3072. Distribute Elements Into Two Arrays II

Description

You are given a **1-indexed** array of integers `nums` of length `n`.

We define a function `greaterCount` such that `greaterCount(arr, val)` returns the number of elements in `arr` that are **strictly greater** than `val`.

You need to distribute all the elements of `nums` between two arrays `arr1` and `arr2` using `n` operations. In the first operation, append `nums[1]` to `arr1`. In the second operation, append `nums[2]` to `arr2`. Afterwards, in the `i th` operation:

- If `greaterCount(arr1, nums[i]) > greaterCount(arr2, nums[i])`, append `nums[i]` to `arr1`.
- If `greaterCount(arr1, nums[i]) < greaterCount(arr2, nums[i])`, append `nums[i]` to `arr2`.
- If `greaterCount(arr1, nums[i]) == greaterCount(arr2, nums[i])`, append `nums[i]` to the array with a **lesser** number of elements.
- If there is still a tie, append `nums[i]` to `arr1`.

The array `result` is formed by concatenating the arrays `arr1` and `arr2`. For example, if `arr1 == [1,2,3]` and `arr2 == [4,5,6]`, then `result = [1,2,3,4,5,6]`.

Return *the integer array* `result`.

Example 1:

```
Input: nums = [2,1,3,3]
Output: [2,3,1,3]
Explanation: After the first 2 operations, arr1 = [2] and arr2 = [1].
In the 3 rd operation, the number of elements greater than 3 is zero in both arrays. Also, the lengths are equal, hence, append nums[3] to arr1.
In the 4 th operation, the number of elements greater than 3 is zero in both arrays. As the length of arr2 is lesser, hence, append nums[4] to arr2.
After 4 operations, arr1 = [2,3] and arr2 = [1,3].
Hence, the array result formed by concatenation is [2,3,1,3].
```

Example 2:

```
Input: nums = [5,14,3,1,2]
Output: [5,3,1,2,14]
Explanation: After the first 2 operations, arr1 = [5] and arr2 = [14].
In the 3 rd operation, the number of elements greater than 3 is one in both arrays. Also, the lengths are equal, hence, append nums[3] to arr1.
In the 4 th operation, the number of elements greater than 1 is greater in arr1 than arr2 (2 > 1). Hence, append nums[4] to arr1.
In the 5 th operation, the number of elements greater than 2 is greater in arr1 than arr2 (2 > 1). Hence, append nums[5] to arr1.
After 5 operations, arr1 = [5,3,1,2] and arr2 = [14].
Hence, the array result formed by concatenation is [5,3,1,2,14].
```

Example 3:

```
Input: nums = [3,3,3,3]
Output: [3,3,3,3]
Explanation: At the end of 4 operations, arr1 = [3,3] and arr2 = [3,3].
Hence, the array result formed by concatenation is [3,3,3,3].
```

Constraints:

- $3 <= n <= 10^5$
- $1 <= nums[i] <= 10^9$