Mister Counter

Time limit: *1000 ms*
Memory limit: *128 MB*

Do you know Mr. Counter? Well, he is obsessed with counting. For instance, he counts the number of distinct configurations that a phone number might have with k digits, also the number of ways he can dress up with his current clean clothes. This time he has been thinking of a more complicated task.

For any array a of **distinct** integers, Mr. Counter denotes by F_a an array that has the following properties:

1. It contains the same elements as a
2. F_a is lexicographically greater than a
3. From all the arrays that respect property 2, F_a is the lexicographically smallest one.
4. If there no array lexicographically greater than a, F_a is equal to a.

An array a is considered smaller than another array b if and only if there is a position i that satisfies $a_1 = b_1$, $a_2 = b_2$, ..., $a_{i-1} = b_{i-1}$, $a_i < b_i$.

Mr. Counter also defines the *cost* of an array a as the number of indices where a differs from F_a.

Now it's your turn to help with a special task. Mr. Counter has an array a consisting of n **distinct** integers and he asks you q queries. Each query consists of two indices l and r $(1 \leq l \leq r \leq n)$. Find the cost of the subarray $a_{l...r}$.

Standard input

The first line contains an integer n representing the number of elements a.

The second line contains the n elements of a.

The third line contains the number of queries q.

Each of the next q lines contains two numbers l and r $(1 \leq l \leq r \leq n)$.

Standard output

Print the answer for each query on a different line.

Constraints and notes

- $1 \leq n \leq 250\,000$
- $0 \leq a_i \leq 10^9$
- $1 \leq q \leq 250\,000$

Input	Output
5 5 4 3 2 1 2 1 5 2 4	0 0
6 0 2 7 5 4 3 2 1 2 1 6	2 5