Recursion basics → Let's count

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Medium 1 minute

Take a look at the draft of the function that counts dolls.

count(X):

- If $X = 1, count(X) = 1$
- If $X > 1, count(X) = count(X-1) + 1$.

Why is it a bad idea to count dolls recursively here?

Report a typo

Select one option from the list

- ◯ there is a risk of counting infinitely
- ◯ the function cannot backtrack
- ◯ the results are not accurate
- ◯ we are doing extra calculations that are easily avoided

✓ Correct.

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U5 User 56690204
3 months ago

What extra "calculations"? The number of additions is equal to one less than the number of dolls. This is the same number as for an iterative implementation. Perhaps you meant extra operations? (stack manipulations and method invocations are operations, but I'm not sure that "calculations" is the best word to describe them)

1 Reply Report

Carlton Noronha
about 2 months ago

No. In this case no extra operations are perform but for problems like Fibonacci series extra operations will take place if you use recursion without memoization. Check out a video on Fibonacci Series using recursion.

Reply Report

WyRe
3 months ago

I'd like to know what would be the optimal solution.

1 Reply Report

SiryWeb
4 months ago

"we are doing extra calculations that are easily avoided"
This is draft of the function for fox sake, you not optimise on draft stage!!

Reply Report

Agata Murawska
5 months ago

There actually is *also* a risk of "counting infinitely" (i.e. non-termination), if you start with a non-positive number.

13 6 Reply Report

sense
4 months ago

If you start with a non-positive number, then the function will only run once and will not return anything because no condition will be met.

9 Reply Report

Edward_M
4 months ago

You could say that their is no negative number of dolls, so only natural numbers can be used.

Reply Report

Anonymous 249531386
3 months ago

Function does nothing for non-positive numbers, it would just return None, why would it count infinitely?

Reply Report

Agata Murawska
3 months ago

In the current version of course it wouldn't, but when I made the comment, there was a mistake.

Reply Report

Anonymous 249531386
3 months ago

I see, it doesn't show if the problem was fixed after the comment or not.

Reply Report