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The Crows have invented a new dictionary of N words. The words are stored in an order which is different from our regular Latin lexicographic order.

Now you have to find the order of the alphabet that satisfies the lexicographic order of the new dictionary. If there are multiple valid orders you may print any one of those. **You must use the graph and its algorithms to solve this problem.**

Input

The first line contains an integer N (1 <= N <= 1000) - denotes the number of words in the dictionary.

The next N line contains a string S (1 <= |S| <= 100). Each word consists of lowercase Latin letters ('a'-'z').

Output

Find out the order of the alphabets that satisfy the sorting order of the words in the given dictionary.

Sample Input/Output:

Sample Input 1	Sample Output 1
9 error tooth tot teeth their there thi tie hit	o e t h i r [This is the only valid order]

Sample Input 2	Sample Output 2
3 eat tea ate	e t a [This is the only valid order]