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SECTION- 22BCS-IOT-614/B

UID- 22BCS16892

Question – 1:

❖ HOUSE ROBBER

CODE:

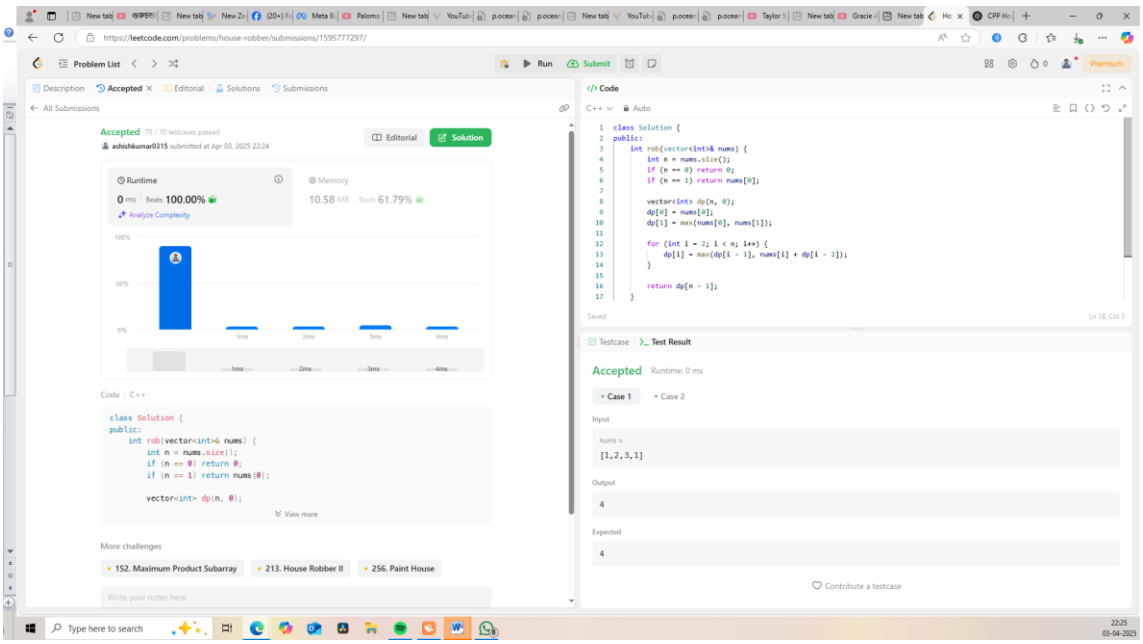
```
class Solution {
public:
    int rob(vector<int>& nums) {
        int n = nums.size();
        if (n == 0) return 0;
        if (n == 1) return nums[0];

        vector<int> dp(n, 0);
        dp[0] = nums[0];
        dp[1] = max(nums[0], nums[1]);

        for (int i = 2; i < n; i++) {
            dp[i] = max(dp[i - 1], nums[i] + dp[i - 2]);
        }

        return dp[n - 1];
    }
};
```

SCREENSHOT:



Question – 2:

❖ 70. Climbing Stairs

CODE:

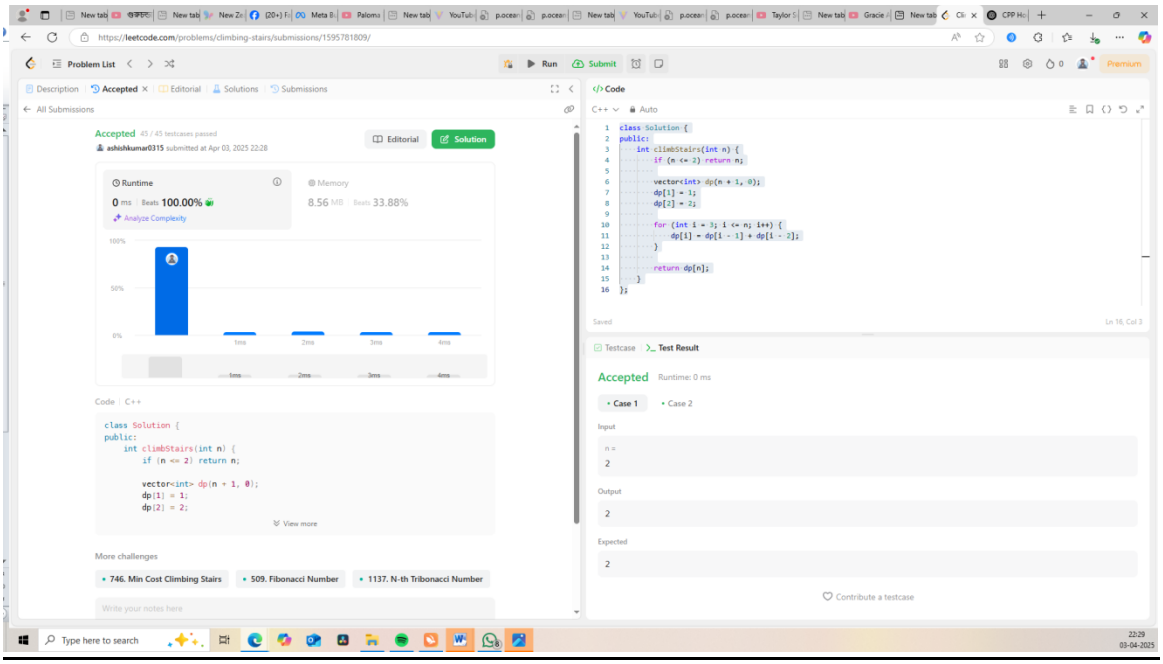
```
class Solution {
public:
    int climbStairs(int n) {
        if (n <= 2) return n;

        vector<int> dp(n + 1, 0);
        dp[1] = 1;
        dp[2] = 2;

        for (int i = 3; i <= n; i++) {
            dp[i] = dp[i - 1] + dp[i - 2];
        }

        return dp[n];
    }
};
```

