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WORKSHEET-5

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Branch: CSE **Section/Group:** NTPP-603-B

Semester: 6th **Date of Performance:** 20/2/25

Subject Name: AP-2 **Subject Code:** 22CSP-351

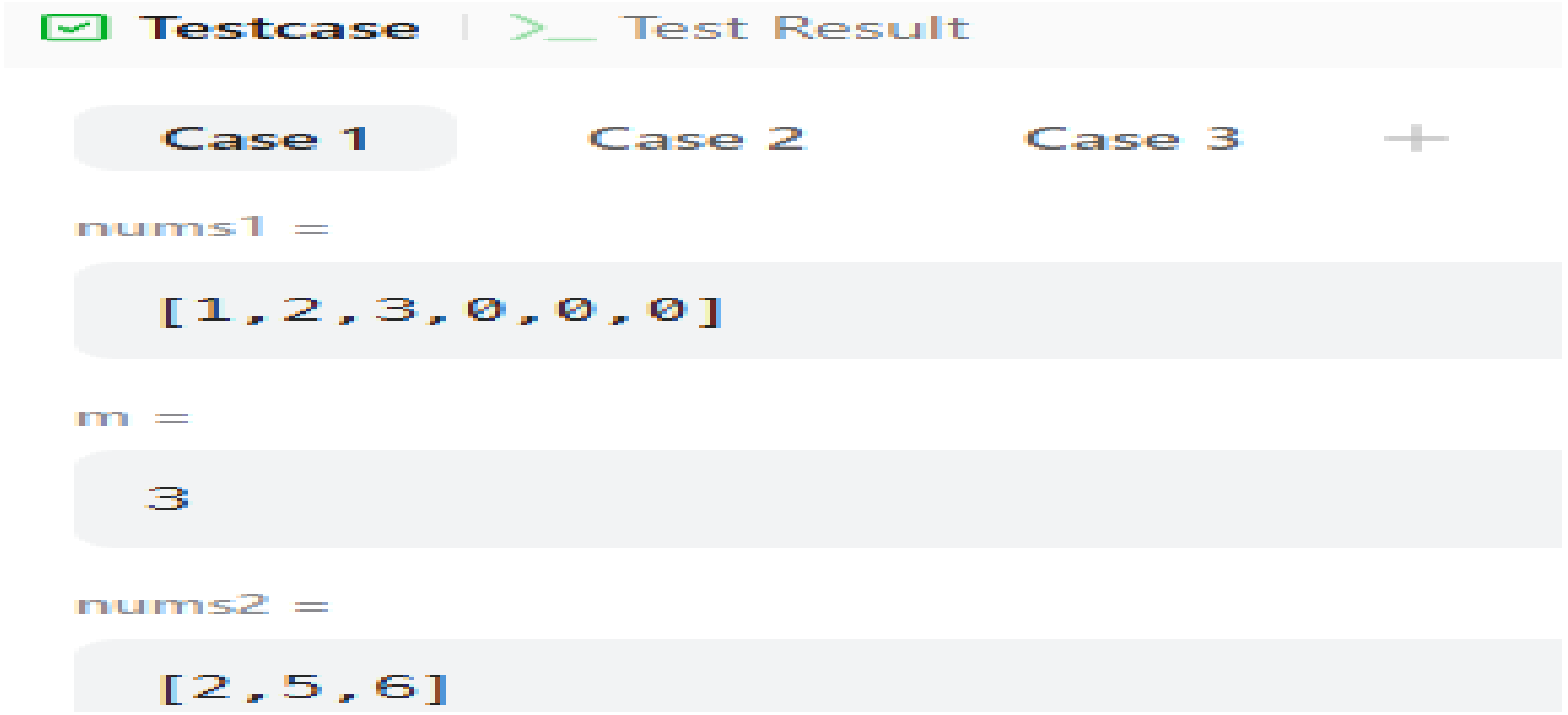
Aim(i): 88. You are given two integer arrays nums1 and nums2, sorted in non-decreasing order, and two integers m and n, representing the number of elements in nums1 and nums2 respectively. Merge nums1 and nums2 into a single array sorted in non-decreasing order.

