# H2. Maximum Crossings (Hard Version)

time limit per test: 1 second

memory limit per test: 256 megabytes

The only difference between the two versions is that in this version $n \leq 2 \cdot 10^5$ and the sum of n over all test cases does not exceed $2 \cdot 10^5$.

A *terminal* is a row of n equal segments numbered 1 to n in order. There are two terminals, one above the other.

You are given an array a of length n. For all $i = 1, 2, \ldots, n$, there should be a straight wire from some point on segment i of the top terminal to some point on segment a_i of the bottom terminal. You can't select the endpoints of a segment. For example, the following pictures show two possible wirings if $n = 7$ and $a = [4, 1, 4, 6, 7, 7, 5]$.
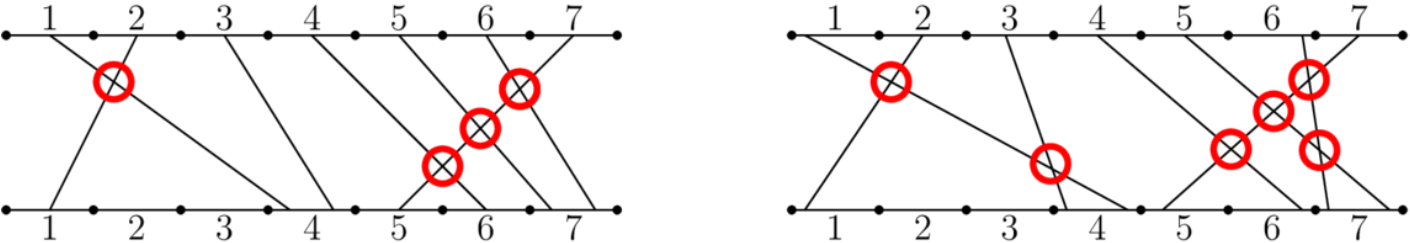
A *crossing* occurs when two wires share a point in common. In the picture above, crossings are circled in red.

What is the **maximum** number of crossings there can be if you place the wires optimally?

Input

The first line contains an integer t ($1 \leq t \leq 1000$) — the number of test cases.

The first line of each test case contains an integer n ($1 \leq n \leq 2 \cdot 10^5$) — the length of the array.

The second line of each test case contains n integers $a_1, a_2, \ldots, a_n$ ($1 \leq a_i \leq n$) — the elements of the array.

The sum of n across all test cases does not exceed $2 \cdot 10^5$.

Output

For each test case, output a single integer — the **maximum** number of crossings there can be if you place the wires optimally.

Example

input	Copy
4
7
4 1 4 6 7 7 5
2
2 1
1
1
3
2 2 2

output	Copy
6
1
0
3

Note

The first test case is shown in the second picture in the statement.

In the second test case, the only wiring possible has the two wires cross, so the answer is 1.

In the third test case, the only wiring possible has one wire, so the answer is 0.