JOBS

All Contests > PT_Test-1 > Balanced Brackets

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

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

Output Format

For each string, return YES or NO.

Sample Input

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

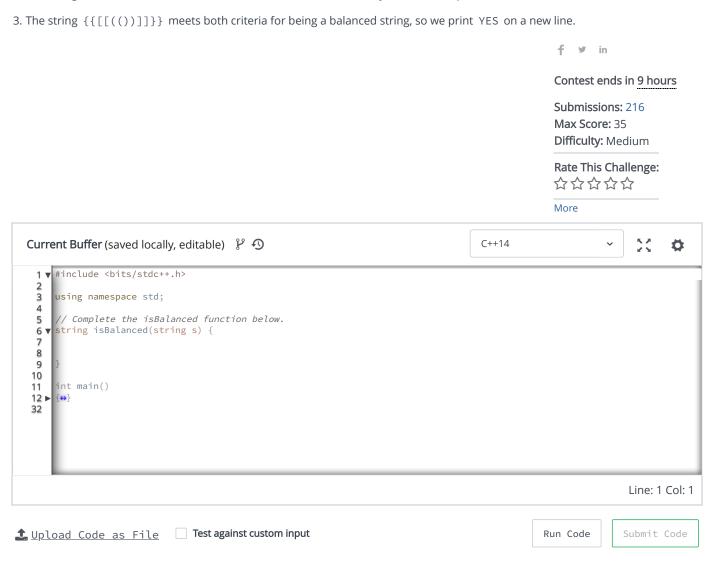
Sample Output

YES

YES

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: [(]).



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