

Course Name:	Competitive Programming Lab	Semester:	IV
Date of Performance:	12/ 01/ 2026	DIV/ Batch No:	B2
Student Name:	Ashwera Hasan	Roll No:	16010124107

Experiment No: 0

Title: Arrays - Searching, Frequency Counting, and Basic Array Analysis

Aim and Objective of the Experiment:

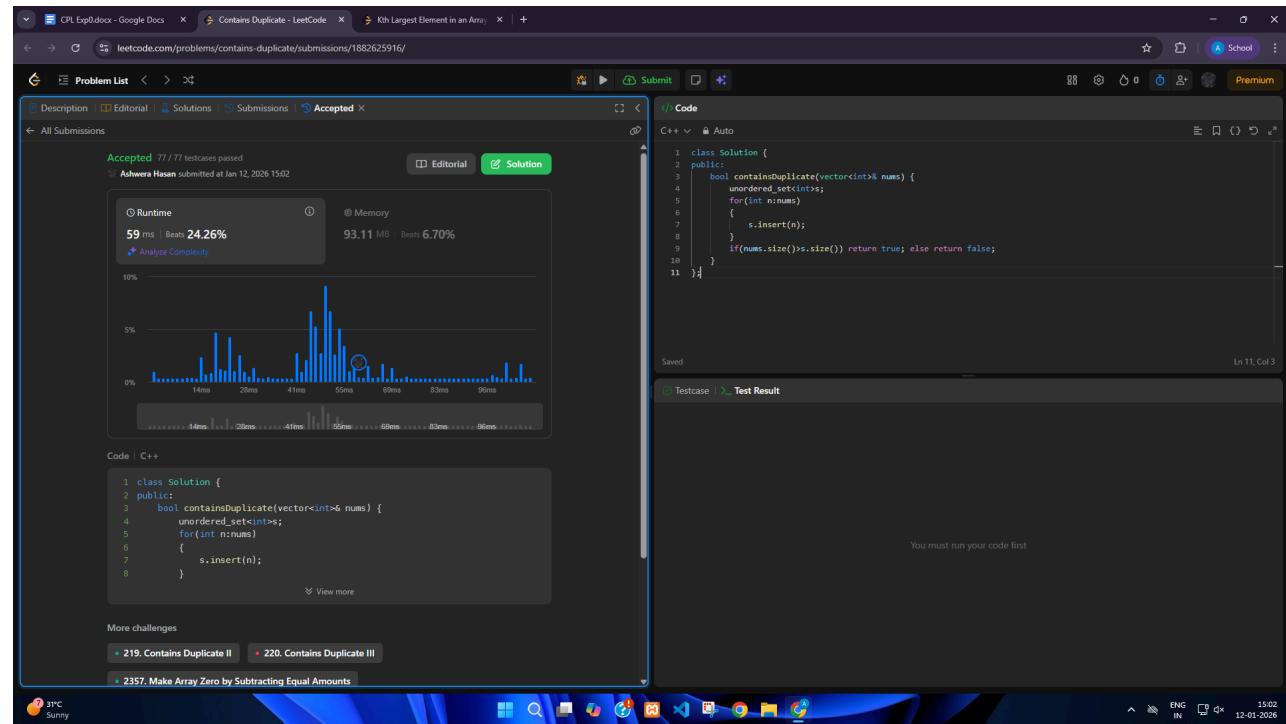
Easy	Count distinct elements in array	LC 217 – Contains Duplicate
Easy	Find first repeating element	LC 2351 – First Letter to Appear Twice
Medium	Minimum difference between any two elements	LC 1200 – Minimum Absolute Difference

COs to be achieved:

Applying various problem-solving paradigms, enabling them to create and implement efficient algorithms for real-world challenges.

Code :

Contains Duplicate:

