



DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

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Experiment 5

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Semester: 6th

Subject Name: Advanced Programming - 2

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Section/Group: 637-B

Date of Performance:20/2/25

Subject Code: 22CSH-351

Ques 1:

Aim: sort colors

Code:

class Solution:

def sortColors(self, nums: List[int]) -> None:

i, j, k = -1, len(nums), 0

while k < j:

if nums[k] == 0:

i += 1

nums[i], nums[k] = nums[k], nums[i]

k += 1

elif nums[k] == 2:

j -= 1

nums[j], nums[k] = nums[k], nums[j]

else:

k += 1



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Submission Screenshot:

The screenshot displays a coding platform interface for the problem "75. Sort Colors". The problem description states: "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."

Example 1:
Input: `nums = [2,0,2,1,1,0]`
Output: `[0,0,1,1,2,2]`

Example 2:
Input: `nums = [2,0,1]`
Output: `[0,1,2]`

Constraints:

- `n == nums.length`
- `1 <= n <= 300`
- `nums[i]` is either `0`, `1`, or `2`.

The solution code is written in Python3 and uses a three-pointer approach to sort the array in-place. The code is as follows:

```
1 class Solution:
2     def sortColors(self, nums: List[int]) -> None:
3         i, j, k = -1, len(nums), 0
4         while k < j:
5             if nums[k] == 0:
6                 i += 1
7                 nums[i], nums[k] = nums[k], nums[i]
8                 k += 1
9             elif nums[k] == 2:
10                j -= 1
11                nums[j], nums[k] = nums[k], nums[j]
12            else:
13                k += 1
```

The test result shows "Accepted" with a runtime of 0 ms. The input is `nums = [2,0,2,1,1,0]` and the output is `[0,0,1,1,2,2]`.