Codility_

## Candidate Report: trainingNG85F9-WVN

Check out Codility training tasks

Test Name:

Summary Review (0) Timeline

### Tasks summary

| Task | Time spent | Score |
|---|---|---|
| **Brackets**<br>Java 8 | 1 min | 100% |

### Total score


## Tasks Details

Easy

### 1. Brackets

Determine whether a given string of parentheses (multiple types) is properly nested.

| Task Score | Correctness | Performance |
|---|---|---|
| 100% | 100% | 100% |

### Task description

A string S consisting of N characters is considered to be *properly nested* if any of the following conditions is true:

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

For example, the string "{[()()]}" is properly nested but "([)()]" is not.

Write a function:

```
class Solution { public int solution(String S); }
```

that, given a string S consisting of N characters, returns 1 if 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:

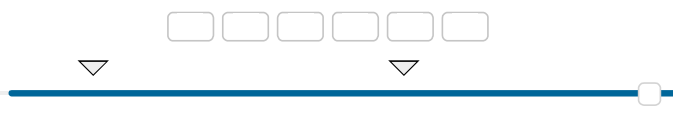
- N is an integer within the range [0..200,000];
- string S consists only of the following characters: "(", "{", "[", "]", "}" and/or ")".



### Solution

| | |
|---|---|
| Programming language used: | Java 8 |
| Total time used: | 1 minutes |
| Effective time used: | 1 minutes |
| Notes: | *not defined yet* |

### Task timeline



12:01:22 12:02:19

Code: 12:02:19 UTC, java, final, score: **100**

show code in pop-up

```
1  // you can also use imports, for example:
2  // import java.util.*;
3
4  // you can write to stdout for debugging purposes, e.g.
5  // System.out.println("this is a debug message");
6  import java.util.Stack;
7
```

```
class Solution {
    public static int solution(String S){
    Stack<Character> stack = new Stack<Character>();
    if(null == S){
        return 0;
    }else if(S.isEmpty()){
        return 1;
    }
    for (Character C : S.toCharArray()) {

        switch (C) {
        case ')':
            pops(stack, '(');
            break;
        case '}':
            pops(stack, '{');
            break;
        case ']':
            pops(stack, '[');
            break;

        default:
            stack.push(C);
            break;
        }

    }
    return stack.isEmpty() ? 1 : 0;
}

private static void pops(Stack<Character> s, Character  C)

        while(!s.isEmpty() && s.peek() != C){
            s.pop();
        }
        if(!s.isEmpty()){
            s.pop();
        }else{
            s.push(C);
        }
}
}
```

## Analysis summary

The solution obtained perfect score.

## Analysis

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

| expand all | Example tests | |
|---|---|---|
| ▶ | example1<br>example test 1 | ✓ OK |
| ▶ | example2<br>example test 2 | ✓ OK |
| expand all | Correctness tests | |
| ▶ | negative_match<br>invalid structures | ✓ OK |
| ▶ | empty<br>empty string | ✓ OK |
| ▶ | simple_grouped<br>simple grouped positive and negative test, length=22 | ✓ OK |
| expand all | Performance tests | |
| ▶ | large1<br>simple large positive test, 100K ('s followed by 100K )'s + )( | ✓ OK |

| | | |
|---|---|---|
| ▶ | large2<br>simple large negative test, 10K+1 ('s followed by 10K )'s + )( + () | ✓ OK |
| ▶ | large_full_ternary_tree<br>tree of the form T=(TTT) and depth 11, length=177K+ | ✓ OK |
| ▶ | multiple_full_binary_trees<br>sequence of full trees of the form T=(TT), depths [1..10..1], with/without some brackets at the end, length=49K+ | ✓ OK |
| ▶ | broad_tree_with_deep_paths<br>string of the form [TTT...T] of 300 T's, each T being '{{{...}}}' nested 200-fold, length=120K+ | ✓ OK |