



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. It must return a string: YES if the sequence is balanced or NO if it is not.

`isBalanced` has the following parameter(s):

- `s`: a string of brackets

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

```
3
{[(())]}
```



```
{[()]}\n{[[[ ( ) ] ] ] }
```

Sample Output

```
YES\nNO\nYES
```

Explanation

1. The string {[()]} meets both criteria for being a balanced string, so we print YES on a new line.
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, so we print YES on a new line.

Java 7



```
44     public static void main(String[] args) {\n45         Scanner reader = new Scanner(System.in);\n46         int testCases = reader.nextInt();\n47\n48         for (int i = 0; i < testCases; i++) {\n49             String input = reader.next();\n50             System.out.println(isBalanced(input));\n51         }\n52         reader.close();\n53     }\n54 }\n55\n56
```

Line: 1 Col: 1

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