Build a Palindrome



You have two strings, a and b. Find a string, s, such that:

- s can be expressed as $s=s_a+s_b$ where s_a is a non-empty substring of a and s_b is a non-empty substring of b.
- *s* is a palindromic string.
- The length of s is as long as possible.

For each of the q pairs of strings (a_i and b_i) received as input, find and print string s_i on a new line. If you're able to form more than one valid string s_i , print whichever one comes first alphabetically. If there is no valid answer, print -1 instead.

Input Format

The first line contains a single integer, q, denoting the number of queries. The subsequent lines describe each query over two lines:

- 1. The first line contains a single string denoting a.
- 2. The second line contains a single string denoting b.

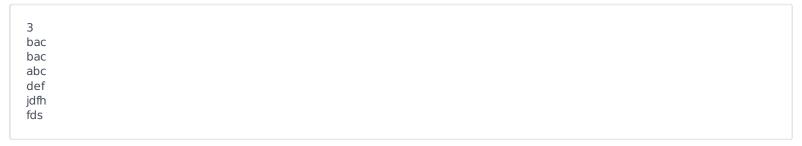
Constraints

- $1 \le q \le 10$
- $1 \le |a|, |b| \le 10^5$
- a and b contain only lowercase English letters.
- $\bullet\,$ Sum of |a| over all queries does not exceed 2×10^5
- ullet Sum of |b| over all queries does not exceed $2 imes 10^5$

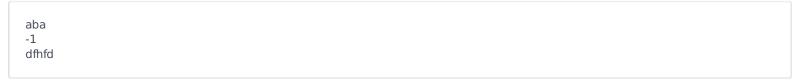
Output Format

For each pair of strings $(a_i \text{ and } b_i)$, find some s_i satisfying the conditions above and print it on a new line. If there is no such string, print -1 instead.

Sample Input



Sample Output



Explanation

We perform the following three queries:

- 1. Concatenate $s_a =$ "a" with $s_b =$ "ba" to create s = "aba".
- 2. We're given a = "abc" and $s_a = "def"$; because both strings are composed of unique characters, we cannot use them to form a palindromic string. Thus, we print -1.
- 3. Concatenate $s_a = "dfh"$ with $s_b = "fd"$ to create s = "dfhfd". Note that we chose these particular substrings because the length of string s must be maximal.