Another Contest 3 Problem 3 - Lexicographically Largest Common Subsequence

Time limit: 0.6s **Memory limit:** 256M

Given N strings of lowercase letters, compute the lexicographically largest string that is a subsequence of all N strings.

String s is a subsequence of string t if s can be obtained by deleting some of the letters in t. It is not required to delete any letters.

String s is lexicographically larger than t if t is a prefix of s or, given that index i is the first mismatch in strings s and t, the ith character of s is larger than the ith character of t.

Constraints

$1 \leq N \leq 10^5$

The sum of the lengths of all strings will be at most 10^6.

All strings will only contain lowercase letters.

Input Specification

The first line contains a single positive integer, N.

The next N lines each contain a string of lowercase letters. The string is guaranteed to contain at least one letter.

Output Specification

Output the lexicographically largest common subsequence. If no nonempty subsequence exists, output `-1`.

Sample Input 1

```
2
quantum
xyene
```

Sample Output 1

```
n
```

Sample Input 2

```
1
cba
```

Sample Output 2

```
cba
```

Sample Input 3

```
3
a
ab
c
```

Sample Output 3

```
-1
```