Build a Palindrome

HackerRank

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

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

Output Format

For each pair of strings (a_i 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

```
3
bac
bac
abc
def
jdfh
fds
```

Sample Output

```
aba
-1
dfhfd
```

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.