DMOPC '16 Contest 4 P6 - Molly and Flying Drones

Time limit: 0.6s **Memory limit:** 64M

While wandering around the city, Molly got distracted by a drone shop and went in. In the shop, there were Q drones available for purchase. Molly lives in a city where there are N buildings in a line, each with specific heights h_i. Being cheap, the drones from this shop have some weird technical specifications, the height interval that they need to start from. With this in mind, Molly asks you to tell her how many contiguous subsequences of buildings have the shortest building in the specified range of each drone, x_k and y_k.

Constraints

For all subtasks:

$1 \leq h_i \leq 1\,000\,000$ where $1 \leq i \leq N$.

$1 \leq x_k \leq y_k \leq 1\,000\,000$ where $1 \leq k \leq Q$.

Subtask 1 [5%]

$N = 1$

$Q = 1$

Subtask 2 [25%]

$1 \leq N \leq 1\,000$

$1 \leq Q \leq 15\,000$

Subtask 3 [70%]

$1 \leq N \leq 1\,000\,000$

$1 \leq Q \leq 100\,000$

Input Specification

The first line of input will contain two space-separated integers, N and Q.
The second line of input will contain N space-separated integers, h_i where $1 \leq i \leq N$.
The next Q lines of input will each contain two space-separated integers, x_k and y_k.

Note: Fast I/O methods are recommended for this problem.

Output Specification

Your program should output Q integers on different lines, representing the number requested for each drone.

Sample Input

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

Sample Output

```
6
```