Balanced Brackets ★

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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 ∈ { **{, }, (,), [,]** }.

Output Format

For each string, return YES or NO.

Sample Input

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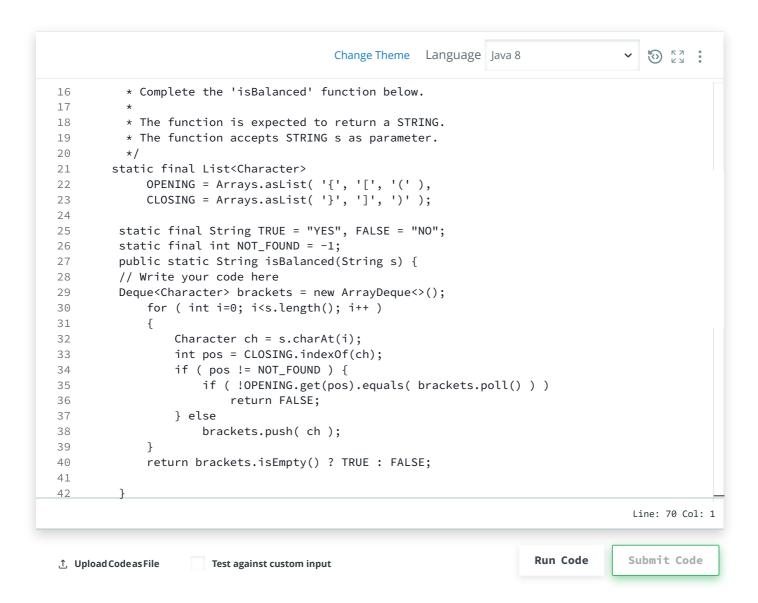
Sample Output

```
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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```
16        * Complete the 'isBalanced' function below.
17        *
18        * The function is expected to return a STRING.
19        * The function accepts STRING s as parameter.
20        */
21     static final List<Character>
22          OPENING = Arrays.asList( '{', '[', '(' ),
23          CLOSING = Arrays.asList( '}', ']', ')' );
24
25      static final String TRUE = "YES", FALSE = "NO";
26      static final int NOT_FOUND = -1;
27      public static String isBalanced(String s) {
28      // Write your code here
29      Deque<Character> brackets = new ArrayDeque<>();
30          for ( int i=0; i<s.length(); i++ )
31          {
32              Character ch = s.charAt(i);
33              int pos = CLOSING.indexOf(ch);
34              if ( pos != NOT_FOUND ) {
35                  if ( !OPENING.get(pos).equals( brackets.poll() ) )
36                      return FALSE;
37              } else
38                  brackets.push( ch );
39          }
40          return brackets.isEmpty() ? TRUE : FALSE;
41
42      }
```

Line: 70 Col: 1

⬆ Upload Code as File   ☐ Test against custom input   **Run Code**   **Submit Code**

Congratulations!

You have passed the sample test cases. Click the submit button to run your code against all the test cases.

☑ **Sample Test case 0**

☑ **Sample Test case 1**   Input (stdin)   Download

☑ **Sample Test case 2**

```
1   3
2   {[()]}
3   {[(])}
4   {{[[(())]]}}
```

Your Output (stdout)

1	YES
2	NO
3	YES

Expected Output   Download

| 1 | YES |

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