Task 08: **Subsequences**

[200 points]

C-3PO and R2-D2 are playing a word game where C-3PO gives R2-D2 two words and R2-D2 has to find the longest string of characters such that there is a permutation of that string that is a subsequence of both of C-3PO's words. Help R2-D2 by giving him the string that fulfills the game's criteria.

Note: A subsequence is a sequence that can be derived from another sequence by deleting some elements without changing the order of the remaining elements. For example, the sequence `{A, B, D}` is a subsequence of `{A, B, C, D, E, F}` obtained after removal of elements `C`, `E`, and `F` (Wikipedia).

Problem Statement

Given two strings `a` and `b`, print the longest string `x` of letters such that there is a permutation of `x` that is a subsequence of `a` and there is a permutation of `x` that is a subsequence of `b`. Assume a subsequence that fulfills the criteria above always exists for the given inputs.

Input Format

Two lines containing `a` and `b` of length less than `L`

Input Constraints

- $0 < L < 100,000$

Output Format

Output a line containing `x`. If several `x` satisfy the criteria above, choose the first one in alphabetical order.

Sample Input

```
walking
down
```

Sample Input

```
nw
```