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.: $1, 2, \ldots, n-1, n$ 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

$$1 \le T \le 10$$

 $1 \le n \le 10^5$

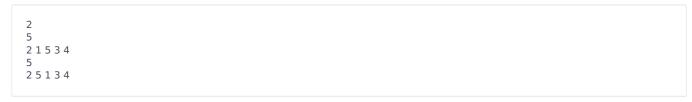
Subtasks

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

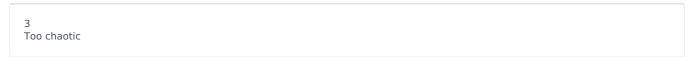
Output Format

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



Sample Output



Explanation

Sample 1

The initial state:



After person ${\bf 5}$ moves one position ahead by bribing person ${\bf 4}$:



Now person ${\bf 5}$ moves another position ahead by bribing person ${\bf 3}$:



And person ${\bf 2}$ moves one position ahead by bribing person ${\bf 1}$:



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.