

# New Year Chaos

It's New Year's Day and everyone's in line for the Wonderland rollercoaster ride!

There are  $n$  people queued up, and each person wears a sticker indicating their *initial* position in the queue (i.e.:  $1, 2, \dots, n - 1, n$  with the first number denoting the frontmost position).

Any person in the queue can bribe the person *directly in front* of them to swap positions. If two people swap positions, they still wear the same sticker denoting their original place in line. One person can bribe *at most two other persons*.

That is to say, if  $n = 8$  and *Person 5* bribes *Person 4*, the queue will look like this:  $1, 2, 3, 5, 4, 6, 7, 8$ .

Fascinated by this chaotic queue, you decide you must know the minimum number of bribes that took place to get the queue into its current state!

**Note:** Each *Person X* wears sticker  $X$ , meaning they were initially the  $X^{th}$  person in queue.

## Input Format

The first line contains an integer,  $T$ , denoting the number of test cases.  
Each test case is comprised of two lines; the first line has  $n$  (an integer indicating the number of people in the queue), and the second line has  $n$  space-separated integers describing the final state of the queue.

## Constraints

$$1 \leq T \leq 10$$
$$1 \leq n \leq 10^5$$

## Subtasks

For 60% score  $1 \leq n \leq 10^3$   
For 100% score  $1 \leq n \leq 10^5$

## Output Format

Print an integer denoting the minimum number of bribes needed to get the queue into its final state; print **Too chaotic** if the state is invalid (requires *Person X* to bribe more than 2 people).

## Sample Input

```
2
5
2 1 5 3 4
5
2 5 1 3 4
```

## Sample Output

```
3
Too chaotic
```

## Explanation

### Sample 1

The initial state:



After person 5 moves one position ahead by bribing person 4:



Now person 5 moves another position ahead by bribing person 3:



And person 2 moves one position ahead by bribing person 1:



So the final state is **2, 1, 5, 3, 4** after three bribing operations.

## Sample 2

No person can afford to bribe more than two people, so its not possible to achieve the input state.