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.

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.