



Problem L

Score Sum

Time limit: 1 second

Memory limit: 1 GB

Problem Description

Suppose we have an array A of N elements. We will define a *score* function on the array A in the following way.

Let $d(L, R)$ denote the number of distinct elements in the subarray $[A_L, A_{L+1}, \dots, A_R]$.

Define $f(L, R) = (R - L + 1) - d(L, R)$, i.e., the length of the subarray from L to R minus the number of distinct elements in it.

Consider the pair (L, R) satisfying $1 \leq L \leq R \leq N$ with the maximum value of $f(L, R)$. If there are multiple such pairs, pick the one with the **minimum** value of $(R - L + 1)$. If there are still multiple such pairs, pick any.

Finally, we define $score(A)$ to be $(R - L + 1)$. That is, the length of the subarray which has the maximum f value and the minimum length among all with maximum f .

Since finding the score was too easy, we added sum over all subarrays as a harder task.

Formally, given an array A of N elements, find the value

$$\sum_{L=1}^N \sum_{R=L}^N score(A[L, R])$$

where $A([L, R])$ represents the subarray $[A_L, A_{L+1}, \dots, A_R]$.

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 N - the size of the array A .
 - The second line of each test case contains N integers - A_1, A_2, \dots, A_N .

Output Format

For each test case, output on a new line the sum of scores of all subarrays of A .

Constraints

- $1 \leq T \leq 10^4$
- $1 \leq N \leq 2 \cdot 10^5$
- $1 \leq A_i \leq N$
- The sum of N over all test cases does not exceed $2 \cdot 10^5$.



Samples

Sample Input 1

```
4
2
1 1
3
1 3 1
5
1 3 1 2 3
7
1 2 3 1 5 3 1
```

Sample Output 1

```
4
8
26
62
```

Sample Explanation

Test Case 1: There are 3 total subarrays - 2 repeated occurrences of $[1]$ and 1 occurrence of $[1, 1]$.

- $[1]$: $score([1])$ is clearly just 1, because there is only one pair to choose $L = 1, R = 1$.
- $[1, 1]$: $L = 1, R = 2$ is the unique interval with the largest value of f . Hence, $score([1, 1]) = 2$.

The sum is $1 + 1 + 2 = 4$.
