
Join with Mockingjay

The 'Star Squad' led by Boggs including Katniss , Gale and Peeta entered the Capitol. They are searching the people who are standing with the rebellion. They have a unique way of identifying the loyalists.

Katniss aka Mockingjay notes down the name of each and every one in the city during the day. In the night, she checks whether the name is matching the regular expression she have. Those who matches are loyalists to the rebellion and others are not. Katniss find it a difficult task to do the matching since the names can be too long some times. She has asked for your help. She will approach you with all the names she got in a day and with the regular expression. Your task is to help Katniss in finding which ones are loyalists to the rebellion and which are not. Write a program¹ to help her.

Input: First line of the input is a regular expression string R ($0 < |R| < 100$). Second line is an integer N ($0 < N < 1000$) represents total number of names following. N lines gives the names of the people. The name is a string S ($0 < |S| < 100000$).

The regular expression will be valid if it satisfies the following conditions

1. The valid operations are concatenation(.), union(+) and closure(*).
2. Each basic expression will be one of the form $(a+b)$ or (a^*) or $(a.b)$.
3. The final expression can be a recursive use of basic expressions.

Some examples of valid regular expressions $((a^*).b)$, $((a.b)+b)^*$,etc.

Output: If the Regular expression is not valid , output "Wrong Expression". Otherwise output N lines of "Yes" or "No" each corresponding to whether he is a loyalist or not.

Sample Input 1:

Input

$((a.b)^*).(c+d)^*$

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abcddd

aabcccd

ababdcdd

ccddcd

Output

Yes

No

Yes

Yes

Sample Input 2:

Input

$(a.b).c^*$

Output

Wrong Expression

NOTE 1: You may use either C/C++ or Python.

NOTE 2: You may use CYK algorithm for checking whether the expression is valid or not.

NOTE 3: There will be partial markings in the evaluation. So, it is a good idea to submit whatever working piece of code you a complete before the deadline.

NOTE 4: Don't use any snippet or library from any source.

¹Any kind of plagiarism will be directly referred to the disciplinary committee.