

## E. Unpleasant Strings

time limit per test: 2 seconds

memory limit per test: 512 megabytes

Let's call a letter *allowed* if it is a lowercase letter and is one of the first  $k$  letters of the Latin alphabet.

You are given a string  $s$  of length  $n$ , consisting only of allowed letters.

Let's call a string  $t$  *pleasant* if  $t$  is a subsequence of  $s$ .

You are given  $q$  strings  $t_1, t_2, \dots, t_q$ . All of them consist only of allowed letters. For each string  $t_i$ , calculate the minimum number of allowed letters you need to append to it on the right so that it **stops** being pleasant.

A sequence  $t$  is a subsequence of a sequence  $s$  if  $t$  can be obtained from  $s$  by the deletion of several (possibly, zero or all) element from arbitrary positions.

### Input

The first line contains two integers  $n$  and  $k$  ( $1 \leq n \leq 10^6$ ;  $1 \leq k \leq 26$ ) — the length of the string  $s$  and the number of allowed letters.

The second line contains the string  $s$ , consisting of  $n$  lowercase Latin letters. Each character of the string is one of the first  $k$  letters of the Latin alphabet.

The third line contains one integer  $q$  ( $1 \leq q \leq 2 \cdot 10^5$ ) — the number of queries.

The next  $q$  lines contain queries: one query per line. The  $i$ -th line contains the string  $t_i$ , consisting only of allowed letters.

Additional constraint on input: the total length of all  $t_i$  does not exceed  $10^6$ .

### Output

For each query, output one integer — the minimum number of allowed letters that need to be appended to the string on the right so that it stops being pleasant.

### Examples

input	Copy
<pre>7 3 abacaba 3 cc bcb b</pre>	
output	Copy
<pre>0 1 2</pre>	

input	Copy
<pre>5 1 aaaaa 6 a aa aaa aaaa aaaaa aaaaaa</pre>	
output	Copy
<pre>5 4 3 2</pre>	

### Educational Codeforces Round 178 (Rated for Div. 2)

Contest is running

00:21:54

Contestant



### → Submit?

Language:
GNU G++23 14.2 (64 bit, ms)

Choose file:

Choose File

No file chosen

Submit

### → Last submissions

Submission	Time	Verdict
<a href="#">317641920</a>	Apr/28/2025 19:10	Accepted

1  
0

## Note

In the first example:

1. The string `cc` is already unpleasant, so nothing needs to be appended to it;
2. `ccb` is pleasant, so at least one letter needs to be appended to the right: `ccba` will not work, but `ccbb` and `ccbc` are unpleasant.
3. To `b`, at least two letters need to be appended, since `ba`, `bb`, and `bc` are pleasant. For example, we can obtain an unpleasant string `bbb`.

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