Aslı, Deren and Rainy Days (Hard)

Time Limit: 1.0s   **Memory Limit:** 256M

This problem is the hard version of the Aslı, Deren and Rainy Days (Easy) problem. In the hard version of the problem, the numbers a and b can be up to N.

Deren and Aslı are best friends and have missed each other a lot. They now have an opportunity to see each other. They can meet up once in the upcoming N day period. However, it is going to rain each of these days. So they want to meet up on a day where it does not rain too much. They also want to see each other as soon as possible. So, they have come up with a solution. They say that the ith day is optimal if, on day number i, it rains less than the previous a days and the next b days. Can you find the earliest optimal day so that Aslı and Deren can see each other and be happy?

The days are numbered from 1 to N. They are available only on those N days, so they don't take any other day into account. It is guaranteed that there exists a solution.

Input:

The first line contains three integers, N, a, and b. The second line will contain N distinct integers $r_1, r_2, \ldots, r_n$ where r_i represents the amount of rain on the ith day.

- $1 \leq N \leq 10^5$
- $0 \leq a, b \leq N$
- $1 \leq r_i \leq 10^9$

Output:

Print a single integer, the index of the earliest optimal day.

Examples:

Input:

```
10 2 2
8 9 5 7 6 3 2 1 10 4
```

Output:

```
3
```

Input:

```
10 2 3
8 9 5 7 6 3 2 1 10 4
```

Output:

```
8
```

Input:

```
6 6 6
6 5 4 3 2 1
```

Output:

```
6
```

Explanations:

In the first test case, the 3rd day is valid (where it rains 5 units). Because there aren't any less-rainy-days in the previous 2 days or in the next 2 days. In the second test case, the 8th day is valid (where it rains 1 unit). Because there aren't any less-rainy-days in the previous 2 days or in the next 3 days (The days after the Nth day are out of their scope so they are not taken into consideration.). And in the third test case, the 6th day is valid (where it rains 1 unit). Because there aren't any less-rainy-days in the previous 6 days or in the following 6 days.