AP ASSIGNMENT 5

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22BCS11135 **22BCS_IOT_FL-601-A**

AP ASSIGNMENT 5

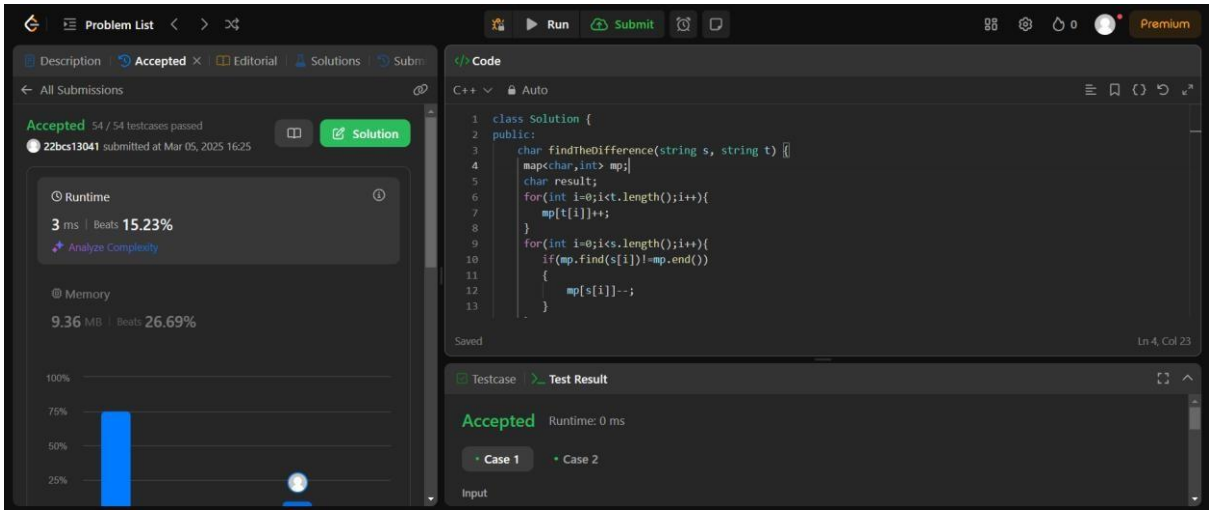
Q1. Find the Difference

Implementation Code:

```
class Solution {
public:
   char findTheDifference(string s, string t) {
    map<char,int> mp;
    char result;
    for(int i=0;i<t.length();i++){
      mp[t[i]]++;
    }
    for(int i=0;i<s.length();i++){
      if(mp.find(s[i])!=mp.end())
      {
        mp[s[i]]--;
      }
    }
    for(auto it : mp)
      {
        if(it.second>=1)
        result=it.first;
      }
    return result;
   }
};
```

class Solution {

Output:

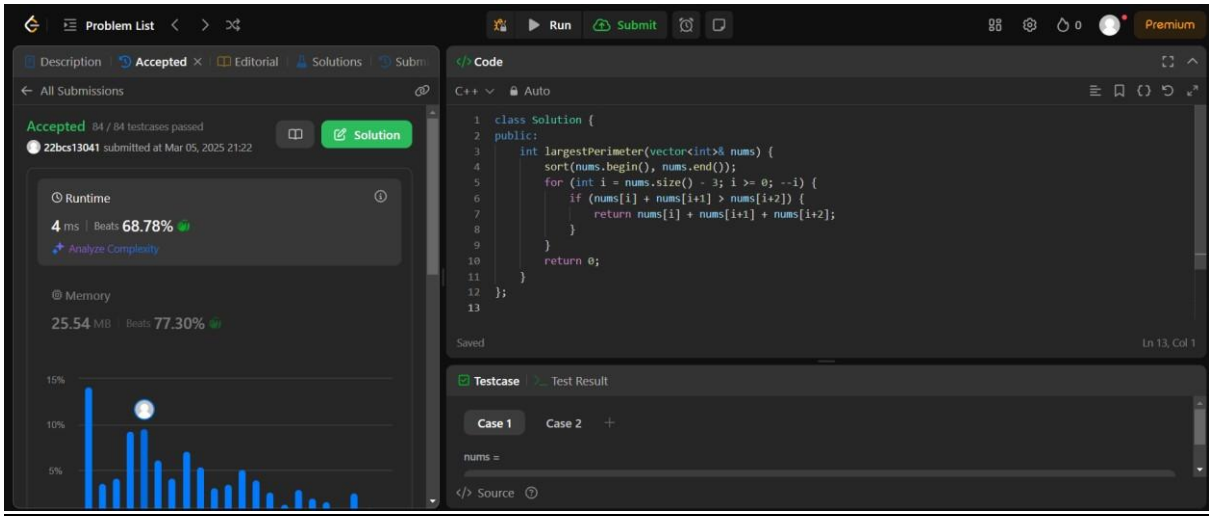


Q2. Largest Perimeter Triangle

Implementation Code:

```
class Solution { public:    int
largestPerimeter(vector<int>& nums) {
sort(nums.begin(), nums.end());       for (int i =
nums.size() - 3; i >= 0; --i) {          if (nums[i] +
nums[i+1] > nums[i+2]) {
            return nums[i] + nums[i+1] + nums[i+2];
        }
    }
return 0;
  }
};
```

Output:



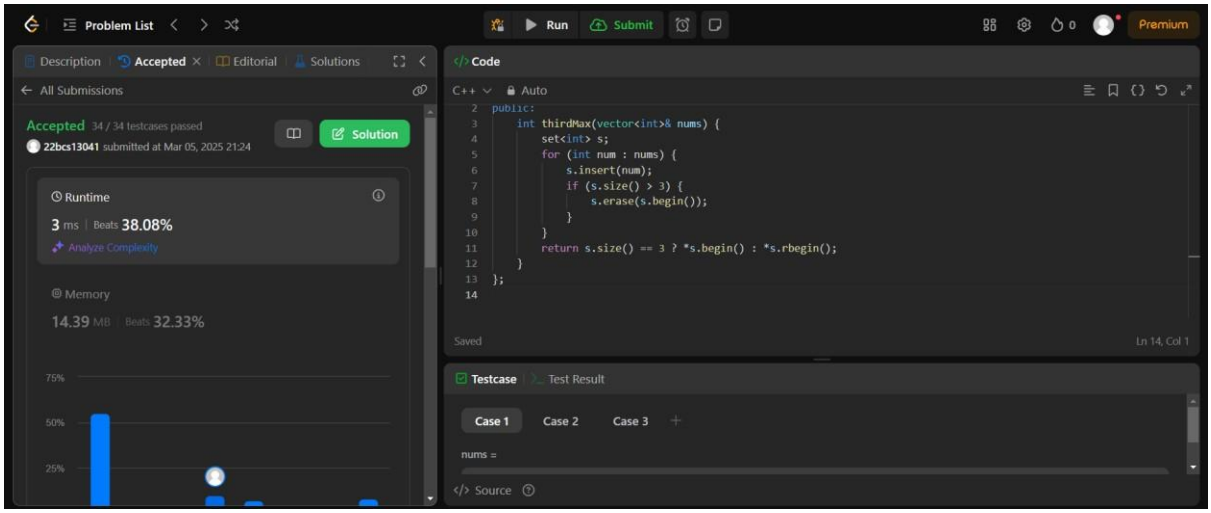
Q3. Third Maximum Number

Implementation Code:

```
class Solution { public:    int
    thirdMax(vector<int>& nums) {
        set<int> s;
        for (int num : nums) {
    s.insert(num);          if
    (s.size() > 3) {
            s.erase(s.begin());
        }
```

```
        }
        return s.size() == 3 ? *s.begin() : *s.rbegin();
    }
};
```

Output:



