

Problem E

Reverse Severer

You are given a string S of length N . There are Q queries (numbered from 1 to Q) that you need to answer. For query i , determine if a string T_i of length N , can be obtained by performing the following algorithm from the initial string S .

1. First, split the string S into one or more substrings.
2. Reverse the order of the substrings.
3. Concatenate the substrings into a single string.

For instance, you can obtain string SEVERER from string REVERSE by splitting it into R, E, VER, and SE. After reversing the order of the substrings, your substrings will be SE, VER, E, and R. If you concatenate the substrings, then you can obtain string SEVERER.

Input

The first line consists of an integer N ($1 \leq N \leq 10\,000$).

The second line consists of a string S of length N .

The third line consists of an integer Q ($1 \leq Q \leq 100$).

Each of the next Q lines consists of a string T_i of length N .

All strings consist of only upper-case letters.

Output

For each query, output a single line containing a string. If string T_i can be obtained from the algorithm above, output YES. Otherwise, output NO.

Sample Input #1

```
7
REVERSE
5
SEVERER
EVERSER
REVERSE
EVEREST
RESERVE
```

Sample Output #1

```
YES
YES
YES
NO
NO
```

Explanation for the sample input/output #1

For query 2, you can split the string into R and EVERSE.

For query 3, note that you can split the string into one substring REVERSE.

Sample Input #2

```
3
INC
6
INC
ICN
NIC
NCI
CIN
CNI
```

Sample Output #2

```
YES
NO
NO
YES
YES
YES
```

Sample Input #3

```
1
A
2
A
B
```

Sample Output #3

```
YES
NO
```