Bacterial colonies

PROBLEM

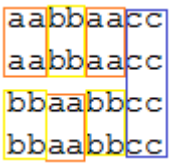
You are given a 2d grid plate which contains different kinds of bacteria on it. For simplicity, there are at most 26 kinds of bacteria, and the bacteria is represented by a lower case English character, **a to z.**

For example, here is one plate:

```
aabbaacc
aabbaacc
bbaabbcc
bbaabbcc
```

We would like to count how many bacterial colonies on that plate. A colony is a group of same bacteria **connected** together. Two same bacteria are "**connected**" if one is at left, at right, above or below the other one only.

Therefor in the example, we have 3 'a' bacteria colonies, 3 'b' bacteria colonies and 1 'c' bacteria colony.



INPUT

The first line contains the number of test cases N (N<100). Each test case consists of a line with two numbers **H and W (0<H, W<33)**, which are the height and the width of the plate.

Then follow H lines with a string of W letters. Those letters will only be lowercase letters from ‘a’ to ‘z’.

OUTPUT

For each test case print "Plate #n", where n is the number of the test case. After that print a line for each bacteria colony that appears in the test case, which contains the bacteria type, a colon, a space and the number of colonies appeared.

These lines have to be ordered decreasingly by the number of colonies appeared. If two bacteria have same number of colonies, they have to appear alphabetically, which means bacteria "a" comes before bacteria "c", for example.

SAMPLE INPUT AND OUTPUT

2 4 8 aabbaacc aabbaacc bbaabbcc bbaabbcc 9 9 bbbbbbbbb aaaaaaaab bbbbbbbab baaaaacab baccccab bacbbbcab baccccab baaaaaab bbbbbbbbb	Plate #1 a: 3 b: 3 c: 1 Plate #2 b: 2 a: 1 c: 1