Assignment -5

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Branch:CSE **Section/Group:**605-B

Semester: 5 **Date of Performance:** 05/03/25

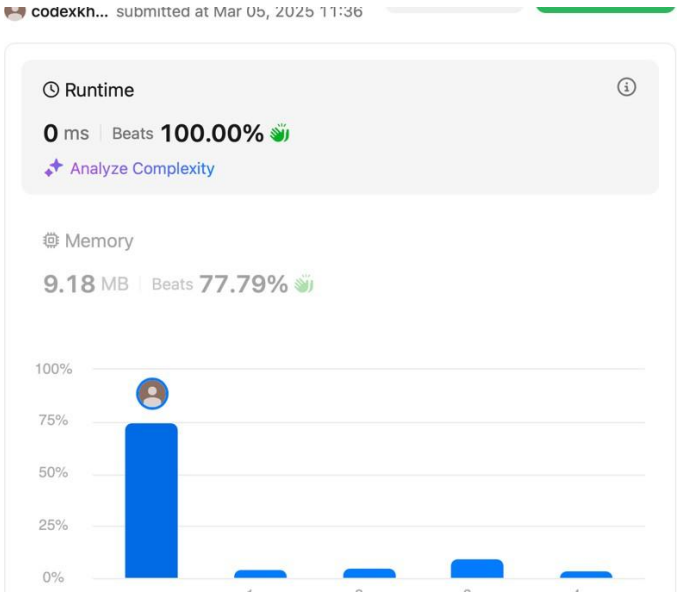
Subject Name: AP **Subject Code: 22CSP-351**

Q.1 389. Find the Difference

```
class Solution {
public:
    char findTheDifference(string s, string t) {
        for(int i=0;i<s.size();i++){
            t[i+1]+=t[i] - s[i];
        }
            return t[t.size()-1];

    }
};
```

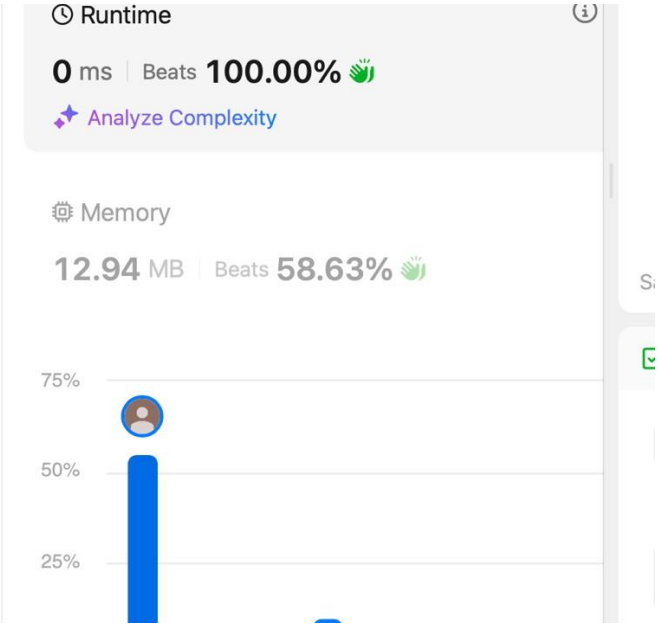
Output :



Q.2 414. Third Maximum Number

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

Output :



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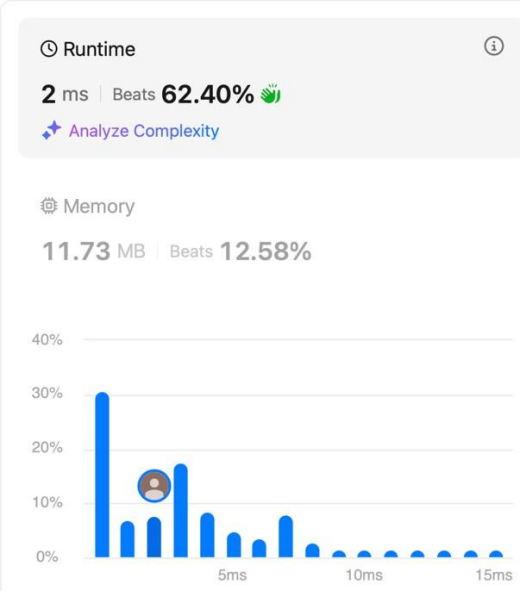
Q.3 [451. Sort Characters By Frequency]

```
class Solution {
public:
    typedef pair<char, int> P;

    string frequencySort(string s) {
        vector<P> vec(123);

        for(char &ch : s) {
            int freq = vec[ch].second;
            vec[ch] = {ch, freq+1};
        }

        auto comp = [&](P &p1, P &p2) {
```

```
            return p1.second > p2.second;
        };

        sort(begin(vec), end(vec), comp);

        string result = "";

        for(int j = 0; j <= 122; j++) {
            result += string(vec[j].second, vec[j].first);
        }
        return result;
    }
};
```

