

Balanced Brackets



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

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.