CSEC-ASTU Competitive Programming Contest 2021

Problem 35: **balanced brackets**

Time Limit: 1 second

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**.

Input

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.

1<=n<=10^3

1<=|s|<=10^3, where is the length of the sequence.

All characters in the sequences ? { {, }, (,), [,] }.

Output

For each string, return **YES** or **NO**.

Sample Input 1	Sample Output 1
3 {[()]} {[(])} {{[[(())]]}}	YES NO YES

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: [(]).