Balanced Brackets

HackerRank

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.