Password

Due to his paranoia about security, Sam decided to pick a long password for his e-mail account that contains only small letters of the English alphabet. However, he realized that he had a high risk of forgetting his password, so he decided to encode it into 2 strings, also containing only small letters of the English alphabet. He wrote these strings on a piece of paper and hid the paper under his bed. Sam chose the strings **A** and **B** such that the password **S** is the anagram of **B** that appears as a subsequence of **A** and is lexicographically minimal.

We say that a string **B** = $b_1 b_2 \ldots b_{|\mathbf{B}|}$ is a subsequence of **A** = $a_1 a_2 \ldots a_{|\mathbf{A}|}$ if and only if there exists a sequence of strictly increasing indices $n_1, n_2, \ldots, n_{|\mathbf{B}|}$ such that $a_{n_i} = b_i$ for $i = 1, 2, \ldots, |\mathbf{B}|$.

We say that **A** is lexicographically smaller than **B** if and only if there exists an index $n < |\mathbf{A}|$ such that $a_i = b_i$ for $i = 1, 2, \ldots, n$ and $a_{n+1} < b_{n+1}$

We say that **S** is an anagram of **B** if **S** and **B** contain the same letters and in the same quantities, but possibly in different orders.

As expected, Sam forgot his password one week later and now he is struggling to get it back, so he asks for your help. Write a program that can find his password for him.

Task

Given the two strings **A** and **B**, print out Sam's password based on the restrictions above.

Input data

The input file **password.in** has exactly one line containing the 2 strings **A** and **B** separated by one whitespace.

Output data

The output file **password.out** should contain one line representing Sam's password. In case there is no solution, you should print out the word "**impossible"** (without the quotation marks).

Limits

- Time limit: 1.6 seconds
- Memory limit: 128 MB

Constraints

Test cases may be **scored as a group**. Groups will never be worth more than **10 points**.

Subtask	Percentage of points	Input constraints
1	30%	$\|\mathbf{A}\| \leq 1.000$; $\|\mathbf{B}\| \leq 100$
2	another 30%	$\|\mathbf{A}\| \leq 1.000.000$; $\|\mathbf{B}\| \leq 100.000$
3	another 40%	$\|\mathbf{A}\| \leq 30.000.000$; $\|\mathbf{B}\| \leq 3.000.000$

Example

password.in	**password.out**
abacaba bab	abb
abacaba cbc	impossible
abacaba caab	aacb