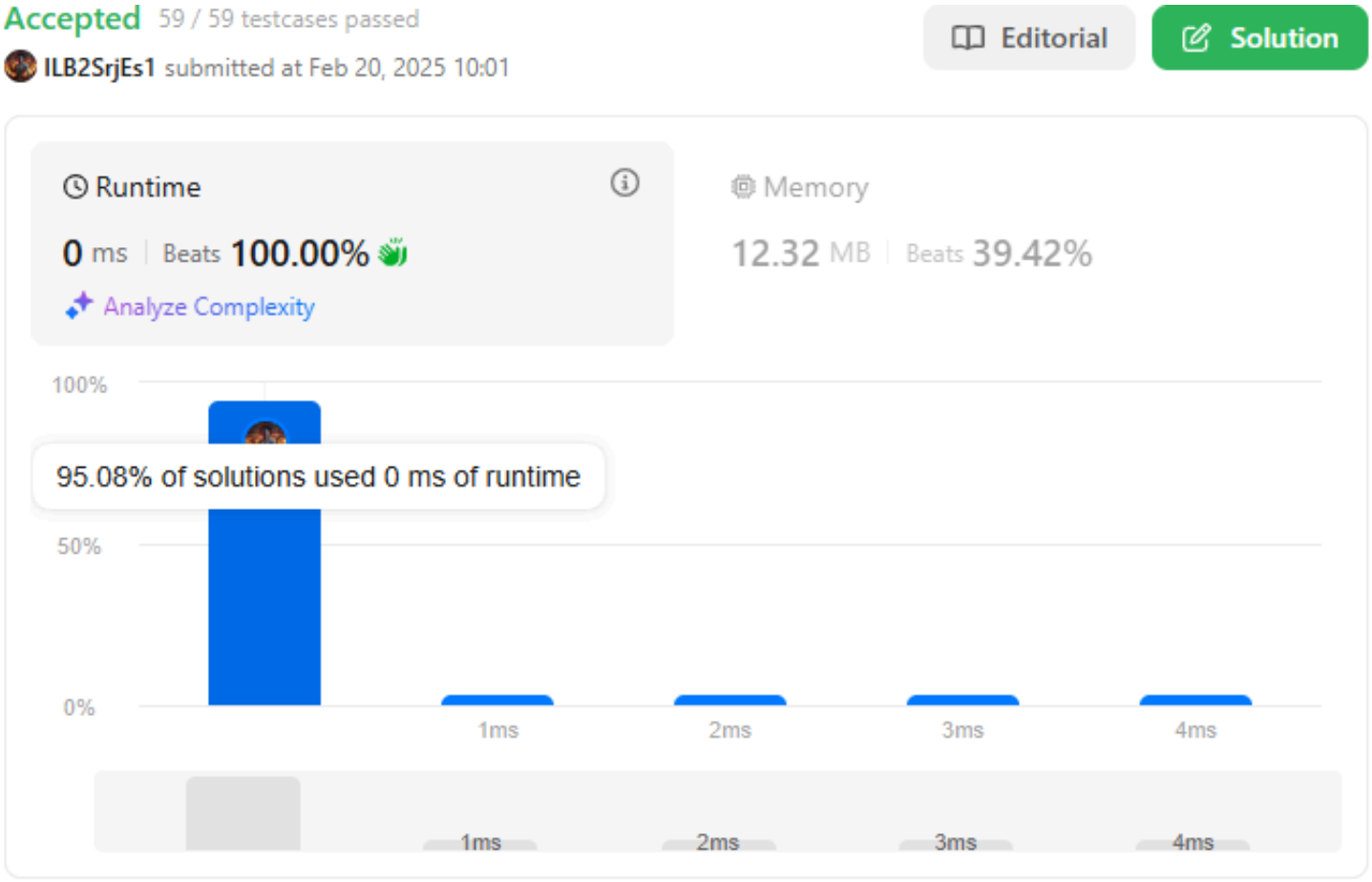
Source Code:

```
class Solution {
public:
    void merge(vector<int>& nums1, int m, vector<int>& nums2, int n) {
        int midx = m - 1;
        int nidx = n - 1;
        int right = m + n - 1;

        while (nidx >= 0) {
            if (midx >= 0 && nums1[midx] > nums2[nidx]) {
                nums1[right] = nums1[midx];
                midx--;
            } else {
                nums1[right] = nums2[nidx];
                nidx--;
            }
            right--; }        }};
```

OUTPUT:





Code | C++

LEARNING OUTCOME:

1. We learnt Merge Sort.
2. We learnt how to sort Arrays.

Aim(ii): 278. Suppose you have n versions [1, 2, ..., n] and you want to find out the first bad one, which causes all the following ones to be bad.

You are given an API bool isBadVersion(version) which returns whether version is bad. Implement a function to find the first bad version. You should minimize the number of calls to the API.

Source Code:

```
class Solution {
public:
    int firstBadVersion(int n){
        long long l = 1, r = n;
        long long m, res = n;
        while(l <= r){
            m = l + (r - l) / 2;
            if(isBadVersion(m) == 1){
                r = m - 1;
                res = min(res, m);
            } else {
                l = m + 1;
            }
        }
        return res;
    }
};
```

OUTPUT:

Learning Outcomes

1. We learnt how to use Binary Search.
2. We learnt Edge case Handling.

Aim(iii): 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.

