Dhasu Problem

You are given an array A with N elements, A_1, A_2, ... , A_N. This array has an interesting property, **the absolute difference between the position of every element in the original array and its position in the sorted array is not more than K.** For example: If K = 1 and Sorted(A) = [1, 2, 3, 4], then the given array might be A = [2, 1, 4, 3]. The array cannot be A = [4, 1, 2, 3], since the absolute difference between the positions of element 4 is |1 - 4| = 3 > K.

You have to answer Q queries. In each query, you are given two integers, X and Val. The answer for each query will be the number of integers **strictly** greater than Val in the original subarray A_1, A_2, ... , A_X

For example: If A = [2, 1, 4, 3], and the query is 3 2. Then the answer for this query will be 1. Since the subarray from A_1 to $A_{X=3}$ is [2, 1, 4] and the value greater than Val = 2 in this subarray is 1 which is 4.

Note that if there are multiple occurences of an element than you have to consider all the occurences. For example if A = [10, 2, 4, 4, 3, 10] , X = 5, Val = 3, then the answer would be 3 as the subarray is [10, 2, 4, 4, 3] and the elements greater than 3 are 10 and 4 but 4 occurs twice in this subarray so we count it two times.

Input

First line will contain three integers N ($1 \le N \le 10^5$), Q ($1 \le Q \le 10^5$) and K ($1 \le K \le 100$), the size of the array, the number of queries and the absolute difference.

Next line will contain N spaced integers denoting the elements of the array ($1 \le A_i \le 10^9$).

Next Q lines will each contain two integers X ($1 \le X \le N$) and Val ($1 \le Val \le 10^9$).

Output

For each query having X and Val, output the number of elements greater than Val in the subarray [A_1, A_2, ..., A_X].

Example

Input

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

Output

```
1
0
```

Submit solution

All submissions
Best submissions

Points: 100
Time limit: 1.0s
Memory limit: 256M

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Allowed languages
C

Clarifications

Request clarification

No clarifications have been made at this time.

Assignment 4 - 3 days 00:13:22