Problem H
Majority Graph

Time limit: 4 seconds
Memory limit: 1 GB

Problem Description

You are given an array A with N elements - $A_1, A_2, \ldots, A_N$.

Construct a graph G on N nodes in the following way:

- Draw an edge (i, j) if and only if the following conditions are satisfied:
  - $1 \leq i < j \leq N$
  - The subarray $A[i, j]$ has a **majority element**.

Find the number of connected components of G.

The subarray $A[i, j]$ refers to the array $[A_i, A_{i+1}, \ldots, A_j]$.
An array B of length M has a **majority element** if and only if there is some element X that occurs **strictly more** than $\frac{M}{2}$ times in B.

Input Format

- The first line of input will contain a single integer T, denoting the number of test cases.
- Each test case consists of two lines of input.
  - The first line of each test case contains a single integer N - the size of the array and graph.
  - The second line contains N integers - $A_1, A_2, \ldots, A_N$.

Output Format

For each test case, output on a new line the number of connected components of the graph G.

Constraints

- $1 \leq T \leq 10^5$
- $2 \leq N \leq 2 \cdot 10^6$
- $1 \leq A_i \leq N$
- The sum of N over all test cases does not exceed $2 \cdot 10^6$.
- Note that the **constraint on N is higher than usual**.

Samples

Sample Input 1

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

Sample Output 1

```
2
4
1
1
```

Sample Explanation

Test Case 1: There are 2 pairs (i, j) that satisfy the majority condition: $(1, 3)$ and $(2, 4)$. The subarray $A[1, 3]$ has 1 as a majority element, and $A[2, 4]$ has 2. Thus, the graph has 2 connected components.

Test Case 2: There is only one edge $(2, 4)$. Hence, there are 4 connected components.