



CyberChallenge.IT 2023 - Programming Test

Problem 1 - “Pretest” [40 points]

It's pretest time for the CyberChallenge.IT 2023 edition!

As every year, the pretest is a multiple choice test, with Q questions with 4 possible answers (A, B, C, D) each, of which one and only one is correct.

The organizers want to write a software to automatically grade the tests of the N participating candidates, giving them 1 point for each correct answer and 0 points for each wrong or missing one.

Given the number of questions Q and candidates N , the list of correct answers (in the form of a string with length Q), and N strings representing the answers given by each candidate, compute the number of points scored for each of them.

Problem Details

Input

The input consists of $N + 2$ lines:

- Line 1: The numbers Q and N , separated by a space.
- Line 2: The list of correct answers, as a string of Q uppercase letters in the set {A, B, C, D}.
- Lines 3, \dots , $N + 2$: a string of Q characters in the set {A, B, C, D, ?}, where ? denotes a missing answer.

Output

The output must contain N lines. In line i , you should output a single integer with the number of points scored by the i -th candidate, in the same order as in the input.

Scoring

Your program will be tested on a number of testcases grouped in subtasks. In order to obtain the score associated to a subtask, you need to correctly solve all its testcases.

- **Subtask 1** [20 points]: $N = 1, 1 \leq Q \leq 1000$.
- **Subtask 2** [20 points]: $1 \leq N \leq 1000, 1 \leq Q \leq 1000$.

Examples

INPUT	OUTPUT
<pre>10 3 CBBDACCCBC D?ABCD?DDB AB?ACCBAAA B?CCBA?C?D</pre>	<pre>0 2 1</pre>



Explanation

From the first line, we know that there are 10 questions and 3 participants. The answers of the first participant are all different from the correct ones or missing, so their score is 0. The second one only matches on the second and sixth question, so their score is 2. The same goes for the third one, who gave the right answer only for question 8, therefore their score is 1.