Minimum Increment Operations to Make Array Beautiful

You are given a **0-indexed** integer array nums having length n, and an integer k.

You can perform the following **increment** operation **any** number of times (**including zero**):

- Choose an index i in the range [0, n - 1], and increase nums[i] by 1.

An array is considered **beautiful** if, for any **subarray** with a size of 3 or **more**, its **maximum** element is **greater than or equal** to k.

Return *an integer denoting the **minimum** number of increment operations needed to make* nums ***beautiful***.

A subarray is a contiguous **non-empty** sequence of elements within an array.

Example 1:

Input: nums = [2,3,0,0,2], k = 4

Output: 3

Explanation: We can perform the following increment operations to make nums beautiful:

Choose index i = 1 and increase nums[1] by 1 -> [2,4,0,0,2].

Choose index i = 4 and increase nums[4] by 1 -> [2,4,0,0,3].

Choose index i = 4 and increase nums[4] by 1 -> [2,4,0,0,4].

The subarrays with a size of 3 or more are: [2,4,0], [4,0,0], [0,0,4], [2,4,0,0], [4,0,0,4], [2,4,0,0,4].

In all the subarrays, the maximum element is equal to k = 4, so nums is now beautiful.

It can be shown that nums cannot be made beautiful with fewer than 3 increment operations.

Hence, the answer is 3.

Example 2:

Input: nums = [0,1,3,3], k = 5

Output: 2

Explanation: We can perform the following increment operations to make nums beautiful:

Choose index i = 2 and increase nums[2] by 1 -> [0,1,4,3].

Choose index i = 2 and increase nums[2] by 1 -> [0,1,5,3].

The subarrays with a size of 3 or more are: [0,1,5], [1,5,3], [0,1,5,3].

In all the subarrays, the maximum element is equal to k = 5, so nums is now beautiful.

It can be shown that nums cannot be made beautiful with fewer than 2 increment operations.

Hence, the answer is 2.

Example 3:

Input: nums = [1,1,2], k = 1

Output: 0

Explanation: The only subarray with a size of 3 or more in this example is [1,1,2].

The maximum element, 2, is already greater than k = 1, so we don't need any increment operation.

Hence, the answer is 0.

Constraints:

- $3 <= n == nums.length <= 10^5$
- $0 <= nums[i] <= 10^9$
- $0 <= k <= 10^9$