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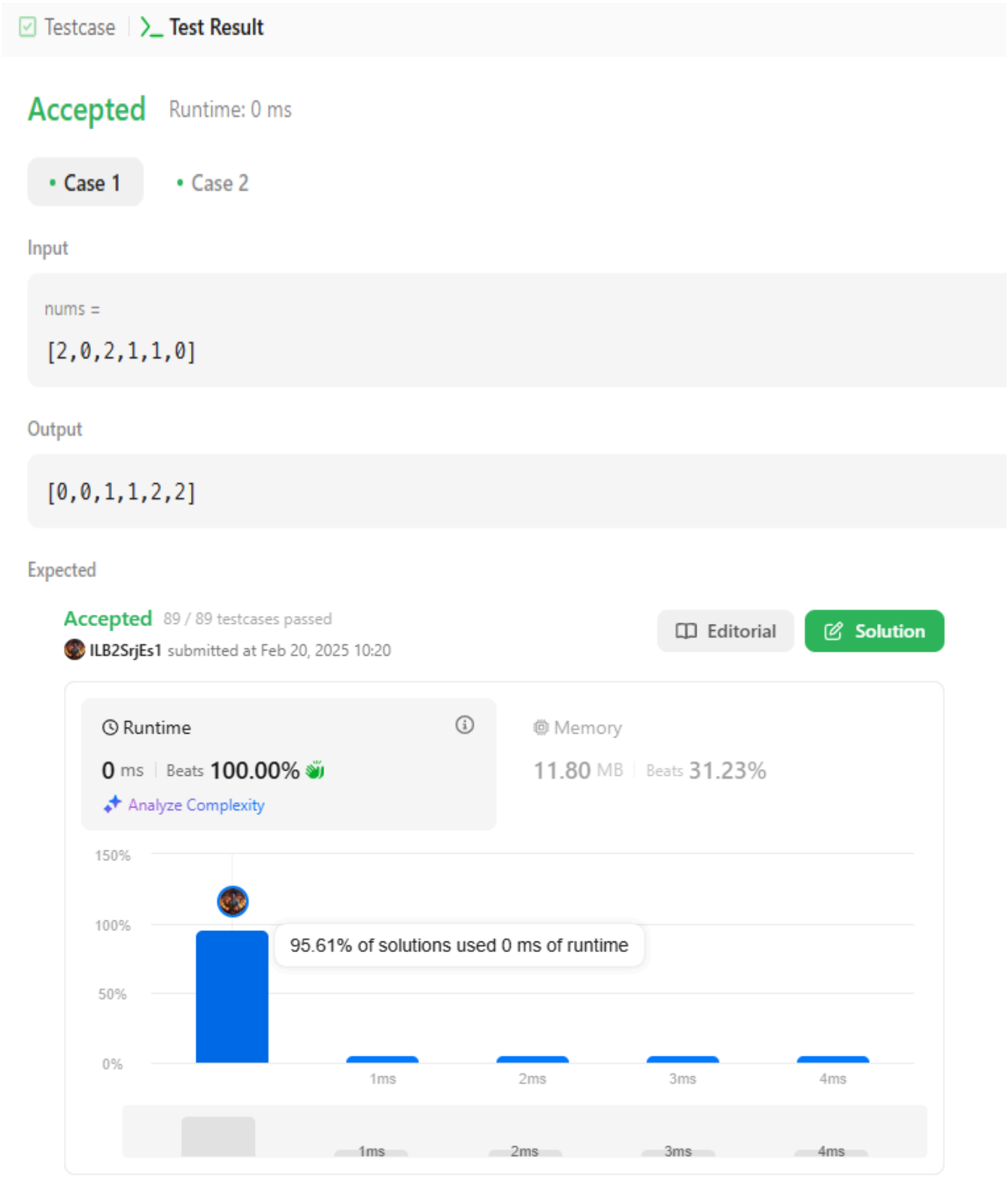
Source Code:

```
class Solution {
public:
   void sortColors(vector<int>& nums) {
      unordered_map<int, int> count = {{0, 0}, {1, 0}, {2, 0}};

      for (int num : nums) {
         count[num]++;
      }

      int idx = 0;
      for (int color = 0; color < 3; color++) {
         int freq = count[color];
         for (int j = 0; j < freq; j++) {
            nums[idx] = color;
            idx++;
         }
      }
   }
};
```

OUTPUT:


Testcase
Test Result
Accepted
Runtime: 0 ms
Case 1
Case 2
Input
nums =
[2,0,2,1,1,0]
Output
[0,0,1,1,2,2]
Expected
Accepted
89 / 89 testcases passed
ILB2SrjEs1 submitted at Feb 20, 2025 10:20
Editorial
Solution
Runtime
0 ms
Beats 100.00%
Analyze Complexity
Memory
11.80 MB
Beats 31.23%
150%
100%
50%
0%
95.61% of solutions used 0 ms of runtime
1ms
2ms
3ms
4ms

Learning Outcomes

1. We learnt Counting Sort.
2. Usage of a Hash Map.