Problem 3: Autocorrect

Difficulty: Easy

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Problem Background

Typos are an inevitable part of typing. Thankfully, most typos happen for the same reason - a user presses one key when they mean to press a different one. Fortunately, most autocorrect algorithms are excellent at identifying when this sort of typo happens. One approach they can use for this is measuring the Hamming distance between what you typed and a word in the dictionary.

Problem Description

The Hamming distance between two strings of text is the number of character substitutions that need to be made to change one string to the other. For example, the words "apple" and "applr" have a Hamming distance of one - they are identical, except for the last letter. The words "computer" and "kompudir" have a Hamming distance of three due to the three character differences; k/c, t/d, and e/i, respectively.

Lockheed Martin is working on implementing a new autocorrect feature for their internal communication tools. You will be given a "dictionary" of correctly spelled words, followed by a list of potentially misspelled words that need correction. For each of these misspelled words, your program will need to identify the dictionary word of the same length that has the smallest Hamming distance to the misspelled word. (Ties will not occur, and words will not change length as a result of their misspelling.)

Sample Input

The first line of your program's input, received from the standard input channel, will contain a positive integer representing the number of test cases. Each test case will include:

- A line with two positive integers, separated by spaces:
  - D, the number of dictionary words
  - W, the number of misspelled words
- D lines each containing a string of lowercase letters representing a correctly spelled dictionary word
- W lines each containing a string of lowercase letters representing a potentially misspelled typed word.

```
1
3 5
computer
mouse
program
konpuder
house
compoooo
anagram
oeifeln
```

Sample Output

For each test case, your program must print the dictionary word that has the shortest Hamming distance to each of the misspelled words. Each word should be printed on a separate line.

```
computer
mouse
computer
program
program
```