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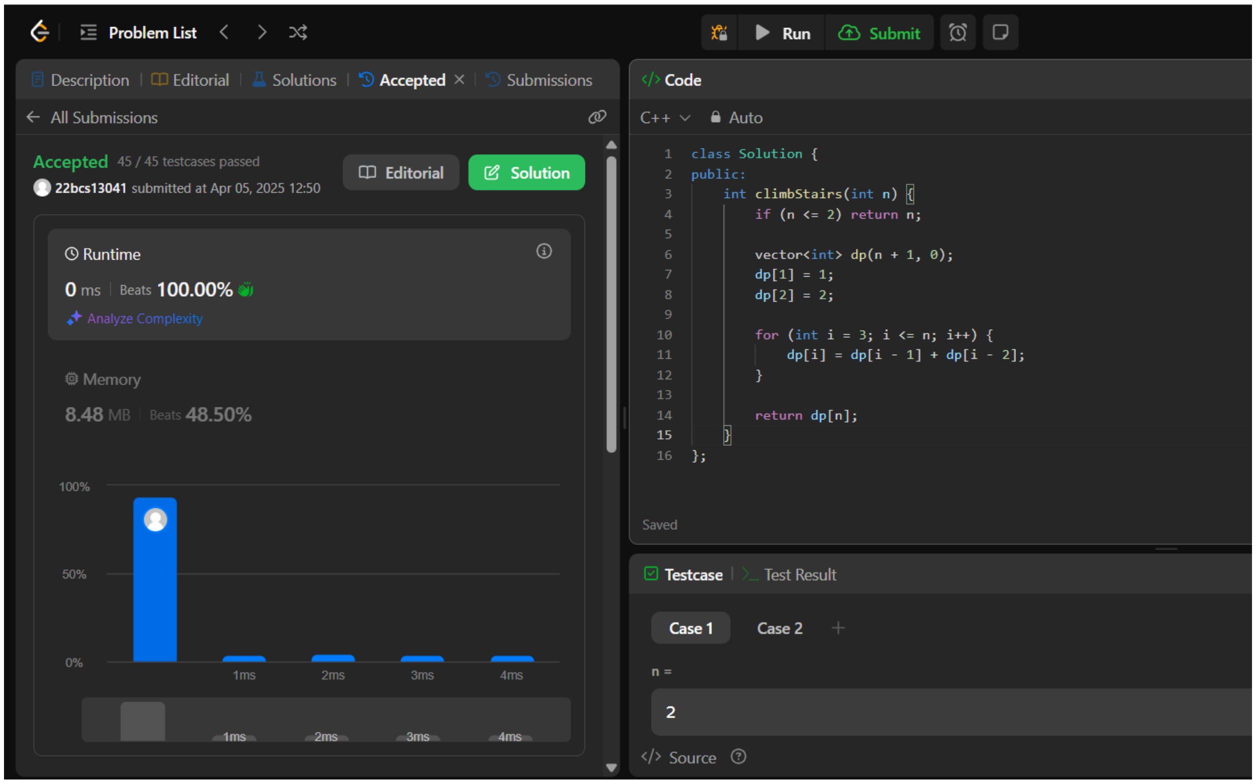
Sec: FL_IOT-601/ A **Sub:** AP Lab -II

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];
   }
};
```



Accepted 45 / 45 testcases passed
22bcs13041 submitted at Apr 05, 2025 12:50

Runtime
0 ms | Beats 100.00%

Memory
8.48 MB | Beats 48.50%

```
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];
    }
};
```

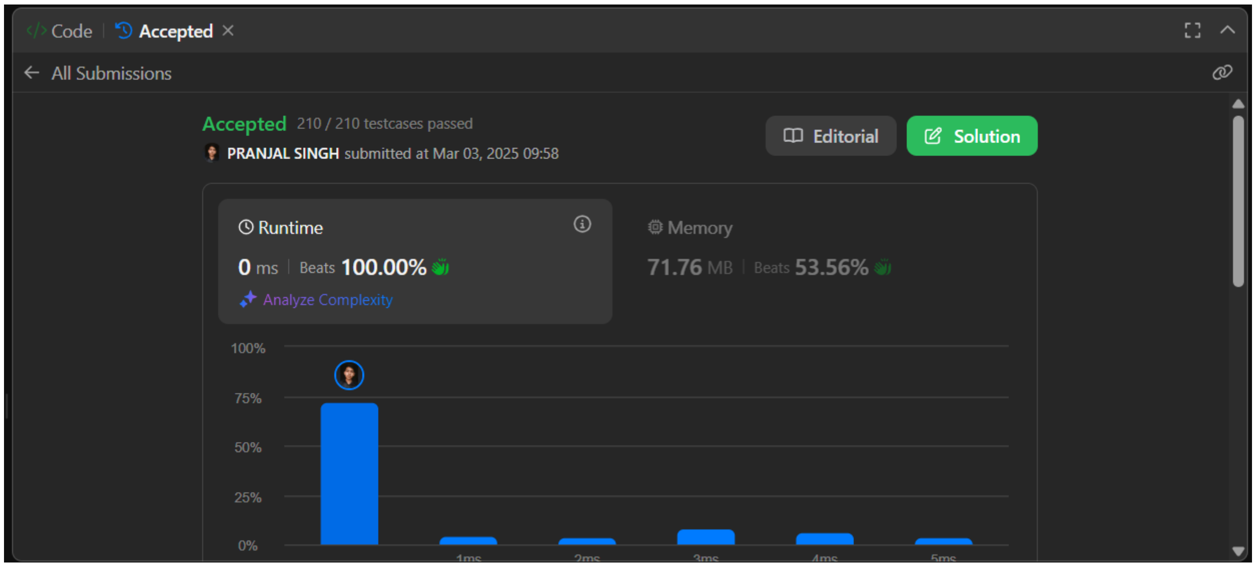
Saved

Case 1 Case 2

n =
2

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;
    }
};
```