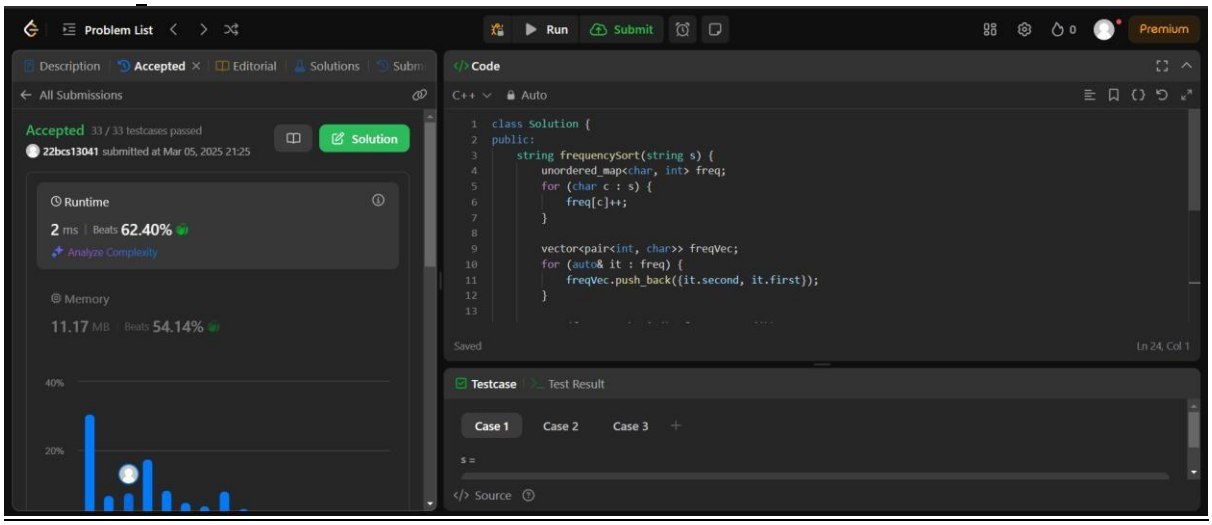
Q4. Sort Characters by frequency

Implementation Code:

```
class Solution { public:    string
frequencySort(string s) {
    unordered_map<char, int> freq;
for (char c : s) {
        freq[c]++;
    }

    vector<pair<int, char>> freqVec;
    for (auto& it : freq) {
        freqVec.push_back({it.second, it.first});
    }

    sort(freqVec.rbegin(), freqVec.rend());
        string result;      for
(auto& p : freqVec) {
        result.append(p.first, p.second);
    }

    return result;
  }
};
```

Output

:

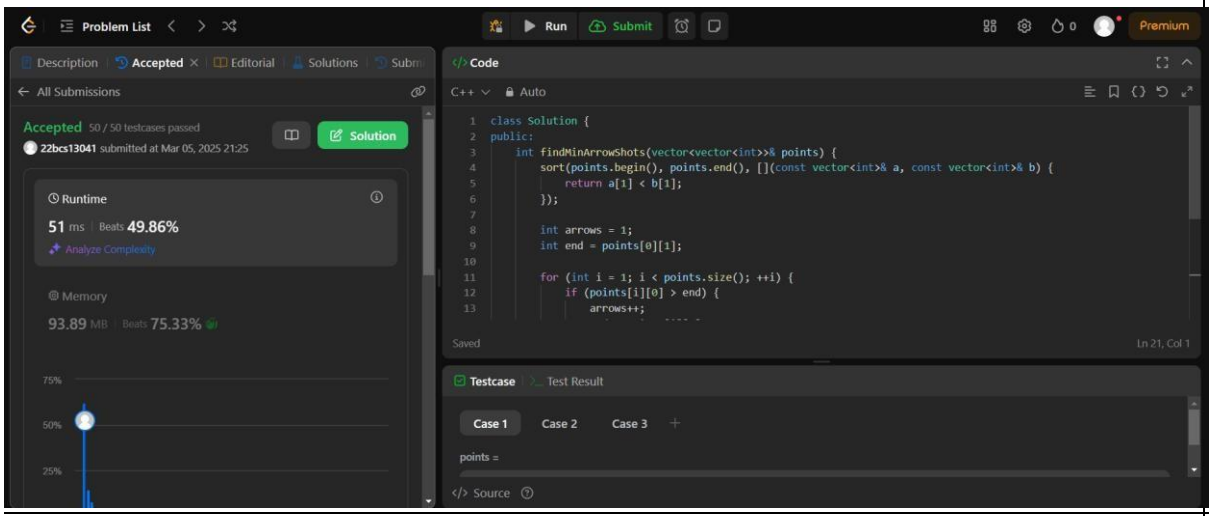


Q5. Minimum Number of Arrows to Burst Balloons

Implementation Code:

```
 class Solution {
public:
   int findMinArrowShots(vector<vector<int>>& points) {
      sort(points.begin(), points.end(), [](const vector<int>& a, const vector<int>& b) {          return
a[1] < b[1];
      });

      int arrows = 1;
      int end = points[0][1];

      for (int i = 1; i < points.size(); ++i) {
if (points[i][0] > end) {              arrows++;
            end = points[i][1];
         }
      }

      return arrows;
   }
};
```

