Statement

Sidhant is a secret agent working for an agency in which he is made to learn N secret keys coded in hexadecimal each represented as K[i] for 1<=i<=N. These secret keys helps him distinguish between his companions and enemies. He meet with Q persons and each person shares a query key with him represented as L[i] for 1<=i<=Q. Each query key is such that it might be the prefix of zero or more of the secret keys
Currently Sidhant is very much busy in his personal life, you being his assistant help him out recognizing number of companion that each query key would lead to i.e number of secret keys having the same prefix as query key, given that you know everything what he knows.

Input

The first line contains an integer N and Q denoting the number of keys made to learn and the number of people he met.
For each of the following N lines, ith line contains K[i]
Each of the following Q lines contains L[i]

Output

For each Q person he met print the number of companion that each query key would lead to

Constraints:

0<N,Q<=10^5
0<length(K[i])<=100

Example

Input

5 4
1211
4321
123
13966
6386
12
1
4321
5

Output

2
3
1
0