Day 9: Recursion 3

Author AvmnuSng

Difficulty Easy

Cutoff Score 15.00

Max Score 30

Submitted By 185135

Objective

Today, we're learning and practicing an algorithmic concept called Recursion. Check out the Tutorial tab for learning materials and an instructional video!

Recursive Method for Calculating Factorial

$$factorial(N) = \begin{cases} 1 & N \leq 1 \\ N \times factorial(N-1) & otherwise \end{cases}$$

Task

Write a factorial function that takes a positive integer, N as a parameter and prints the result of $N!$ (N factorial).

Note: If you fail to use recursion or fail to name your recursive function factorial or Factorial, you will get a score of 0.

Input Format

A single integer, N (the argument to pass to factorial).

Constraints

- $2 \leq N \leq 12$
- Your submission must contain a recursive function named factorial.

Output Format

Print a single integer denoting $N!$.

Sample Input

```
3
```

Sample Output

```
6
```

Explanation

Consider the following steps:

NEED HELP?

View tutorial

View discussions

View editorial

View top submissions

RATE THIS CHALLENGE

MORE DETAILS

Download problem statement

Download sample test cases

Suggest Edits

1. $factorial(3) = 3 \times factorial(2)$
2. $factorial(2) = 2 \times factorial(1)$
3. $factorial(1) = 1$

From steps 2 and 3, we can say $factorial(2) = 2 \times 1 = 2$; then when we apply the value from $factorial(2)$ to step 1, we get $factorial(3) = 3 \times 2 \times 1 = 6$. Thus, we print 6 as our answer.

Change Theme Java 8

```
import java.io.*;
import java.math.*;
import java.security.*;
import java.text.*;
import java.util.*;
import java.util.concurrent.*;
import java.util.regex.*;

public class Solution {

    // Complete the factorial function below.
    static int factorial(int n) {


    }

    private static final Scanner scanner = new Scanner(System.in);

    public static void main(String[] args) throws IOException {
        BufferedWriter bufferedWriter = new BufferedWriter(new FileWriter(System.getenv("OUTPUT_PATH")));

        int n = scanner.nextInt();
        scanner.skip("(\r\n|[\n\r\u2028\u2029\u0085])?");

        int result = factorial(n);

        bufferedWriter.write(String.valueOf(result));
        bufferedWriter.newLine();

        bufferedWriter.close();

        scanner.close();
    }
```

```
34    }
35
```

Line: 1 Col: 1

Upload Code as File

Test against custom input

Run Code

Submit Code