Output:

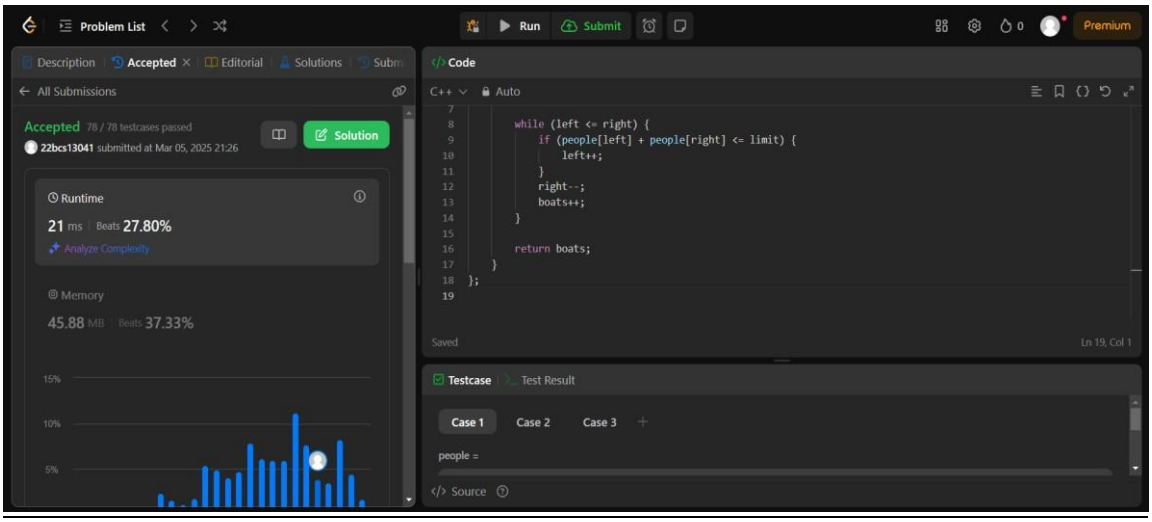


Q6. Boats to save people

Implementation Code:

```
 class Solution { public:    int
numRescueBoats(vector<int>& people, int limit) {
sort(people.begin(), people.end());       int left = 0, right =
people.size() - 1;       int boats = 0;

      while (left <= right) {          if (people[left] +
people[right] <= limit) {
            left++;
}          right--;
boats++;
      }

      return boats;
   }
};
```

Output:

