

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 $\hat{=}\{ \{, \}, (,), [,] \}$.

Output Format

For each string, return YES OR NO.

Sample Input

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

Sample Output

```
YES
NO
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: [(())].
3. The string {{[[((()))]]} meets both criteria for being a balanced string, so we print YES on a new line.