A. Substring Search

time limit per test: 2 seconds

memory limit per test: 512 megabytes

Implement the algorithm that was discussed in the lecture.

Given a string t and n queries, each query is a string s_i. For each request you need to determine whether the string s_i occurs as a substring in t.

Input

The first line of input contains the string t ($1 \le |t| \le 300,000$).

The second line contains an integer n, the number of queries ($1 \le n \le 300,000$). The following n lines contain one non-empty line s_i each. The sum of the lengths of all strings s_i does not exceed $300,000$.

All strings consist of lowercase English letters.

Output

For each request print "Yes" if the string s_i occurs in t, and "No" otherwise.

Examples

input
ababba 3 ba baba abba

output
Yes No Yes

input
codeforces 3 code forces math

output
Yes Yes No

input
a 2 a a

output
Yes Yes