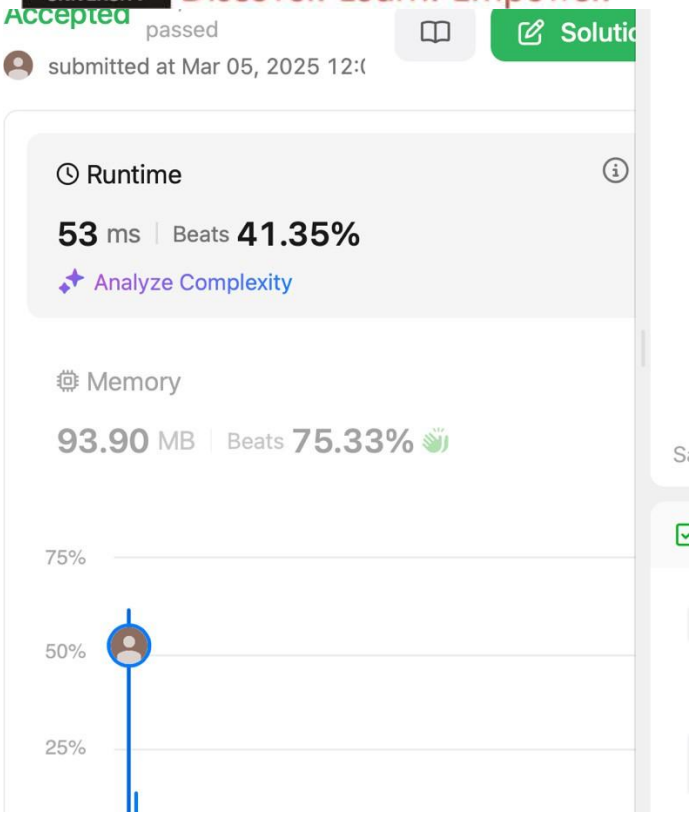
Output :



Q.4 [452. Minimum Number of Arrows to Burst Balloons]

```
class Solution {
public:
    int findMinArrowShots(vector<vector<int>>& points) {
        int n = points.size();

        sort(begin(points), end(points));

        vector<int> prev = points[0];
        int count = 1;
        for (int i = 1; i < n; i++) {
            int currSp = points[i][0];
            int currEp = points[i][1];

            int prevSp = prev[0];
            int prevEp = prev[1];

            if (currSp > prevEp) {
                count++;
                prev = points[i];
            } else {
                prev[0] = max(prevSp, currSp);
                prev[1] = min(currEp, prevEp);
            }
        }
        return count;
    }
};
```

