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PROBLEMS SUBMIT CODE MY SUBMISSIONS STATUS HACKS ROOM STANDINGS CUSTOM INVOCATION

# E. 23 Kingdom

time limit per test: 4 seconds memory limit per test: 256 megabytes

The distance of a value x in an array c, denoted as  $d_x(c)$ , is defined as the largest gap between any two occurrences of x in c.

Formally,  $d_x(c) = \max(j-i)$  over all pairs i < j where  $c_i = c_j = x$ . If x appears only once or not at all in c, then  $d_x(c) = 0$ .

The beauty of an array is the sum of the distances of each distinct value in the array. Formally, the beauty of an array c is equal to  $\sum_{1 \leq x \leq n} d_x(c)$ .

Given an array a of length n, an array b is nice if it also has length n and its elements satisfy  $1 \le b_i \le a_i$  for all  $1 \le i \le n$ . Your task is to find the maximum possible beauty of any nice array.

#### Input

Each test contains multiple test cases. The first line contains the number of test cases t (  $1 \le t \le 10^4$ ). The description of the test cases follows.

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

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

It is guaranteed that the sum of n over all test cases does not exceed  $2\cdot 10^5$ .

### Output

For each test case, output a single integer representing the maximum possible beauty among all nice arrays.

### Example

input	Сору
4	
4	
1 2 1 2	
2 2 2	
10	
1 2 1 5 1 2 2 1 1 2	
8 1 5 2 8 4 1 4 2	
1 5 2 8 4 1 4 2	
output	Сору
4	
1	
16	
16	

#### Note

In the first test case, if b=[1,2,1,2], then  $d_1(b)=3-1=2$  and  $d_2(b)=4-2=2$ , resulting in a beauty of 2+2=4. It can be proven that there are no nice arrays with a beauty greater than 4.

In the second test case, both b = [1, 1] and b = [2, 2] are valid solutions with a beauty of 1.

In the third test case, if b=[1,2,1,4,1,2,1,1,1,2] with  $d_1(b)=9-1=8$ ,  $d_2(b)=10-2=8$ , and  $d_4(b)=0$ , resulting in a beauty of 16.

### Codeforces Round 1024 (Div. 2)

# **Finished**

Practice



# → Virtual participation

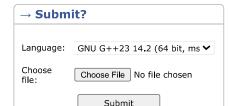
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Start virtual contest

# → Clone Contest to Mashup

You can clone this contest to a mashup.

Clone Contest



→ Last submissions		
Submission	Time	Verdict
321884359	May/29/2025 10:52	Accepted



# → Contest materials

- Announcement (en)
- Tutorial (en)

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The only programming contests Web 2.0 platform Server time: May/29/2025 14:54:49<sup>UTC+7</sup> (n2).

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