Codility_

CodeCheck Report: trainingBK36DX-HVC

Test Name:

Check out Codility training tasks

Summary Timeline

Tasks summary

Task	Time spent	Score
Brackets Python ⚠	12 min	100%

Total score

Tasks Details

1. **Brackets**

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

Easy

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.

Solution

Programming language used:	Python
Total time used:	12 minutes
Effective time used:	12 minutes
Notes:	*not defined yet*

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

Write a function:

```
def solution(S)
```

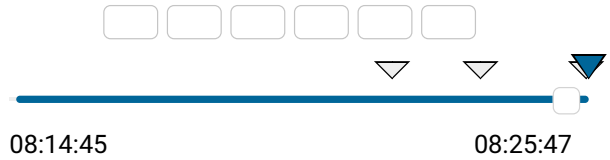
that, given a string S consisting of N characters, returns 1 if S is properly nested and 0 otherwise.

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 is made only of the following characters: '(', '{', '[', ']', '}' and/or ')'.

Task timeline



08:14:45 08:25:47

Code: 08:25:47 UTC, py, final, score: **100** show code in pop-up

```
1  # you can write to stdout for debuggin
2  # print("this is a debug message")
3
4  def solution(S):
5      # Implement your solution here
6      # pass
7      stack = []
8
9      for bracket in S:
10         if bracket in ('(', '{', '['):
11             stack.append(bracket)
12
13         elif bracket in (')', '}', ']'
14             if not stack:
15                 return 0
16
17             top = stack.pop()
18             if (bracket == ')' and top
19                (bracket == '}' and top
20                (bracket == ']' and top
21                return 0
22
23     return 1 if not stack else 0
24
```

Analysis summary

The solution obtained perfect score.

Analysis

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

expand all	Example tests	
▶	example1 example test 1	✔ OK
▶	example2 example test 2	✔ OK
expand all	**Correctness tests**	
▶	negative_match invalid structures	✔ OK
▶	empty empty string	✔ OK

▶	simple_grouped simple grouped positive and negative test, length=22	✔ OK

expand all **Performance tests**

▶	large1 simple large positive test, 100K ('s followed by 100K)'s +)(	✔ OK
▶	large2 simple large negative test, 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 some brackets 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=120K+	✔ OK