Problem 209: Hijacked!

Difficulty: Medium

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Problem Background

Lockheed Martin Space Systems maintains a large number of satellites for various purposes. Recently, they've received reports that one of their communication satellites has been acting oddly. Upon investigation, it seems as though the satellite has been hijacked through a cyberattack! Buried within its real communications are secret messages planted by the attacker! You'll need to decipher these messages to determine how the cyberattack was accomplished and to help authorities identify the culprit.

Problem Description

Streams of data sent by the satellite consist of printable ASCII characters. The hacker's messages are embedded within these streams and can be identified by indicator tokens. The token at the start of each message will consist of three different characters, which are different for each message (e.g. 'rst', 'qzy', or some other combination). The token at the end of a message consists of the same three characters used for the starting token, but in reverse order (using the previous examples, 'tsr' or 'yzq').

Each data stream may contain more than one message, but messages will not overlap each other. To avoid confusion with the indicator tokens, any character within a message that also appears within that message's indicator tokens will be "escaped" by appearing twice. For example, the data stream below contains the hidden message 'hello world'; the starting and ending tokens are highlighted:

`abcjklhellllo worlldlkjdef`

Sample Input

The first line of your program's input, **received from the standard input channel**, will contain a positive integer representing the number of test cases. Each test case will include:

- A line containing a positive integer, N, representing the length of the data stream in characters
- A line containing N printable ASCII characters, representing the data stream. Each data stream contains at least one hidden message.

```
2
26
abcjklhellllo worlldlkjdef
41
tueoafghthhis is code questhgfllmn2023nml
```

Sample Output

For each test case, your program must print each hidden message contained within the data stream, one message per line.

```
hello world
this is code quest
2023
```