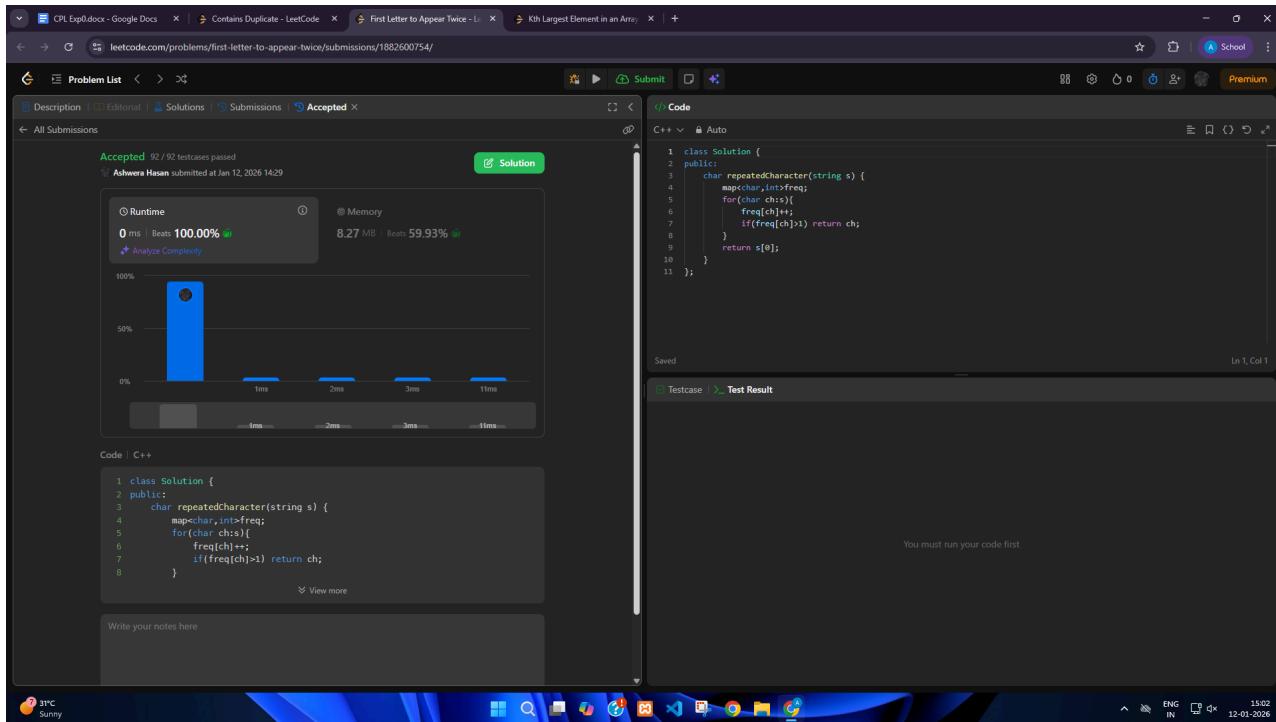


```

class Solution {
public:
    bool containsDuplicate(vector<int>& nums) {
        unordered_set<int>s;
        for(int n:nums)
        {
            s.insert(n);
        }
        if(nums.size()>s.size()) return true; else return false;
    }
};

```

First Letter to Appear Twice:



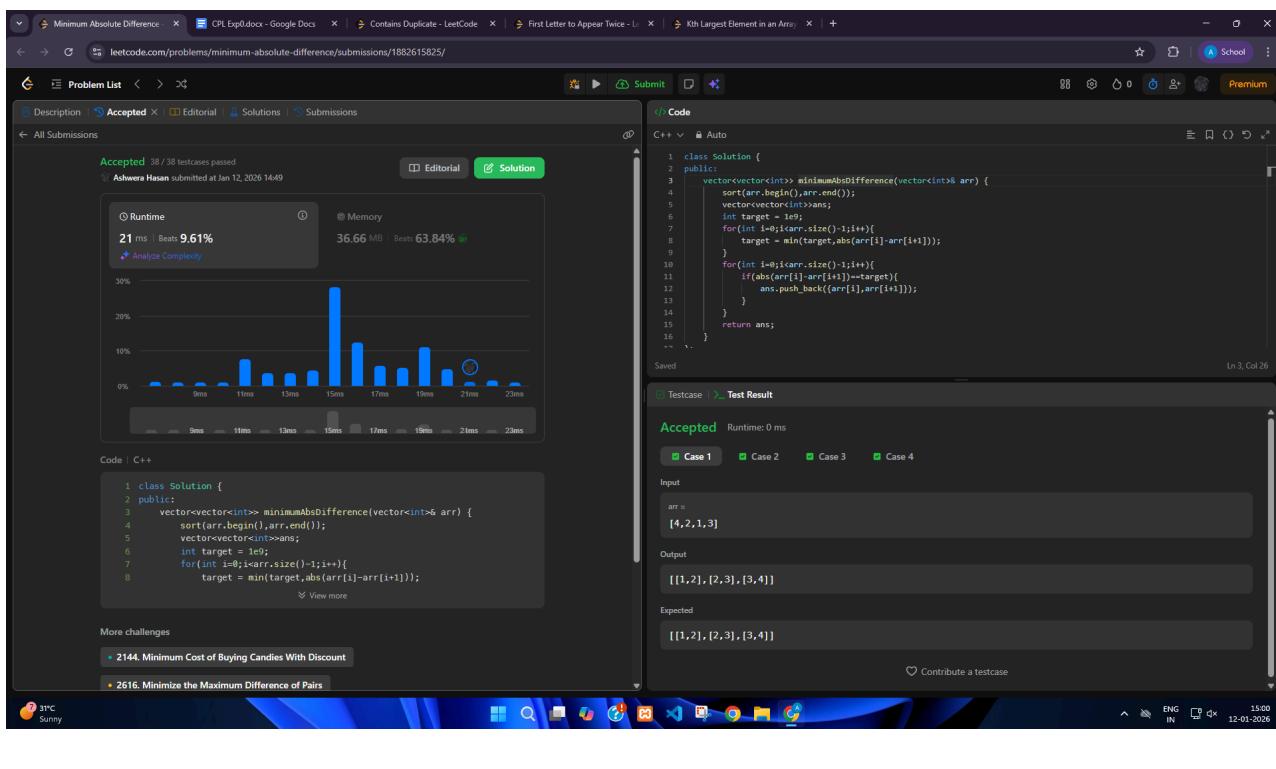
Accepted 92 / 92 testcases passed
Ashwera Hasan submitted at Jan 12, 2026 14:29

