Problem 9 | **60 Points**

Patterns

Program Name: pattern.java **Input File: pattern.in**

Find patterns in text strings.

Given a list of patterns and a list of text strings, find all the letters in each string that match any of the given patterns.

Input

The first line of input will contain a single integer *n* indicating the number of data sets to process. The remainder of the input consists of those *n* data sets.

Each data set will consist of:

1. A pair of integers *p s* indicating the number of patterns and sentences in this data set, respectively. Each of these values will be at least 1 and at most 10.
2. A set of *p* patterns, each on its own line. Each pattern is a non-empty series of up to 20 alphabetic and question mark characters. Note that patterns will not contain spaces.
3. A set of *s* sentences, each on its own line. Each sentence is a non-empty series of up to 80 alphabetic and space characters. Sentences will not have any form of punctuation.

For a pattern to match a given portion of a sentence, all characters in the pattern must match a corresponding sequence of characters in a sentence, with question marks being a valid match for any single alphabetical character.

Output

For each data set in the input display the following:

1. A single line, "Data Set #X" where X is 1 for the first data set, 2 for the second, etc.
2. One line for each sentence, in the same order as in the input. Output the same sentence, replacing those alphabetic characters that were NOT matched by any of the patterns with asterisks ('*'). Leave spaces unchanged.

Example Input File

```
2
4 2
pro?ram?????
?o?
?e
m
How many programmers does it take to change a light bulb
None because it is a hardware problem
6 3
laugh
??ob????
?oo
ma?e
??rd
??dg??
you should love hard problems
we make the judges solve them first
contestants should be laughing at their all too simple mistakes
```

Example Output To Screen

```
Data Set #1
How m*** *rog**mme** doe* ** **ke ** ****ge * ***** ****
None be***se ** ** * ******re *roblem
Data Set #2
*** ****** **** hard problems
** make *** judges ***** **** *****
********** ****** ** laugh*** ** ***** *** too ****** ********
```