COCI '15 Contest 5 #5 OOP

Time limit: 1.0s **Memory limit:** 512M

Little Matej is solving an OOP (Object-oriented programming) laboratory exercise and he's having trouble with solving one subtask.

He is given a set that contains N words. He is also given Q queries where each query is one pattern. A pattern consists of a single character `*` and lowercase letters of the English alphabet. For example, `*`, `kul*to`, `ana*`.

A pattern is said to cover a word if such an array of letters **(which can be empty)** exists that, when replacing the character `*`, the pattern and the word become completely identical. It is necessary to output how many words each pattern covers.

Input

The first line of input contains two integers N and Q $(1 \leq N, Q \leq 100\,000)$.

Each of the following N lines contains a word that consists of lowercase letters of the English alphabet.

Each of the following Q lines contains a pattern for which you need to output how many words from the first set it covers.

The total number of characters will be less than $3\,000\,000$.

Output

Output Q lines, the k^{th} line containing the number of words that the k^{th} pattern covers.

Scoring

In test cases worth 40% of total points, it will additionally hold $1 \leq N, Q \leq 1\,000$.

Sample Input 1

```
3 3
aaa
abc
aba
a*a
aaa*
*aaa
```

Sample Output 1

```
2
1
1
```

Sample Input 2

```
5 3
eedecc
ebdecb
eaba
ebcddc
eb
e*
*dca
e*c
```

Sample Output 2

```
5
0
2
```