In this problem, you have to draw a square using uppercase English Alphabets.

   To be more precise, you will be given a square grid with some empty blocks and others already filled for you with some letters to make your task easier. You have to insert characters in every empty cell so that the whole grid is filled with alphabets. In doing so you have to meet the following rules:

1. Make sure no adjacent cells contain the same letter; two cells are adjacent if they share a common edge.

2. There could be many ways to fill the grid. You have to ensure you make the lexicographically smallest one. Here, two grids are checked in row major order when comparing lexicographically.

Input

The first line of input will contain an integer that will determine the number of test cases. Each case starts with an integer n ($n \leq 10$), that represents the dimension of the grid. The next n lines will contain n characters each. Every cell of the grid is either a '.' or a letter from [A, Z]. Here a '.' represents an empty cell.

Output

For each case, first output 'Case #:' (# replaced by case number) and in the next n lines output the input matrix with the empty cells filled heeding the rules above.

Sample Input

```
2
3
...
...
...
3
...
A..
...
```

Sample Output

```
Case 1:
ABA
BAB
ABA
Case 2:
BAB
ABA
BAB
```