

# CSULA PROGFEST 2014

## Problem 5 The Message

Note passing in class is a frowned upon activity, and an ancient one due to the popularization of cell phones. Nevertheless, the adrenaline rush of successfully passing a note without being noticed by the instructor still draws students to this forbidden activity. However, big rewards come with big risks. When a instructor catches a student passing a note, he or she often reads the note out loud. It could be very embarrassing for the parties involved, depending on the content of the note. Andrew, wanting to give a note to a girl he has a crush on, thought of a way to encode his message before passing it on. The encoding scheme goes as follows:

- for each word(could be one or more characters, each word is separated by a white space), reverse its order, including punctuation.
- for each reversed word, shift each character one forward in the alphabet, ignoring punctuation.

The decoding scheme simply runs the encoding scheme in reverse. Your job is to write a program for Andrew and his first love to encode and decode messages using his scheme. Remember, Andrew's first love depends on you.

### Input

Words are character sequences(mixed uppercase/lowercase) that include punctuation, separated by a single white space. The first line contains a single integer, denoting the number of messages to encode/decode. Messages to be encoded will start with the character '\$', and messages to be decoded will start with the character '@'. Each message will contain a line of words. You may assume the message only contains the upper case/lower case alphabet excluding uppercase and lowercase z, and the following characters: the comma, the period, the question mark, the exclamation mark, the minus sign, and single quotes.

### Output

For each input, print out either the decoded/encoded messages, excluding the '\$' and '@' characters, keeping the original character cases with a single whitespace between the words like the input.

### Sample Input

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```
3
$I FWPM !VPZ xfseoB--
@I've liked you for a long time, too! Go easy on the caps though. --Michelle
$fW'J efljm vpz spg b hopm ,fnju !ppu pH ztbf op fiu tqbd .ihvpiu fmmfidjN--
```

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### Sample Output

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I LOVE YOU! --Andrew
fw'J efljm vpz spg b hopm ,fnju !ppu pH ztbf op fiu tqbd .ihvpiu fmmfidjN--
I've liked you for a long time, too! Go easy on the caps though. --Michelle
```

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