

Problem F. Mr. Panda and Fantastic Beasts

Input file: Standard Input
Output file: Standard Output
Time limit: 2 seconds

Mr. Panda loves fantastic beasts, he is going to use a magic spell to figure out where to find them. Given N strings S_1, S_2, \dots, S_N where S_i only contains lowercase alphabet letters, the magic spell is the shortest string which is only contained in the first string as a substring. If there is at least one solution, output the lexicographically smallest one.

If there is no solution, output “Impossible” instead.

Input

The first line of the input gives the number of test cases, T . T test cases follow.

Each test case contains an integer N which is the number of strings.

Following is N lines, each line has a non-empty string S_i which only contains lowercase alphabet letters.

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 the answer string or “Impossible”.

Limits

- $1 \leq T \leq 42$.
- $2 \leq N \leq 50000$.
- $N \leq S_1 + S_2 + \dots + S_N \leq 250000$.
- the sum of S_i in all test cases doesn't exceed 3×10^6 .

Sample input and output

Sample Input	Sample Output
3	Case #1: aba
2	Case #2: q
aba	Case #3: Impossible
bab	
3	
qnu	
cvbb	
bnu	
3	
a	
aa	
aaa	