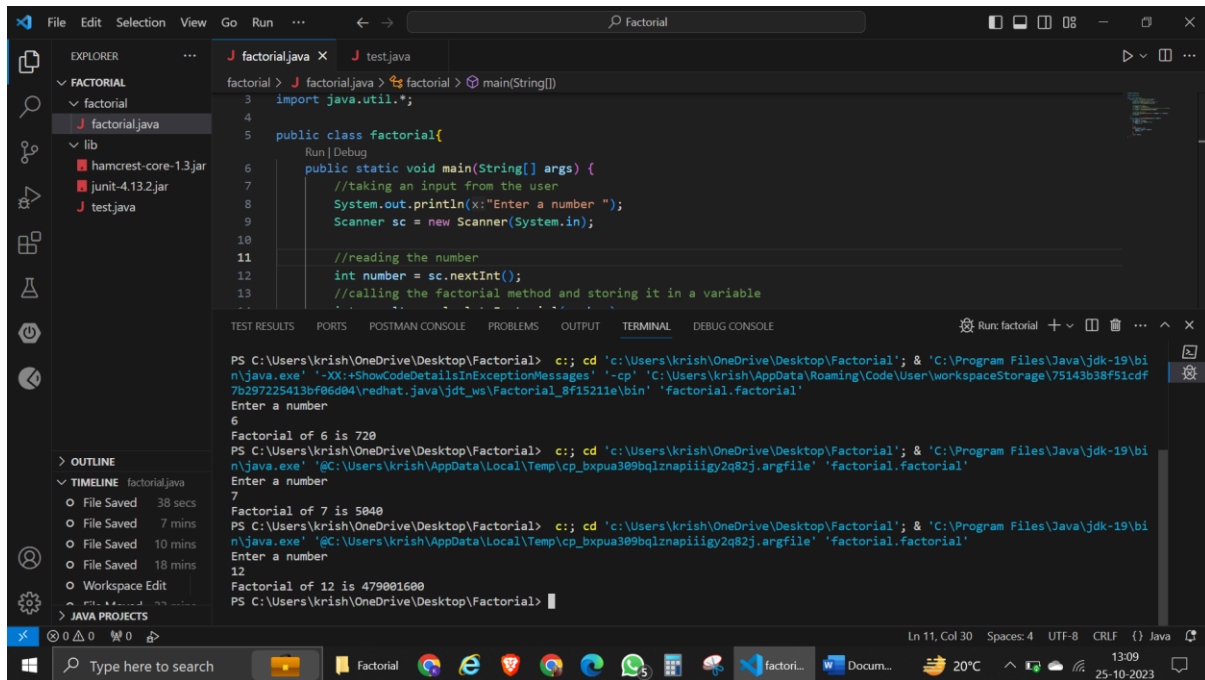
    @Test
    public void testFactorialOfSmallNumber() {
        assertEquals(6, factorial.calculateFactorial(3));
    }
}
```

Results:



Task to Calculate a factorial:

Result in terminal:



The screenshot shows an IDE with a Java project named 'factorial'. The source file 'factorial.java' contains the following code:

```
factorial > J factorial.java > factorial > main(String[])
3 import java.util.*;
4
5 public class factorial{
6     public static void main(String[] args) {
7         //taking an input from the user
8         System.out.println(x:"Enter a number ");
9         Scanner sc = new Scanner(System.in);
10
11         //reading the number
12         int number = sc.nextInt();
13         //calling the factorial method and storing it in a variable
```

The terminal output shows the execution of the program:

```
PS C:\Users\krish\OneDrive\Desktop\Factorial> c;; cd 'c:\Users\krish\OneDrive\Desktop\Factorial'; & 'C:\Program Files\Java\jdk-19\bin\java.exe' '-XX:+ShowCodeDetailsInExceptionMessages' '-cp' 'C:\Users\krish\AppData\Roaming\Code\User\workspaceStorage\75143b38f51cdf7b297225413bf06d04\redhat.java\jdt_ws\Factorial_8f15211e\bin' 'factorial.factorial'
Enter a number
6
Factorial of 6 is 720
PS C:\Users\krish\OneDrive\Desktop\Factorial> c;; cd 'c:\Users\krish\OneDrive\Desktop\Factorial'; & 'C:\Program Files\Java\jdk-19\bin\java.exe' '@C:\Users\krish\AppData\Local\Temp\cp_bxpua309bqlznapiiig2q82j.argfile' 'factorial.factorial'
Enter a number
7
Factorial of 7 is 5040
PS C:\Users\krish\OneDrive\Desktop\Factorial> c;; cd 'c:\Users\krish\OneDrive\Desktop\Factorial'; & 'C:\Program Files\Java\jdk-19\bin\java.exe' '@C:\Users\krish\AppData\Local\Temp\cp_bxpua309bqlznapiiig2q82j.argfile' 'factorial.factorial'
Enter a number
12
Factorial of 12 is 479001600
PS C:\Users\krish\OneDrive\Desktop\Factorial>
```

The IDE interface includes an Explorer panel on the left showing the project structure, an Outline panel, and a Timeline panel. The bottom status bar indicates the current line and column (Ln 11, Col 30) and the file encoding (UTF-8).