Day 9: Recursion 3 ☆

4 more challenges to get your next star!

Points: 11/15

30 Days of Code

Problem Submissions Leaderboard Editorial Tutorial

RATE THIS CHALLENGE

☆ ☆ ☆ ☆ ☆

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:

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.

Java 8

```
1   import java.io.*;
2   import java.math.*;
3   import java.security.*;
4   import java.text.*;
5   import java.util.*;
6   import java.util.concurrent.*;
7   import java.util.regex.*;
8
9   public class Solution {
10
11      // Complete the factorial function below.
12      static int factorial(int n) {
13
14
15      }
16
17      private static final Scanner scanner = new Scanner(System.in);
18
19      public static void main(String[] args) throws IOException {
20          BufferedWriter bufferedWriter = new BufferedWriter(new FileWriter(System.getenv
    ("OUTPUT_PATH")));
21
22          int n = scanner.nextInt();
23          scanner.skip("(\r\n|[\n\r\u2028\u2029\u0085])?");
24
```

Line: 1 Col: 1

Upload Code as File Test against custom input Run Code Submit Code