Balanced Brackets ★

A bracket is considered to be any one of the following characters: (,), {, }, [, or].

Two brackets are considered to be a matched pair if the an opening bracket (i.e., (, [, or {) occurs to the left of a closing bracket (i.e.,),], or }) of the exact same type. There are three types of matched pairs of brackets: [], {}, and ().

A matching pair of brackets is not balanced if the set of brackets it encloses are not matched. For example, {[(])} is not balanced because the contents in between { and } are not balanced. The pair of square brackets encloses a single, unbalanced opening bracket, (, and the pair of parentheses encloses a single, unbalanced closing square bracket,].

By this logic, we say a sequence of brackets is balanced if the following conditions are met:

- It contains no unmatched brackets.
- The subset of brackets enclosed within the confines of a matched pair of brackets is also a matched pair of brackets.

Given n strings of brackets, determine whether each sequence of brackets is balanced. If a string is balanced, return YES. Otherwise, return NO.

Function Description

Complete the function isBalanced in the editor below.

isBalanced has the following parameter(s):

- string s: a string of brackets

Returns

- string: either YES or NO

Input Format

The first line contains a single integer n, the number of strings.
Each of the next n lines contains a single string s, a sequence of brackets.

Constraints

- $1 \leq n \leq 10^3$
- $1 \leq |s| \leq 10^3$, where $|s|$ is the length of the sequence.
- All chracters in the sequences $\in$ { **{**, **}**, **(**, **)**, **[**, **]** }.

Output Format

For each string, return YES or NO.

Sample Input

STDIN Function ----- -------- 3 n = 3 {[()]} first s = '{[()]}' {[()]} second s = '{[()]}' {{[[(())]]}} third s ='{{[[(())]]}}'

Sample Output

```
YES
NO
YES
```

Explanation

1. The string {[()]} meets both criteria for being a balanced string.
2. The string {[(])} is not balanced because the brackets enclosed by the matched pair { and } are not balanced: [(]).
3. The string {{[[(())]]}} meets both criteria for being a balanced string.

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```
33
34      public static String isBalanced(String s) {
35      // Write your code here
36          Stack<Character> st= new Stack<Character>();
37
38          for(int i=0; i<s.length(); i++){
39              char current = s.charAt(i);
40
41              if(isOpen(current)){
42                  st.push(current);
43              }
44              else if(!st.isEmpty()){
45                  if(pair(st.peek(), current)){
46                      st.pop();
47                  }
48                  else{
49                      return "NO";
50                  }
51              }
52              else{
53                  return "NO";
54              }
55          }
56
57          if(st.isEmpty()) return "YES";
58          return "NO";
59      }
60
61  }
62
63  public class Solution {
```

Line: 87 Col: 1

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Test case 0
Test case 1
Test case 2
Test case 3
Test case 4
Test case 5
Test case 6

Compiler Message

Success

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