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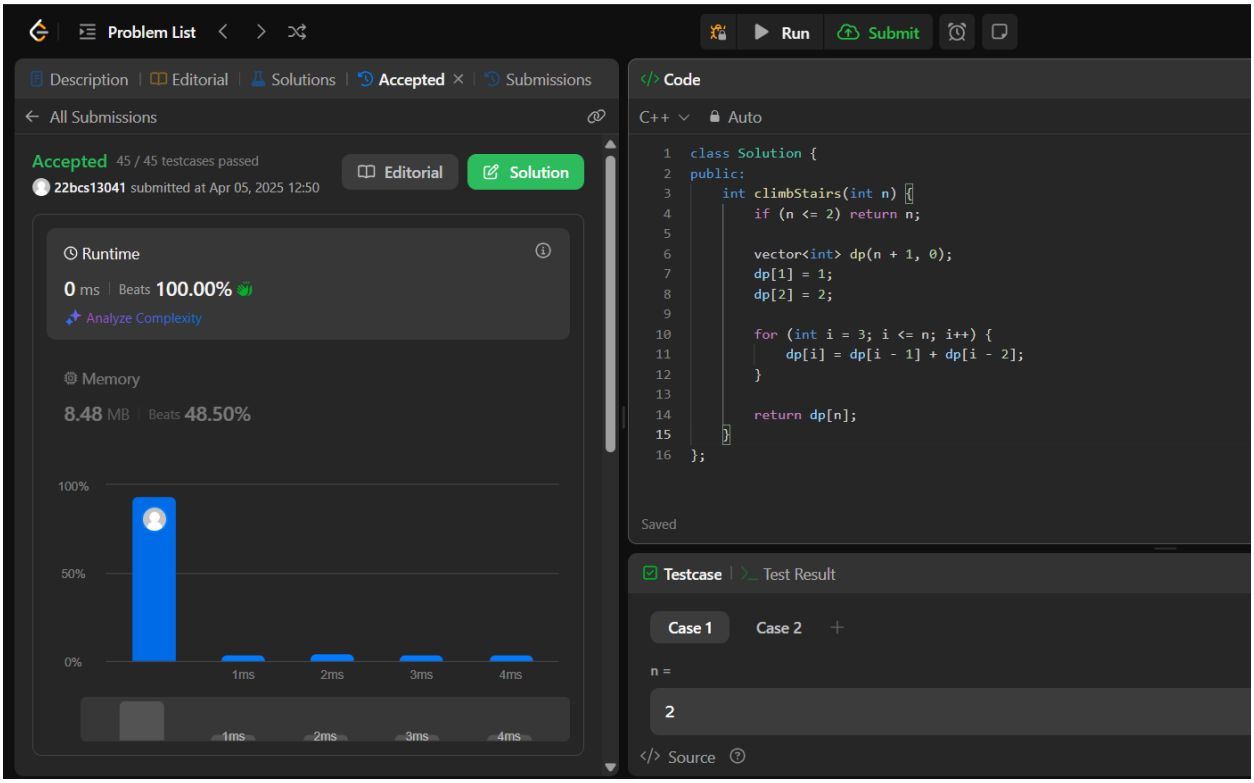
Sec: FL_IOT-601/ A
Sub: AP Lab -II

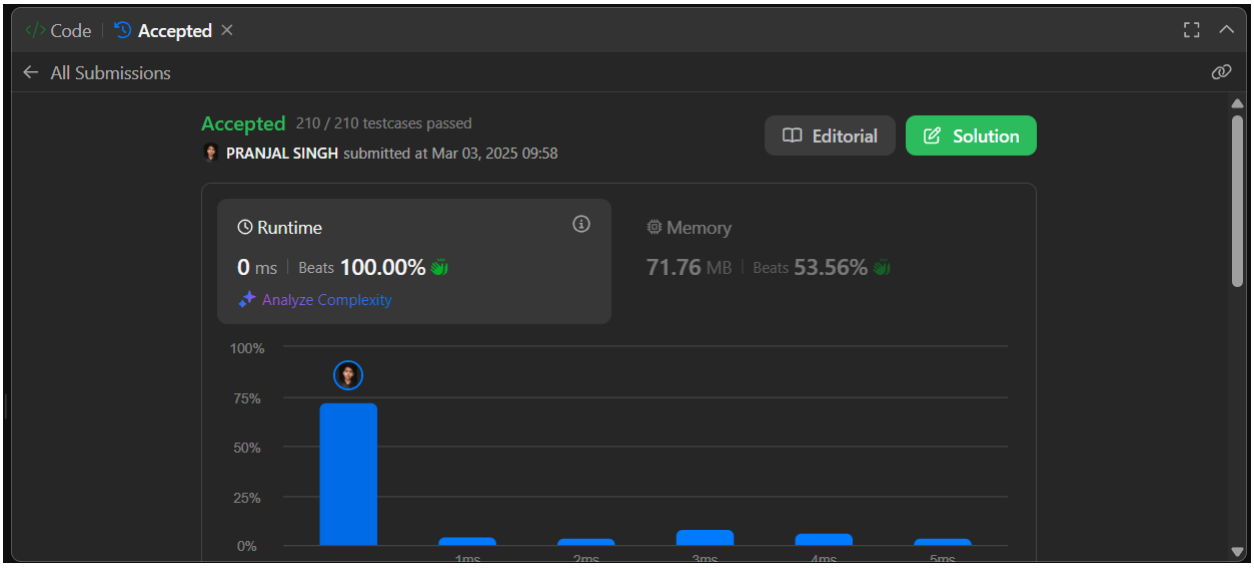
Climbing Stairs

```
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];
    }
};
```



