

**Institute of Information Technology, University of Dhaka**  
**BSSE 9th Batch (January 2018) # CSE301: Combinatorial Optimization**  
**Lab Assignment 2 (Stack) # Marks 20 # Deadline January 18, 2016**

**Name:**

**Roll:**

- 1 You are given a string consisting of parentheses () and []. A string of this type is said to be correct: 10

- (a) if it is the empty string
- (b) if A and B are correct, AB is correct,
- (c) if A is correct, (A) and [A] is correct.

Write a program that takes a sequence of strings of this type and check their correctness. Your program can assume that the maximum string length is 128.

**Input**

The file contains a positive integer n and a sequence of n strings of parentheses () and [], one string a line.

**Output**

A sequence of Yes or No on the output file.

**Sample Input**

```
3
([ ])
(( [ ( ) ] ))
([ ( ) [ ] ( ) ) ( )
```

**Sample Output**

```
Yes
No
Yes
```

- 2 The teacher asked you to Write a program that convert an infix expression to a postfix expression. Like you know, the terms in and pos are according with the operators position. The program will have to handle only with the binary operators +, -, \*, /, ^, parenthesis, letters and numbers. An example would be an expression like: 10

(A\*B+2\*C^3)/2\*A. The program must convert this expression (infix) to the postfix expression: AB\*2C3^\*+2/A\*

All expressions of the test cases are expressions with valid syntax.

Input

The first line of input is an integer N (N < 1000), that indicates the total number of test cases. Each case is a valid expression in the infix format.

Output

For each test case, print the expression converted to postfix expression.

Sample Input	Sample Output
3 A*2 (A*2+c-d)/2 (2*4/a^b)/(2*c)	A2* A2*c+d-2/ 24*ab^/2c*/

\*Please bring this page on the day of viva on this assignment. Submission Instructions will be given in the class.