

ASTU ICPC Club

Frequency

The Problem

Your instructor has recently become interested in Morse code. He was wondering if it really is set up to be as efficient as possible. If you didn't know, in Morse code the most frequently used letters are less "dits" and "dahs" than the rest (a dit is a dot, a dah is a dash). So he was going to check if Morse code could be improved, but first he wants to know which letters are most frequently used. He has asked you to write a program that will count how often each letter is used in a sentence. He wants you to print out a list of the entire alphabet, sorted by how often each letter appears, in case of ties print the one that comes first alphabetically.

The Input

The file will start with a single integer n ($1 \leq n \leq 1000$) describing the number of test cases to follow. Each test case will start with a number w ($0 \leq w \leq 100$) describing the number of words to process. Each word will be separated by a space and all of the characters in each word are guaranteed to be lower case letters. All words will be in between 1 and 50 letters long.

The Output

For each test case simply output one line in the following format "Frequencies # i : s " where i is the test case number (starting at 1) and s is a string of all of the letters of the alphabet sorted by the frequency of their appearance. For ties, sort alphabetically.

Sample Input

```
3
1
word
4
this is a sentence
2
hello world
```

Sample Output

```
Frequencies #1: dorwabcefg hijklmnpqstuvxyz
Frequencies #2: esintachbdfg jklmopqr uvwxyz
Frequencies #3: lodewrhabcfg i jklmnpqstuvxyz
```