Lexicographic Permutations

Problem description

Given a list of N names, find a permutation of characters of the alphabet such that these N names are in lexicographic order with respect to that permutation. If no such permutation exists, print "IMPOSSIBLE".

Lexicographical order is defined in the following way : when we compare two strings s and t, first we find teh leftmost position with differeing characters. If there is no such poisition, the shortest string is lexicographically lower. Otherwise, we compare characters according to their order in the alphabet.

Input format

An integer N for the number of names, followed by n lines each containing a string of names all in small characters.

Output format

Print the permutation of the characters such that these names are in lexicographic order. If multiple such permutations are possible, then output the one that is lexicographically lowest.

Constraints :

 N will be in the set [1,1000] and each name will have length in the set [1,100]

Sample input

7

motwani
hopcroft
ullman
cormen
stein
rivest

Sample output

abdefgijkmhnopqtucsrlvwxyz