

# 20. Valid Parentheses

|                                     |                                     |
|-------------------------------------|-------------------------------------|
| Difficulty                          | easy                                |
| <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Finished                            | @July 13, 2023                      |
| Problem                             | string                              |
| Previously asked company            | Facebook                            |
| website                             | leetcode                            |

Question:

Given a string `s` containing just the characters `'('`, `')'`, `'{'`, `'}'`, `'['` and `']'`, determine if the input string is valid.

An input string is valid if:

- 1. Open brackets must be closed by the same type of brackets.
- 2. Open brackets must be closed in the correct order.
- 3. Every close bracket has a corresponding open bracket of the same type.

Example 1:

Input: `s = "()"`  
Output: `true`

Example 2:

Input: `s = "()[]{}"`  
Output: `true`

Example 3:

Input: `s = "["`  
Output: `false`

Optimal solution:

Time complexity:  $O(n)$

Space complexity:  $O(n)$

```
class Solution(object):
    def isValid(self, s):
        stack = []
        closeToOpen = { ')': '(', '}': '{', ']': '[' }
        for c in s:
            if c in closeToOpen:
                if stack and stack[-1] == closeToOpen[c]:
```

```
        stack.pop()
    else:
        return False
    else:
        stack.append(c)
    return False if stack else True
```