Accepted 210 / 210 testcases passed

PRANJAL SINGH submitted at Mar 03, 2025 09:58

Runtime

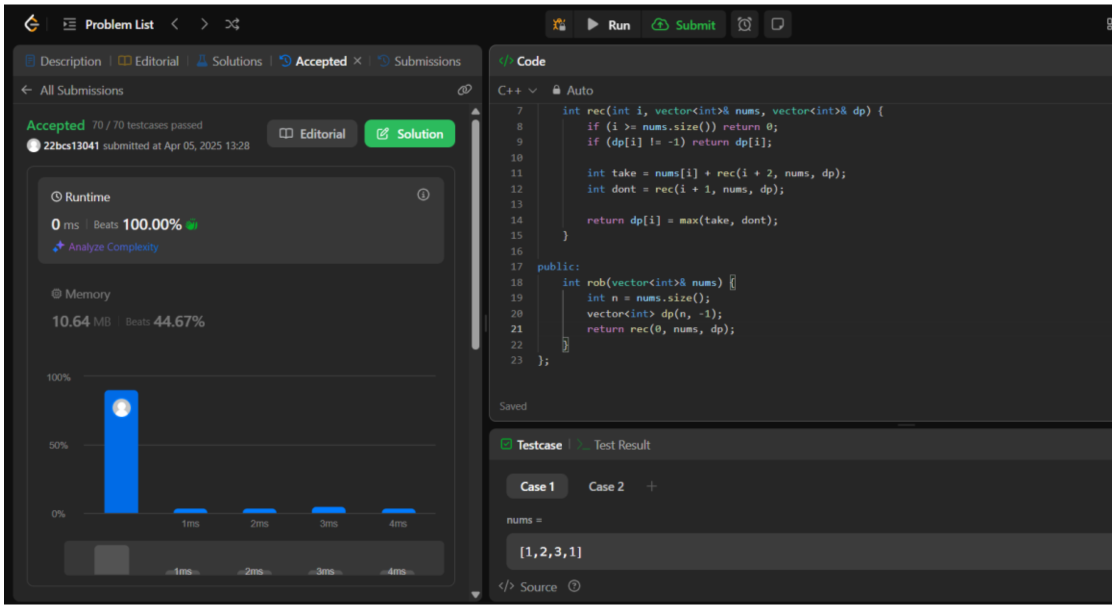
0 ms | Beats 100.00%

Memory

71.76 MB | Beats 53.56%

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);
    }
};
```



Accepted 70 / 70 testcases passed
22bcs13041 submitted at Apr 05, 2025 13:28

Runtime
0 ms | Beats 100.00%

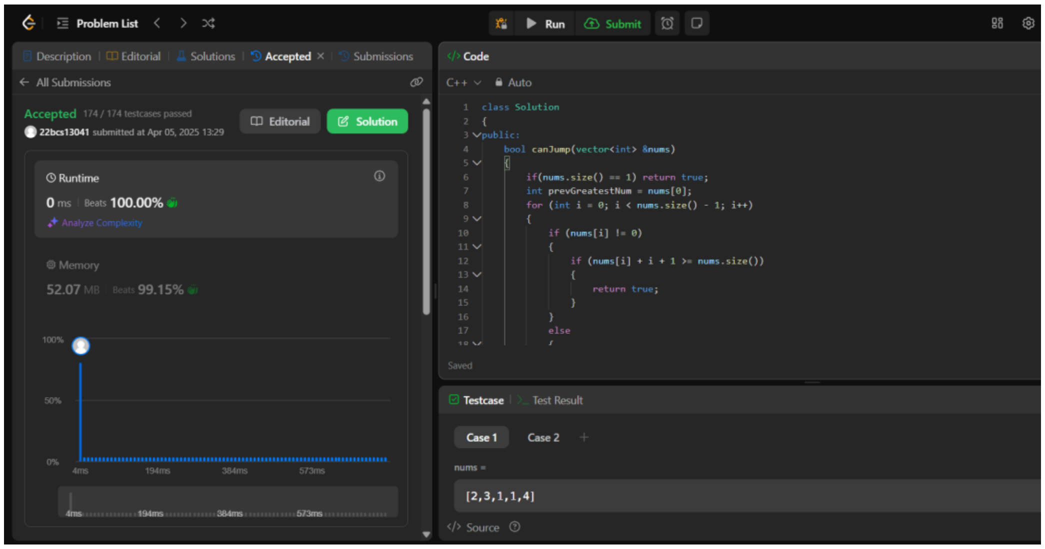
Memory
10.64 MB | Beats 44.67%

```
    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);
    }
};
```

nums =
[1,2,3,1]

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;
    }
};
```



Accepted 174 / 174 testcases passed

22bcs13041 submitted at Apr 05, 2025 13:29

Runtime

0 ms | Beats 100.00%

Memory

52.07 MB | Beats 99.15%

```
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
```

nums =

```
[2,3,1,1,4]
```