']'. A string S is said to be *correct* if:

1. S is the empty string
2. A and B are correct, $S = AB$
3. A is correct, $S = (A)$ or $S = [A]$

Judge each of n string is *correct* or not. If yes, print a line "Y". Otherwise, print a line "N".

Input

The first line contains an integer n — the total number of string you have to judge it is *correct* or not.

Each of the following n lines contains a string S_i.

Restrictions

- $1 \leq n \leq 10^3$
- $1 \leq |S_i| \leq 10^4$ for $i = 1, 2, \cdots, n$
- For testcase 1, $1 \leq n \leq 10, 1 \leq |S_i| \leq 10^2$

Output

For each string, output one line following problem description.

Sample Input 1

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

Sample Output 1

```
Y
N
Y
```

Submissions

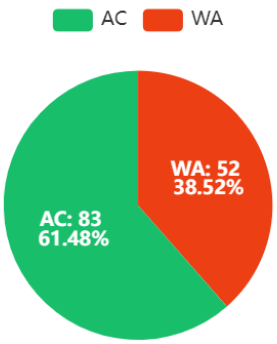
Rankings

View Contest

Information

ID	1
Time Limit	1000MS
Memory Limit	256MB
IO Mode	Standard IO
Created By	ta_david
Level	Mid
Score	100
Tags	Show

Statistic Details



Language: C Theme: Solarized Light

1

Contest has ended

Sample Test Input

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

Sample Test Output