H. LCP Queries Problem ID: H

A string x is called a *prefix* of a string y if x can be obtained by repeating the removal of the last letter of y zero or more times. For example, "abac", "aba", "ab", "a", and an empty string are the prefixes of "abac".

For two strings x and y, let LCP(x, y) be the length of the longest common prefix of x and y. For example, LCP("abacab", "abacbba") = 4 because the longest common prefix of these two strings is "abac". Note that LCP(x, y) is always defined for any strings x and y because at least an empty string is one of their common prefixes.

You are given *n* strings s_1, \ldots, s_n and *m* strings t_1, \ldots, t_m of lowercase English letters. Then, you are given *q* queries. In each query you are given an integer sequence a_1, \ldots, a_k . Let *u* be the concatenation of t_{a_1}, \ldots, t_{a_k} . Your task is to calculate $\sum_{i=1}^n \text{LCP}(u, s_i)$.

Input

The input consists of a single test case of the following format.

n s_{1} s_{n} m t_{1} \vdots t_{m} q $Query_{1}$ \vdots $Query_{q}$

The first line consists of an integer n. Each of the next n lines consists of a non-empty string s_i of lowercase English letters. The next line consists of an integer m. Each of the next m lines consists of a non-empty string t_j of lowercase English letters.

The next line consists of an integer q. Then q queries are given in order. Each of the queries

is given in a single line in the following format.

 $k a_1 \ldots a_k$

k is a positive integer which represents the length of the integer sequence of this query.

- $1 \le n, m, q \le 2 \times 10^5$
- The sum of lengths of s_i does not exceed 2×10^5
- The sum of lengths of t_i does not exceed 2×10^5
- The sum of k over all queries does not exceed 2×10^5

• $1 \le a_i \le m$

Output

Output q lines. The *i*-th line should be the answer to the *i*-th query.

Sample Input 1	Sample Output 1
5	4
abcde	9
aaa	3
a	1
ab	0
bcd	
5	
a	
bc	
de	
аааа	
b	
5	
1 1	
3 1 2 3	
2 2 3	
5 5 4 3 2 1	
3 3 3 3	