Permute Up

Computer Science Society
Programming Contest
Spring 2009

Consider all strings that can be obtained by permuting the characters of a given string. For example, the permutations of the string `cab` listed alphabetically are

`abc`, `acb`, `bac`, `bca`, `cab`, `cba`.

In general, there are $n!$ permutations of a string of length n. In this problem, you are given a string x over the 36-character alphabet $\{0, 1, 2, \ldots, 9, a, b, c, \ldots, z\}$, and must find the permutation of x that immediately follows x in the alphabetical list of permutations of x. For example, the successor permutation of `cab` is `cba`, and there is no successor permutation of `cba`.

Input Format

Each line of input contains a nonempty string x over the 36-character alphabet

$$\{0, 1, 2, \ldots, 9, a, b, c, \ldots, z\}.$$

Output Format

For each input string x, find the permutation of x that immediately follows x in the alphabetical list of permutations of x. Output x and its successor permutation separated by `' -> '`, as shown in the output sample. If there is no successor permutation of x, output `'no successor'` instead.

Input Sample

```
12
03snd3fk5ee2
gfedcba987
036420
```

Output Sample

```
12 -> 21
03snd3fk5ee2 -> 03snd3fke25e
gfedcba987 -> no successor
036420 -> 040236
```