# Problem G
## Shortest Missing Subsequences
### Time Limit: 8 Second(s)

Given a string $s$ we say that string $t$ is a *Subsequence* of $s$ if $t$ can be obtained from $s$ by deleting zero or more characters of $s$. Note that $t$ is not necessarily a substring of $s$—that is, $t$ is not necessarily contiguous in $s$, but the characters of $t$ appear in the same order as they do in $s$.

For a given subset, $v$, of the lowercase English alphabet characters from `'a'` to `'z'`, we say that string $u$ is a *Missing Subsequence* of another string $s$ if $u$ is not a *Subsequence* of $s$, but all characters in $u$ and all the characters of $s$ are in the set $v$. A *Shortest Missing Subsequence* of $s$ is a *Missing Subsequence* of $s$ with the smallest length among all *Missing Subsequences* of $s$.

Given a set of English alphabetic characters, a target string made up of characters from that set, and a list of query strings made up of characters from that set, determine if each of the query strings is a *Shortest Missing Subsequence* of the target string.

## Input

The first line of input contains a string $v$ ($1 \leq |v| \leq 26$) of lowercase letters, in lexicographical order. Each letter appears at most once. This is the set of alphabetic characters.

The next line of input contains a string $s$ ($1 \leq |s| \leq 10^6$, $s$ only contains letters from $v$). This is the target string to be queried.

The next line contains an integer $n$ ($1 \leq n \leq 10^6$). This is the number of queries.

Each of the next $n$ lines contains a string $q$ ($1 \leq |q| \leq 10^6$, $q$ only contains letters from $v$). These are the query strings. The sum of the lengths of all query strings will not exceed $10^6$.

## Output

Output $n$ lines, one for each query. On each line, output either $1$ if the query string is a *Shortest Missing Subsequence* of the target string, or $0$ if it is not. The outputs must be in the order of the input queries.

| Sample Input 1 | Sample Output 1 |
|---|---|
| abc<br>abcccabac<br>3<br>cbb<br>cbba<br>cba | 1<br>0<br>0 |