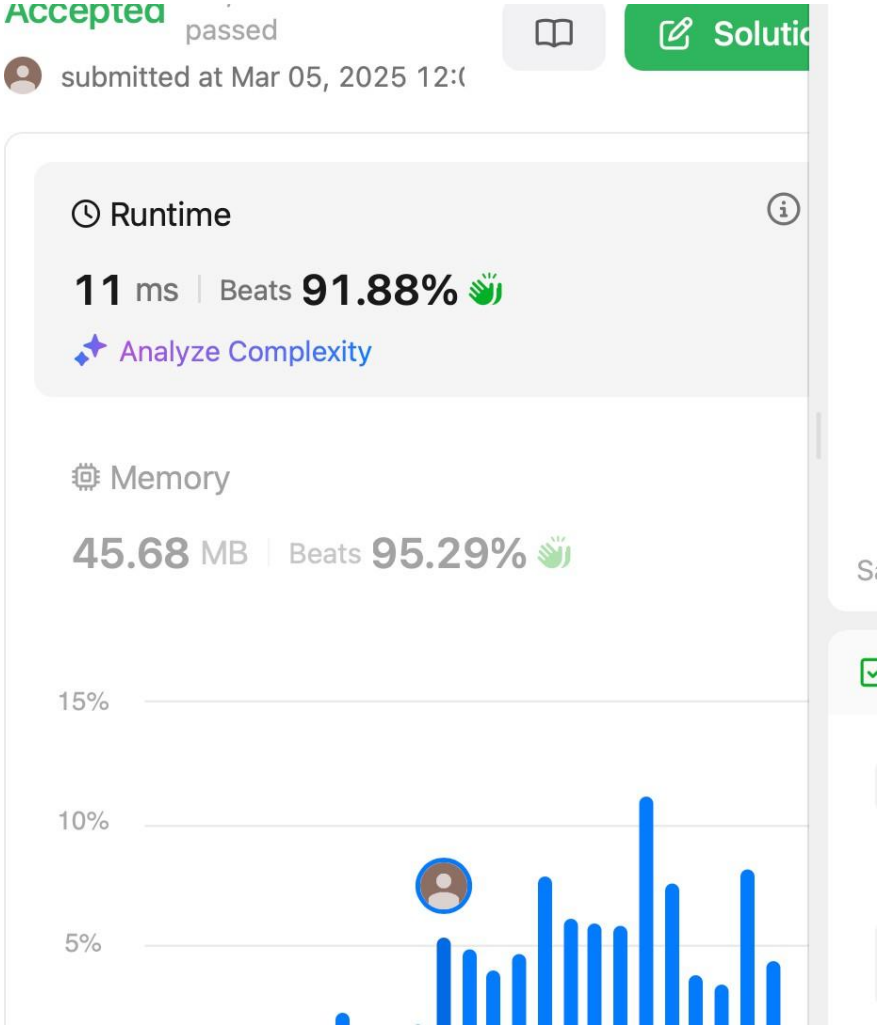
OUTPUT :


Accepted
passed
submitted at Mar 05, 2025 12:(
Solutic
Runtime
53 ms | Beats 41.35%
Analyze Complexity
Memory
93.90 MB | Beats 75.33%
75%
50%
25%

Q.6. **881. Boats to Save People**

```
class Solution {
public:
    int numRescueBoats(vector<int>& people, int limit) {
            int n = people.size();
            sort(begin(people) , end(people));

            int i = 0 ;
            int j = n-1;

            int boats = 0 ;

            while(i <= j){
             if(people[j] + people[i] <= limit){
                 i++;
                 j--;
             }
             else {
                 j--;
             }
             boats++ ;
          }

        return boats;
    }
};
```

Output :

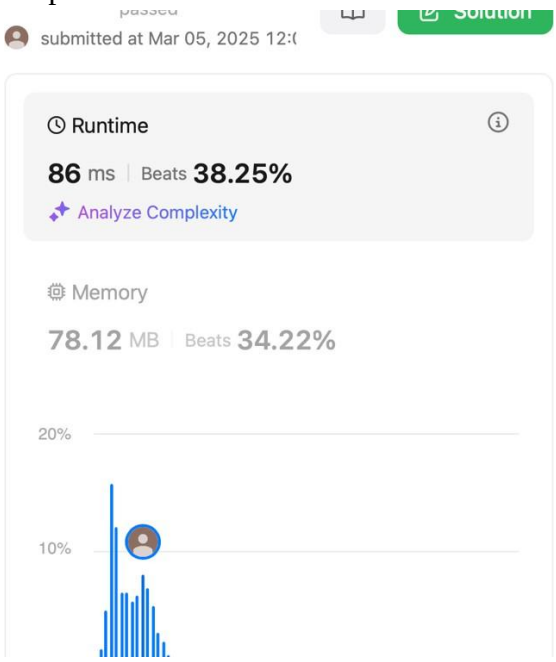


Q.7. **973. K Closest Points to Origin**

```cpp
#include <queue>
#include <vector>
using namespace std;

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

        for (const auto& point : points) {
            int x = point[0];
            int y = point[1];
            int distance = x * x + y * y;
```

```
            maxHeap.push({distance, 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:



Q.8 1338. Reduce Array Size to The Half

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

        vector<int> frequencies;
        for (auto [_, freq] : cnt) frequencies.push_back(freq);
        sort(frequencies.begin(), frequencies.end());

        int ans = 0, removed = 0, half = arr.size() / 2, i = frequencies.size() - 1;
        while (removed < half) {
            ans += 1;
            removed += frequencies[i--];
        }
        return ans;
    }
};
```

Output :