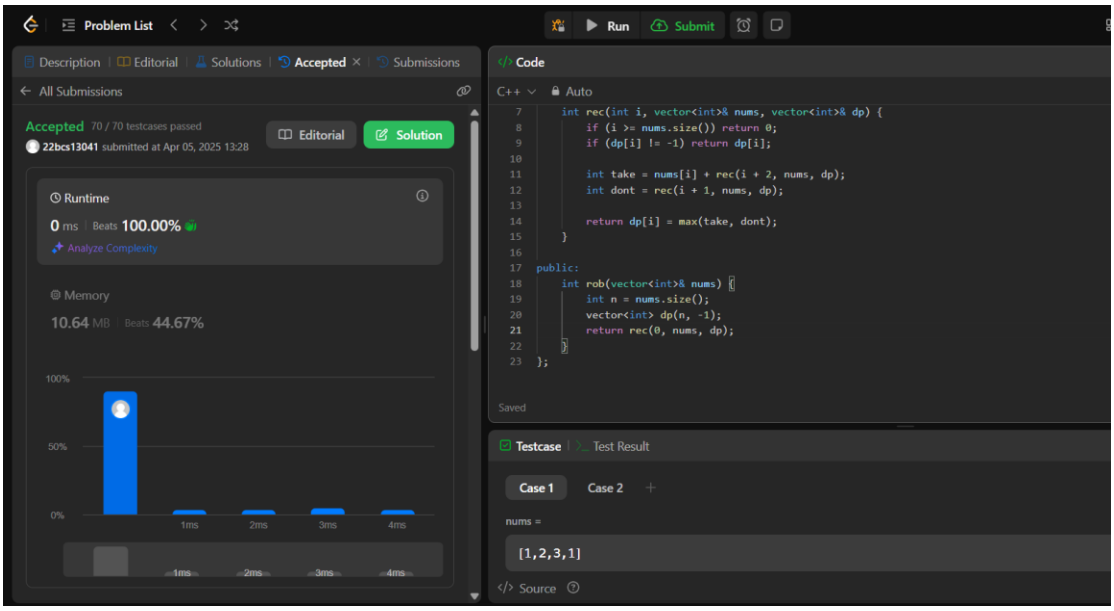
Maximum Subarray

```
class Solution {
public:
   int maxSubArray(vector<int>& nums) {
      // Kadane's Algo...
      int maximumsum=INT_MIN;
      int currentsum=0;
      for(int i =0;i<nums.size();i++){
         currentsum=currentsum+nums[i];
         maximumsum=max(currentsum,maximumsum);
         if(currentsum<0){
            currentsum=0;
         }
      }
      return maximumsum;
   }
};
```



House Robber

```
#include <vector>
#include <algorithm>
using namespace std;

class Solution {
private:
    int rec(int i, vector<int>& nums, vector<int>& dp) {
        if (i >= nums.size()) return 0;
        if (dp[i] != -1) return dp[i];

        int take = nums[i] + rec(i + 2, nums, dp);
        int dont = rec(i + 1, nums, dp);

        return dp[i] = max(take, dont);
    }

public:
    int rob(vector<int>& nums) {
        int n = nums.size();
        vector<int> dp(n, -1);
        return rec(0, nums, dp);
    }
};
```



Jump Game

```
class Solution
{
public:
   bool canJump(vector<int> &nums){
      if(nums.size() == 1) return true;
      int prevGreatestNum = nums[0];
      for (int i = 0; i < nums.size() - 1; i++){
         if (nums[i] != 0){
            if (nums[i] + i + 1 >= nums.size()) {
               return true;
            }
         }
         else {
            if (prevGreatestNum <= 0) {
               break;
            }
         }
         prevGreatestNum = max(prevGreatestNum, nums[i]);
         prevGreatestNum--;
      }
      return false;
   }
};
```