Runtime: 0 ms Beats: 100.00% | Memory: 8.27 MB Beats: 59.93%

```
1 class Solution {
2 public:
3     char repeatedCharacter(string s) {
4         map<char,int>freq;
5         for(char ch:s){
6             freq[ch]++;
7             if(freq[ch]>1) return ch;
8         }
9     }
10 }
```

You must run your code first

Minimum Absolute Difference



Accepted 38 / 98 testcases passed
Ashwera Hasan submitted at Jan 12, 2026 14:49

Runtime: 21 ms Beats: 9.61% | Memory: 36.66 MB Beats: 63.84%

```
1 class Solution {
2 public:
3     vector<int>> minimumAbsDifference(vector<int>& arr) {
4         sort(arr.begin(),arr.end());
5         vector<vector<int>>ans;
6         int target = 1e9;
7         for(int i=0;i<arr.size()-1;i++){
8             target = min(target,abs(arr[i]-arr[i+1]));
9         }
10        for(int i=0;i<arr.size()-1;i++){
11            if(abs(arr[i]-arr[i+1])==target){
12                ans.push_back({arr[i],arr[i+1]});
13            }
14        }
15    }
16 }
```

Accepted Runtime: 0 ms

Case 1 Case 2 Case 3 Case 4

Input:
arr =
[4,2,1,3]

Output:
[[1,2],[2,3],[3,4]]

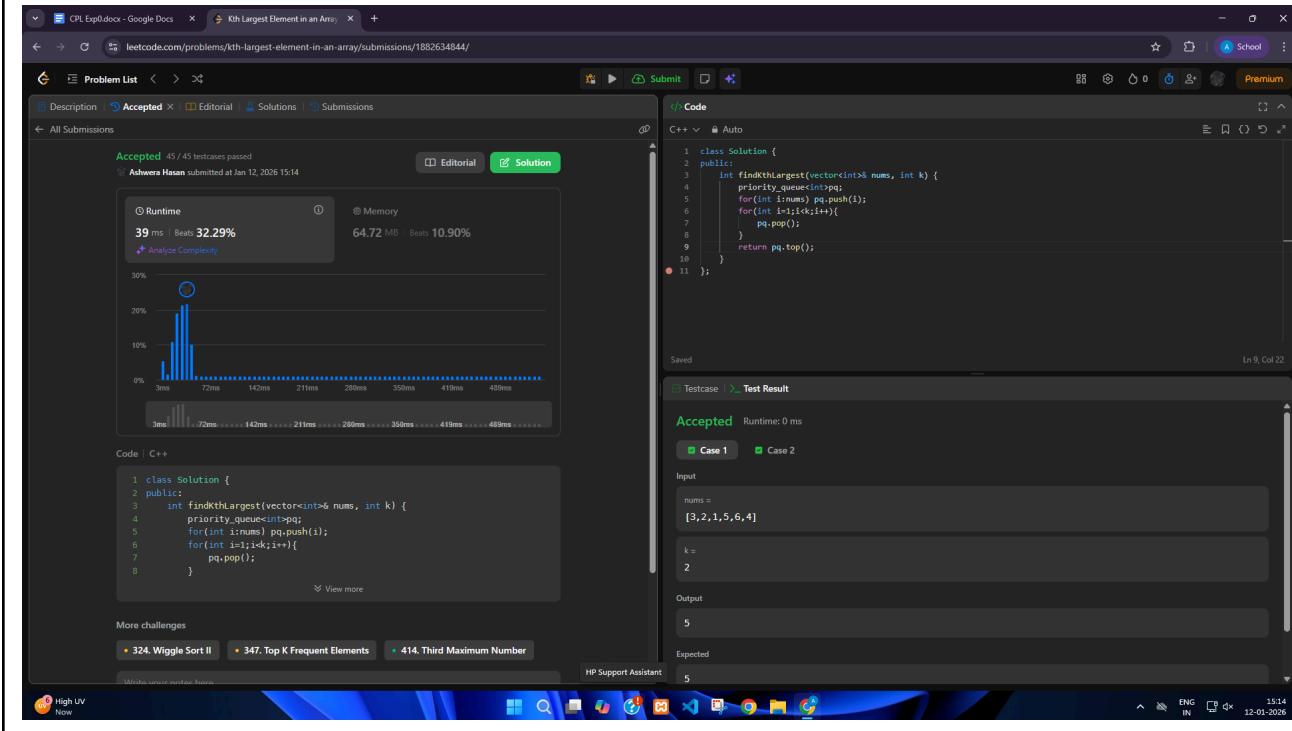
Expected:
[[1,2],[2,3],[3,4]]

Contribute a testcase

Post Lab Subjective/Objective type Questions:

Create your account on Leetcode, solve and submit the following Leetcode problems:

LC 215: <https://leetcode.com/problems/kth-largest-element-in-an-array/>



Conclusion:

This experiment strengthened the foundations of data structures and algorithms and their implementation of the same in C++.

Signature of faculty in-charge with Date: