CSE 208: Data Structure Lab (Sec-1)

Department of Computer Science and Engineering

University of Liberal Arts Bangladesh

Course Title: Data Structure Lab **Course Code:** CSE 208

Total Marks: 20 **Time:** 50 minutes

Name: _____ **ID:** _____

1. A bracket is considered to be any one of the following characters: (,), {,}, or [,]. 10

Two brackets are considered to be a matched pair if 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 format:

- The first line contains a single integer n, the number of strings.
- Each of the next n lines contain a single string s, a sequence of brackets.

Output format:

- For each string, return YES or NO.

Constraints:

- $1 \leq n \leq 10^3$
- $1 \leq |s| \leq 10^3$ where $|s|$ is the length of the sequence
- All characters in the sequences are {,}, (,), [,].

SAMPLE INPUT	SAMPLE OUTPUT
3 { [( )] } { [( ]) } { { [[(( ))]] } }	YES NO YES

2. Interview 10