

HOME TOP CATALOG CONTESTS GYM PROBLEMSET GROUPS RATING EDU API CALENDAR HELP RAYAN

PROBLEMS SUBMIT CODE MY SUBMISSIONS STATUS STANDINGS CUSTOM INVOCATION

H. How do you spell this?

time limit per test: 1 second

memory limit per test: 256 megabytes

Recently, Braga and Hamilton created their own language consisting only of lowercase Latin letters so they can speak about people without them knowing. However, Braga noticed that Hamilton was having trouble spelling some words of this very exotic language. Since Braga is a very proactive student, he decided to help Hamilton by creating an algorithm to autocomplete after he types some initial letters.

The logic behind his algorithm is very simple: given the string  $s$  that Hamilton typed, the algorithm returns the smallest word in *SupersecretLanguage* that has  $s$  as a prefix.

Hamilton was not convinced this would really speed up his writing...

Can you please return the number of characters that Braga's algorithm will type in?

Input

The first line contains two integers,  $n$  ( $1 \leq n \leq 10^4$ ),  $q$  ( $1 \leq q \leq 10^5$ ) - the number of words in *SupersecretLanguage* and the number of queries that will be made.

The next  $n$  lines each contain one string  $s_i$  ( $1 \leq |s_i| \leq 10^5$ ), a word in the dictionary. These words are not necessarily ordered.

The next  $q$  lines each contain one string  $r_i$  ( $1 \leq |r_i| \leq 10^5$ ), the words Hamilton typed into the autocompleter.

It is guaranteed that  $\sum_{i=0}^n |s_i| \leq 4 \cdot 10^5$  and  $\sum_{i=0}^q |r_i| \leq 10^6$ .

Output

For each string  $r_i$  output the number of characters that will be autocompleted by Braga's algorithm. If  $r_i$  is not a prefix to any string in the dictionary, print  $-1$ .

Examples

input

Copy

3 4  
cosenza  
cosenzazinho  
brasil  
cos  
cosenzazin  
brasil  
ime

output

Copy

4  
2  
0  
-1

input

Copy

3 6  
flamengo  
fluminense  
jovemaocompletardezoitoanosvocepode  
fla  
fl  
flu  
mengo  
fluminense  
jovem

output

Copy

5  
6  
7  
-1  
0  
30

IME++ Starters Try-outs 2023

Finished

Practice

Virtual participation

Virtual contest is a way to take part in past contest, as close as possible to participation on time. It is supported only ICPC mode for virtual contests. If you've seen these problems, a virtual contest is not for you - solve these problems in the archive. If you just want to solve some problem from a contest, a virtual contest is not for you - solve this problem in the archive. Never use someone else's code, read the tutorials or communicate with other person during a virtual contest.

Start virtual contest

Clone Contest to Mashup

You can clone this contest to a mashup.

Clone Contest

Submit?

Language: GNU G++20 13.2 (64 bit, win

Choose file: Choose File No file chosen

Submit

Last submissions

Submission	Time	Verdict
<a href="#">304911242</a>	Feb/08/2025 01:56	Accepted
<a href="#">304910813</a>	Feb/08/2025 01:45	Time limit exceeded on test 81
<a href="#">304910743</a>	Feb/08/2025 01:44	Runtime error on test 5
<a href="#">304910699</a>	Feb/08/2025 01:43	Runtime error on test 5

Contest materials

Tutorial (en)

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The only programming contests Web 2.0 platform