Code Jam 2014 - Round 1B

The Repeater

Problem

Fegla and Omar like to play games every day. But now they are bored of all games, and they would like to play a new game. So they decided to invent their own game called "The Repeater".

They invented a 2 player game. Fegla writes down **N** strings. Omar's task is to make all the strings identical, if possible, using the minimum number of actions (possibly 0 actions) of the following two types:

- Select any character in any of the strings and repeat it (add another instance of this character exactly after it). For example, in a single move Omar can change "abc" to "abbc" (by repeating the character 'b').
- Select any two adjacent and identical characters in any of the strings, and delete one of them. For example, in a single move Omar can change "abbc" to "abc" (delete one of the 'b' characters), but can't convert it to "bbc".

The 2 actions are independent; it's not necessary that an action of the first type should be followed by an action of the second type (or vice versa).

Help Omar to win this game by writing a program to find if it is possible to make the given strings identical, and to find the minimum number of moves if it is possible.

Input

The first line of the input gives the number of test cases, **T**. **T** test cases follow. Each test case starts with a line containing an integer **N** which is the number of strings. Followed by **N** lines, each line contains a non-empty string (each string will consist of lower case English characters only, from 'a' to 'z').

Output

For each test case, output one line containing "Case #x: y", where x is the test case number (starting from 1) and y is the minimum number of moves to make the strings identical. If there is no possible way to make all strings identical, print "Fegla Won" (quotes for clarity).

Limits

Memory limit: 1 GB.
$1 \leq \mathbf{T} \leq 100$.
1 ≤ length of each string ≤ 100.

Small dataset

Time limit: 60 seconds.
N = 2.

Large dataset

Time limit: 120 seconds.
2 ≤ **N** ≤ 100.

Sample

Sample Input

```
5
2
mmaw
maw
2
gcj
cj
3
aaabbb
ab
aabb
2
abc
abc
3
aabc
abbc
abcc
```

Sample Output

```
Case #1: 1
Case #2: Fegla Won
Case #3: 4
Case #4: 0
Case #5: 3
```