

# Problem B. Balanced Brackets

OS Linux

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** .

Input		Output
STDIN	Function	YES
-----	-----	NO
3	n = 3	YES
{[()]}	first s = '[()]'	
{[(1)]}	second s = '[ (1)]'	
{{[[[(())]]}}	third s = '[ [[[(())]]]'	

### Explanation

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