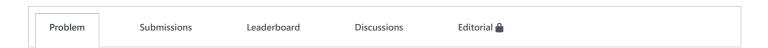
15/11/2017 HackerRank



Insertion Sort Advanced Analysis





Insertion Sort is a simple sorting technique which was covered in previous challenges. Sometimes, arrays may be too large for us to wait around for insertion sort to finish. Is there some other way we can calculate the number of times Insertion Sort shifts each elements when sorting an array?

If k_i is the number of elements over which the i^{th} element of the array has to shift, then the total number of shifts will be $k_1 + k_2 + \ldots + k_N$.

Input Format

The first line contains a single integer, T, denoting the number of queries to perform. The 2T subsequent lines describe each query over two lines:

- 1. The first line contains an integer, N, denoting the number of elements to be sorted.
- 2. The second line contains N space-separated integers describing the respective values of $a[1], a[2], \ldots, a[N]$.

Constraints

- $1 \le T \le 15$
- $1 \le N \le 100000$
- $1 \le a[i] \le 10000000$

Output Format

Print T lines containing the required answer for each query.

Sample Input

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

Sample Output

0 4

Explanation

The first query is already sorted, therefore there's no need to shift any element. In the second case, it will proceed in the following way.

```
Array: 2 1 3 1 2 -> 1 2 3 1 2 -> 1 1 2 3 2 -> 1 1 2 3 2 -> 1 1 2 2 3 Moves: - 1 - 2 - 1 = 4
```

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Submissions: 15592

Max Score:50 Difficulty: Advanced

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```
Java 7
  Current Buffer (saved locally, editable) & 40
                                                                                                                                Ö
 1 ▼ import java.io.*;
 2 import java.util.*;
 3 import java.text.*;
    import java.math.*;
    import java.util.regex.*;
 6
 7 ▼ public class Solution {
 8
         public static void main(String[] args) {
 9 ▼
10
             Scanner in = new Scanner(System.in);
11
             int t = in.nextInt();
12
13
             for(int i=0;i<t;i++){</pre>
14 ▼
                 int n = in.nextInt();
15
                 int[] ar = new int[n];
16 ▼
17 ▼
                 for(int j=0;j<n;j++){</pre>
18 🔻
                      ar[j]=in.nextInt();
19
                      //System.err.println(ar[j]);
20
21
                 long c = insertSort(ar);
22
                 System.out.println(c);
23
24
    }
25
26
27
         public static long insertSort(int[] ar)
28 ▼
29
              long count = 0;
             // Compute the required count
30
31
             return count;
32
33
         }
34
35
36
37
38
    }
39
                                                                                                                       Line: 1 Col: 1
                       Test against custom input
                                                                                                           Run Code
                                                                                                                        Submit Code
1 Upload Code as File
```

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