Problem K. Master of Both

Input file:	standard input
Output file:	standard output
Time limit:	1 second
Memory limit:	1024 megabytes

Professor Hui-Bot is the master of string theory and advanced data structures, so he came up with an interesting problem. Given a sequence of n strings consisting of only lowercase English letters, how many inversions are there in this sequence when the strings are compared by lexicographical order?

As the most extraordinary student of Hui-Bot, Putata and Budada mastered superb string theory and advanced data structure skills respectively, and they solved this problem together with ease. However, there are q different parallel universes, where the characters in the alphabet are not appearing in the original order.

Formally, the alphabet in each universe is a string, which is a permutation of the 26 lowercase English letter, denoting the order each character appears.

A string a is lexicographically smaller than a string b if and only if one of the following holds:

- a is a prefix of b, but $a \neq b$;
- in the first position where a and b differ, the string a has a letter that appears earlier in the alphabet than the corresponding letter in b.

The number of inversions in a sequence a of length n is the number of ordered pairs (i, j) such that $1 \leq i < j \leq n$, $a_j < a_i$.

Please help Putata and Budada in each universe to solve the problem.

Input

The first line of the input contains two integers n, q ($1 \leq n \leq 5 \times 10^5$, $1 \leq q \leq 5 \times 10^4$), denoting the length of the sequence.

For the following n lines, the i-th line contains a string s_i ($1 \leq |s_i| \leq 10^6$). It is guaranteed that the string consists of only lowercase English letters, and $\sum_{i=1}^{n} |s_i| \leq 10^6$.

For the following q lines, each line contains a string t, denoting the alphabet in one universe. It is guaranteed that t is a permutation of 26 lowercase English letters.

Output

Output q lines, denoting the answer in q universes.

Example

standard input	standard output
5 3 aac oiputata aaa suikabudada aba abcdefghijklmnopqrstuvwxyz qwertyuiopasdfghjklzxcvbnm aquickbrownfxjmpsvethlzydg	4 3 4