

The Test of the Clever Pig

Input file: **standard input**
Output file: **standard output**
Time limit: 1 second
Memory limit: 1024 megabytes

Little H is a clever pig who can use artificial intelligence. Today, he is participating in the Little Pig IQ Test Contest, but he got stuck on the last problem:

- Given two strings s and t consisting of lowercase letters, find the lexicographically smallest common subsequence of length 2 between them.

A string a is a subsequence of a string b if and only if a can be obtained from b by deleting some characters (or none) without changing the relative order of the remaining characters.

Little H does not know how to solve this problem. As Little H's agent, please help him.

Input

The first line contains an integer T ($1 \leq T \leq 2 \times 10^4$), representing the number of test cases.

For each test case, two strings s and t are given on two separate lines ($1 \leq |s|, |t| \leq 10^5$). It is guaranteed that all strings **consist only of lowercase letters**.

It is guaranteed that over all test cases, the sum of $|s| + |t|$ does not exceed 2×10^5 . $|s|$ and $|t|$ denote the lengths of strings s and t , respectively.

Output

For each test case, output one line containing a string representing the answer you found.

If the two strings do not have a common subsequence of length 2, output one line containing **HENG!**.

Example

standard input	standard output
3	aa
azzza	zz
zazaz	HENG!
azzza	
zbzbz	
you	
ak	