

Making Pine Branches

Input file: **standard input**
Output file: **standard output**
Time limit: 2 seconds
Memory limit: 1024 megabytes

Workers in the artificial pine branch factory need to insert pine needles of different sizes onto branches to make various kinds of decorations.

There is an empty branch and two boxes on the table. One of the boxes is empty, while the other contains n pieces of pine needles stacked in a pile. The size of the i -th piece of pine needle, from top to bottom, is a_i . Each time, the worker can perform one of the following two operations:

- Choose a box containing pine needles and move the pine needle at the top of the box to the top of the other box.
- Choose a box containing pine needles and insert the pine needle at the top of the box onto the branch.

The worker has to insert all n pieces of pine needles onto the branch. Also, when inserting a piece of pine needle, its size must not be larger than that of the previously inserted piece. That is to say, let b_i be the size of the i -th piece of pine needle inserted onto the branch; then $b_1 \geq b_2 \geq \dots \geq b_n$ must hold.

You need to find the smallest possible number of operations performed so that all pine needles can be inserted onto the branch.

Input

There are multiple test cases. The first line of the input contains an integer T ($1 \leq T \leq 10^4$), indicating the number of test cases. For each test case:

The first line contains an integer n ($1 \leq n \leq 4 \times 10^5$), indicating the number of pieces of pine needles.

The second line contains n integers a_1, a_2, \dots, a_n ($1 \leq a_i \leq 10^9$), where a_i indicates the size of the i -th piece of pine needle, from top to bottom, in the box.

It is guaranteed that the sum of n over all test cases does not exceed 4×10^5 .

Output

For each test case, output one line containing an integer, indicating the smallest possible number of operations.

Example

standard input	standard output
2	8
5	3
7 3 10 7 2	
3	
1 1 1	

Note

We show an optimal strategy for the first sample test case below. The sizes of pine needles in the boxes are listed from top to bottom, and the sizes of pine needles on the branch are listed in insertion order.

#	Box A	Box B	Branch		#	Box A	Box B	Branch
1	{3, 10, 7, 2}	{7}	{}		5	{3, 2}	{7}	{10, 7}
2	{10, 7, 2}	{3, 7}	{}		6	{3, 2}	{}	{10, 7, 7}
3	{7, 2}	{3, 7}	{10}		7	{2}	{}	{10, 7, 7, 3}
4	{2}	{3, 7}	{10, 7}		8	{}	{}	{10, 7, 7, 3, 2}