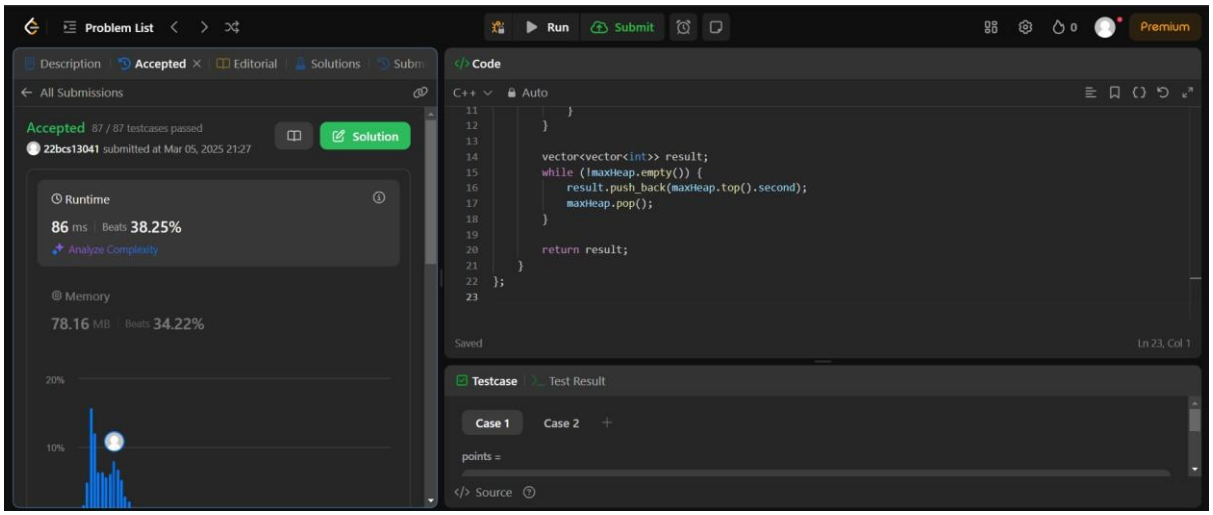


Q7. K closest points to origin

Implementation Code:

```
class Solution { public: vector<vector<int>> kClosest(vector<vector<int>>& points, int k) { priority_queue<pair<int, vector<int>>> maxHeap;

    for (auto& point : points) {
        int dist = point[0] * point[0] + point[1] * point[1];
        maxHeap.push({dist, point});
if (maxHeap.size() > k) {
            maxHeap.pop();
        }
    }

    vector<vector<int>> result;     while (!maxHeap.empty()) {
result.push_back(maxHeap.top().second);
        maxHeap.pop();
    }

    return result;
  } };
```

Output:

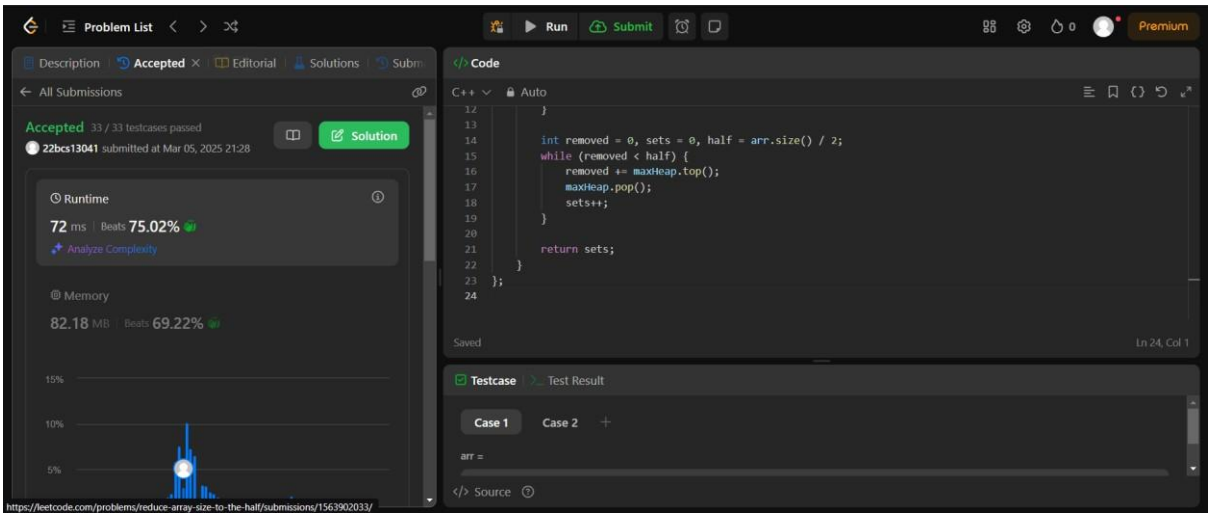


Q8. Reduce array size to half

Implementation Code:

```
class Solution { public:    int
minSetSize(vector<int>& arr) {
unordered_map<int, int> freq;
      for (int num : arr) {
         freq[num]++;
      }

      priority_queue<int> maxHeap;
for (auto& [key, count] : freq) {
         maxHeap.push(count);
      }

      int removed = 0, sets = 0, half = arr.size() / 2;
while (removed < half) {          removed +=
maxHeap.top();
         maxHeap.pop();
         sets++;
      }

      return sets;
   }
};
```

Output:


Problem List
Run
Submit
Premium
Description
Accepted
Editorial
Solutions
All Submissions
Accepted 33 / 33 testcases passed
22bcs13041 submitted at Mar 05, 2025 21:28
Solution
Runtime
72 ms | Beats 75.02%
Analyze Complexity
Memory
82.18 MB | Beats 69.22%
15%
10%
5%
https://leetcode.com/problems/reduce-array-size-to-the-half/submissions/1563902033/
Code
C++
Auto
}
int removed = 0, sets = 0, half = arr.size() / 2;
while (removed < half) {
removed += maxHeap.top();
maxHeap.pop();
sets++;
}
return sets;
}
};
Saved
Ln 24, Col 1
Testcase
Test Result
Case 1
Case 2
arr =
Source