

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 $b = "def"$; 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.