Codility_

CodeCheck Report: trainingWYEBZV-V36

Test Name:

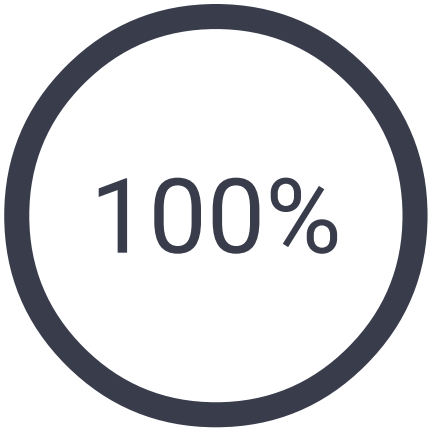
Check out Codility training tasks

Summary Timeline

Tasks summary

Task	Time spent	Score
Nesting C++ ⚠	1 min	100%

Total score



Tasks Details

Easy

1. Nesting

Determine whether a given string of parentheses (single type) is properly nested.

Task Score	Correctness	Performance
100%	100%	100%

Task description

Solution

Programming language used: C++

A string S consisting of N characters is called *properly nested* if:

- S is empty;
- S has the form "(U)" where U is a properly nested string;
- S has the form "VW" where V and W are properly nested strings.

For example, string "(()(())())" is properly nested but string "())" isn't.

Write a function:

```
int solution(string &S);
```

that, given a string S consisting of N characters, returns 1 if string S is properly nested and 0 otherwise.

For example, given S = "(()(())())", the function should return 1 and given S = "())", the function should return 0, as explained above.

Write an **efficient** algorithm for the following assumptions:

- N is an integer within the range [0..1,000,000];
- string S consists only of the characters "(" and/or ")".

Total time used:	1 minutes
Effective time used:	1 minutes
Notes:	*not defined yet*

Task timeline

07:23:57 — 07:24:46

Code: 07:24:46 UTC, cpp, final, score: **100**

show code in pop-up

```cpp
// you can use includes, for example:
#include <bits/stdc++.h>

int solution(string &S){
        stack<char> pila;
        for(char n:S){
                if(n=='(' )
                        pila.push(n);
                else if(!pila.empty()){
                        if(n==')' && pila.top() == '(')
                                pila.pop();
                }
                else
                        pila.push(n);
        }

        if(pila.empty())
                return 1;
        else
                return 0;
}
```

Analysis summary

The solution obtained perfect score.

Analysis

Detected time complexity: **O(N)**

expand all	**Example tests**	
▶	example1 example test	✓ OK
▶	example2 example test2	✓ OK
expand all	**Correctness tests**	
▶	negative_match invalid structure, but the number of parentheses matches	✓ OK
▶	empty empty string	✓ OK
▶	simple_grouped simple grouped positive and negative test, length=22	✓ OK
▶	small_random	✓ OK
expand all	**Performance tests**	
▶	large1 simple large positive and negative test, 10K or 10K+1 ('s followed by 10K)'s	✓ OK
▶	large_full_ternary_tree tree of the form T=(TTT) and depth 11, length=177K+	✓ OK
▶	multiple_full_binary_trees sequence of full trees of the form T=(TT), depths [1..10..1], with/without unmatched ')' at the end, length=49K+	✓ OK

▶	broad_tree_with_deep_paths string of the form (TTT...T) of 300 T's, each T being '(((...)))' nested 200-fold, length=1 million	✓ OK