Problem D. Maximal Common Subpair

Input file:	*standard input*
Output file:	*standard output*
Time limit:	5 seconds
Memory limit:	768 mebibytes

A pair of strings (x, y) is called a subpair of string s if there are strings w, v and u (possibly empty) such that $s = wxvyu$. Strings x and y can be empty as well.

A pair of strings (x, y) is called a common subpair of strings s_1 and s_2 if it is a subpair of both s_1 and s_2.

The length of a subpair (x, y) is defined as $|x| + |y|$, that is, the sum of lengths of x and y.

You are given two strings s_1 and s_2 consisting of lowercase Latin letters. Find their common substring pair with maximal possible length.

Input

The first line contains the string s_1.

The second line contains the string s_2.

Both strings are non-empty, consist of lowercase Latin letters and contain no more than $2 \cdot 10^5$ letters each.

Output

The first and the second line of the output must contain the first and the second strings of the chosen subpair, respectively. Any of these strings can be empty as well. If there are several common subpairs with maximal length, you can output any of them.

Examples

standard input	standard output
abacaba cabina	cab a
abba acdc	 a
empty ans	

Note

In the first test, the common subpair with maximal length is ("cab", "a").

In the second test, there are two common subpairs with maximal length: ("", "a") and ("a", "").

In the third test, the strings contain no common substrings, thus the maximal length is 0, and the answer contains two empty strings.