Sorted Subsegments

HackerRank

Consider an array $A = [a_0, a_1, \ldots, a_{n-1}]$ of n integers. We perform q queries of the following type on A :

- Sort all the elements in the subsegment $a_{l_i}, a_{l_i+1}, \ldots, a_{r_i}$.

Given A, can you find and print the value at index k (where $0 \leq k < n$) after performing q queries?

Input Format

The first line contains three positive space-separated integers describing the respective values of n (the number of integers in A), q (the number of queries), and k (an index in A).
The next line contains n space-separated integers describing the respective values of $a_0, a_1, \ldots, a_{n-1}$.
Each line j of the q subsequent lines contain two space-separated integers describing the respective l_j and r_j values for query j.

Constraints

- $1 \leq n, q \leq 75000$
- $0 \leq k \leq n-1$
- $-10^9 \leq a_i \leq 10^9$
- $0 \leq l_i \leq r_i < n$

Output Format

Print a single integer denoting the value of a_k after processing all q queries.

Sample Input 0

```
3 1 1
3 2 1
0 1
```

Sample Output 0

```
3
```

Explanation 0

$A = [3, 2, 1]$
There is only one query to perform. When we sort the subarray ranging from index 0 to index 1, we get $A' = [2, 3, 1]$. We then print the element at index 1, which is 3.

Sample Input 1

```
4 2 0
4 3 2 1
0 2
1 3
```

Sample Output 1

```
2
```

Explanation 1

$A = [4, 3, 2, 1]$
There are $q = 2$ queries:

1. When we sort the subarray ranging from index 0 to index 2, we get $A' = [2, 3, 4, 1]$.
2. When we sort the subarray of A' from index 1 to index 3, we get $A'' = [2, 1, 3, 4]$.

Having performed all of the queries, we print the element at index 0, which is 2.