

Round A 2022 - Kick Start 2022

Speed Typing

PROBLEM

ANALYSIS

Problem

Barbara is a speed typer. In order to check her typing speed, she performs a speed test. She is given a string II that she is supposed to type.

While Barbara is typing, she may make some mistakes, such as pressing the wrong key. As her typing speed is important to her, she does not want to spend additional time correcting the mistakes, so she continues to type with the errors until she finishes the speed test. After she finishes the speed test, she produces a PP .

Now she wonders how many extra letters she needs to delete in order to get II from PP . It is possible that Barbara made a mistake and PP cannot be converted back to II just by deleting some letters. In particular, it is possible that Barbara missed some letters.

Help Barbara find out how many extra letters she needs to remove in order to obtain II or if II cannot be obtained from PP by removing letters then output IMPOSSIBLE.

Input

The first line of the input gives the number of test cases, TT . TT test cases follow.

Each test case has 22 lines. The first line of each test case is an input string II (that denotes the string that the typing test has provided). The next line is the produced string PP (that Barbara has entered).

Output

For each test case, output one line containing Case #xx: yy, where xx is the test case number (starting from 11) and yy is the number of extra letters that need to be removed in order to obtain II. If it is not possible to obtain II then output IMPOSSIBLE as yy.

Limits

Memory limit: 1 GB.
 $1 \leq T \leq 100$ $1 \leq T \leq 100$.
Both the strings contain letters from a-z and A-Z.
Length of the given strings will be $1 \leq |I|, |P| \leq 10^5$ $1 \leq |I|, |P| \leq 105$.

Test Set 1

Time limit: 20 seconds.
All letters in II are the same.

Test Set 2

Time limit: 40 seconds.

Sample

Note: there are additional samples that are not run on submissions down below.

Sample Input	save_alt content_copy	Sample Output	save_alt content_copy
2 aaaa aaaaa bbbbb bbbbc		Case #1: 1 Case #2: IMPOSSIBLE	

In the first test case, P P contains one extra a, so she needs to remove 11 extra letter in order to obtain II.
In the second test case, Barbara typed only 44 letters b, while II consists of 55 letters b so the answer is IMPOSSIBLE.

Additional Sample - Test Set 2

The following additional sample fits the limits of Test Set 2. It will not be run against your submitted solutions.

Sample Input	save_alt content_copy	Sample Output	save_alt content_copy
<pre>2 Ilovecoding IIlovecoding KickstartIsFun kkickstartiisfun</pre>		<pre>Case #1: 2 Case #2: IMPOSSIBLE</pre>	

In the first test case, P P has 22 extra letters, I and l. The other letters are in the order given in II. So she needs to remove 22 letters in order to obtain II.

In the second test case, there is no letter K in P P so the answer is IMPOSSIBLE.