All Domains > Tutorials > 30 Days of Code > Day 9: Recursion

Share 30 Days of Code

f 🐦 in

Day 9: Recursion

by **AvimanyuSingh**

Problem	Submissions	Leaderboard	Discussions	Editorial	Tutorial

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

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

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

- $2 \le N \le 12$

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

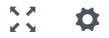2. $factorial(2) = 2 \times factorial(1)$

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.

Solved score: 15.00pts

Submissions: 12968

Max Score: 30

Difficulty: Easy

More

Current Buffer (saved locally, editable)   Python 2 ⌄

```python
1  # Enter your code here. Read input from STDIN. Print output to STDOUT
2  n=int(raw_input())
3
4  def factorial(num):
5      if num<=1:
6          fac=1
7      else:
8          fac=num*factorial(num-1)
9      return fac
10
11 print factorial(n)
```

Line: 11 Col: 18

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

Congrats, you solved this challenge!

✔ Test Case #0   ✔ Test Case #1   ✔ Test Case #2

Next Challenge

Join us on IRC at #hackerrank on freenode for hugs or bugs.

Contest Calendar | Blog | Scoring | Environment | FAQ | About Us | Support | Careers | Terms Of Service | Privacy Policy | Request a Feature