

Problem

Objective

Today, we are learning about an algorithmic concept called recursion. Check out the [Tutorial](#) tab for learning materials and an instructional video.

Recursive Method for Calculating Factorial

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

Submissions

Function Description

Complete the factorial function in the editor below. Be sure to use recursion.

factorial has the following paramter:

- int n: an integer

Returns

- int: the factorial of *n*

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).

Discussions

Constraints

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

Sample Input

3

Sample Output

6

Tutorial

Explanation

Consider the following steps. After the recursive calls from step 1 to 3, results are accumulated from step 3 to 1.

- $factorial(3) = 3 \times factorial(2) = 3 \times 2 = 6$
- $factorial(2) = 2 \times factorial(1) = 2 \times 1 = 2$
- $factorial(1) = 1$

Change Theme

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

int result;

14

if(n == 1){

15

return 1;

16

}

17

result = factorial(n - 1) * n;

18

return result;

19

}

20

21

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

22

23

public static void main(String[] args) throws IOException {

24

BufferedReader bufferedWriter = new BufferedWriter(new OutputStreamWriter(System.out));

25

bufferedWriter.write(String.valueOf(factorial(scanner.nextInt())));

26

bufferedWriter.newLine();

27

}

Line: 16 Col: 10

Upload Code as File

Test against custom input

Run Code

Submit Code

You have earned 30.00 points!

You are now 5 challenges away from the 3rd star for your 30 days of code badge.

38%

10/15

30

Days of Code

★★

Congratulations

You solved this challenge. Would you like to challenge your friends?

The next challenge in this tutorial will unlock in 07:10:55

Go to Dashboard

Try a Random Challenge

Test case 0

Test case 1

Test case 2

Compiler Message

Success

Input (stdin)

3

Expected Output

6

Download

Download

https://www.hackerrank.com/challenges/30-recursion/problem?isFullScreen=true

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