SCREENSHOT:



Question – 3:

62. Unique Paths

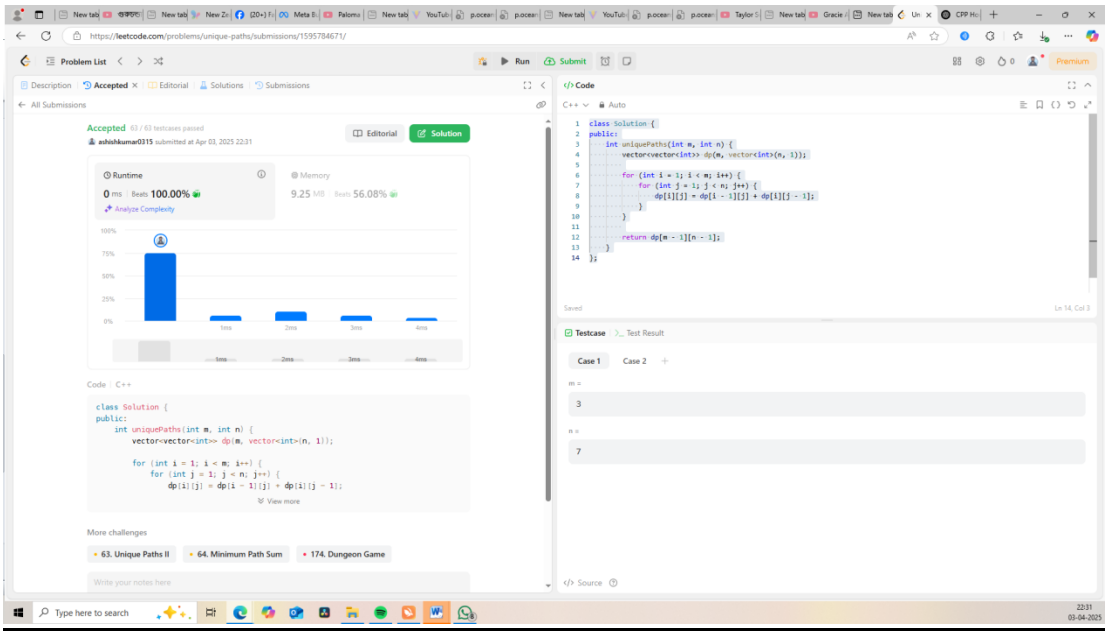
CODE:

```
class Solution {
public:
    int uniquePaths(int m, int n) {
        vector<vector<int>> dp(m, vector<int>(n, 1));

        for (int i = 1; i < m; i++) {
            for (int j = 1; j < n; j++) {
                dp[i][j] = dp[i - 1][j] + dp[i][j - 1];
            }
        }

        return dp[m - 1][n - 1];
    }
};
```

SCREENSHOT:



Question – 4:

❖ 53. Maximum Subarray

CODE:

```
class Solution {
public:
    int maxSubArray(vector<int>& nums) {
        int maxSum = nums[0], currentSum = nums[0];

        for (int i = 1; i < nums.size(); i++) {
            currentSum = max(nums[i], currentSum + nums[i]);
            maxSum = max(maxSum, currentSum);
        }

        return maxSum;
    }
};
```

SCREENSHOT: