

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 $\text{Person } 5$ bribes $\text{Person } 4$, 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 $\text{Person } X$ 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 $\text{Person } X$ 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.