46. Sort Colors

Given an array nums with n objects colored red, white, or blue, sort them in-place so that

objects of the same color are adjacent, with the colors in the order red, white, and blue.

We will use the integers 0, 1, and 2 to represent the color red, white, and blue, respectively.

You must solve this problem without using the library's sort function.

<u>Code:</u>

```python
def sortColors(nums):
    low, mid, high = 0, 0, len(nums) - 1

    while mid <= high:
        if nums[mid] == 0:
            nums[low], nums[mid] = nums[mid], nums[low]
            low += 1
            mid += 1
        elif nums[mid] == 1:
            mid += 1
        else:
            nums[high], nums[mid] = nums[mid], nums[high]
            high -= 1
nums1 = [2, 0, 2, 1, 1, 0]
sortColors(nums1)
print(nums1)

nums2 = [2, 0, 1]
sortColors(nums2)
print(nums2)
```

Output:

```
[0, 0, 1, 1, 2, 2]
[0, 1, 2]
```

Time Complexity:

- T(n)= O(n)