

DSA Assignment - 18 June

Name - Arpit Mahala

Roll.No - 23/11/EC/025

LeetCode Id - <https://leetcode.com/u/Arpit-Mahala/>

GeekforGeeks- <https://www.geeksforgeeks.org/user/arpitmay36m/>

Github Repo Link -

https://github.com/Arpit-Mahala1/2025_Internship_Training

1. Two Sum

- Platform: LeetCode
- Link: <https://leetcode.com/problems/two-sum/>

The screenshot displays the LeetCode submission interface for the 'Two Sum' problem. The top navigation bar includes links for Description, Accepted (63 / 63 testcases passed), Editorial, Solutions, and Submissions. The submission is by 'Arpit Mahala' and was submitted on Jun 19, 2025 at 12:20. The solution is marked as 'Accepted'.

Runtime and Memory Summary:

- Runtime: 35 ms, Beats: 39.21%
- Memory: 14.00 MB, Beats: 93.12%

A performance graph shows the runtime distribution across various time intervals, with a peak at 35ms.

Code Editor: The code is written in C++ and implements a brute-force solution for the Two Sum problem. It uses a nested loop to check all possible pairs of numbers in the input array.

```
1 class Solution {
2 public:
3     vector<int> twoSum(vector<int>& nums, int target) {
4         int n = nums.size();
5         for(int i=0; i<n; i++){
6             for(int j=i+1; j<n; j++){
7                 if(nums[i]+nums[j]==target){
8                     return {i, j};
9                 }
10            }
11        }
12        return {0,0};
13    }
14};
```

Testcase Results: The solution is 'Accepted' with a runtime of 0 ms. The input for the test case is:

```
nums = [2,7,11,15]
target = 9
```

2. Alone in Couple

- Platform: GeeksforGeeks

- Link:

<https://www.geeksforgeeks.org/problems/alone-in-couple5507/0>

The screenshot displays the GeeksforGeeks problem-solving interface. On the left, the 'Output Window' shows 'Compilation Results' for 'Custom Input' by 'Y.O.G.I. (AI Bot)'. It confirms the 'Problem Solved Successfully' with 1111 test cases passed out of 1111, 100% accuracy, 2/2 points scored, and a time taken of 0.58 seconds. Below this, it suggests solving the 'Josephus problem' and lists 'Generate Grey Code Sequences' and 'Xoring and Clearing' as next steps. A 'Suggested Contest' section mentions the 'Job-A-Thon Hiring Challenge'. The right side of the interface shows the C++ code for the solution, which is a user function template for finding a single element in an array using XOR.

```
1 // User function Template for C++
2
3 class Solution {
4 public:
5     int findSingle(vector<int> &arr) {
6         int n= arr.size();
7         int ans=0;
8         for(int i=0; i<n; i++){
9             ans ^= arr[i];
10        }
11        return ans;
12    }
13 }
14
```

3. Best Time to Buy and Sell Stock

- Platform: LeetCode

- Link:

<https://leetcode.com/problems/best-time-to-buy-and-sell-stock/>

The screenshot displays the LeetCode interface for the 'Best Time to Buy and Sell Stock' problem. On the left, the 'Submissions' tab is active, showing a table of recent submissions. The table has columns for Status, Language, Runtime, and Memory. The most recent submission (ID 7) is 'Accepted' in C++ with a runtime of 0 ms and memory of 97.3 MB. Below it, submission ID 6 is also 'Accepted' in C++ with a runtime of 1 ms and memory of 97.3 MB. Submission ID 5 is 'Accepted' in C++ with a runtime of 8 ms and memory of 97.3 MB. Submission ID 4 is 'Accepted' in Java with a runtime of 2 ms and memory of 62.3 MB. Submission ID 3 is 'Accepted' in C# with a runtime of 2 ms and memory of 59.3 MB. Submission ID 2 is 'Accepted' in C++ with a runtime of 0 ms and memory of 97.3 MB. Submission ID 1 is 'Wrong Answer' in C++ with a runtime of N/A and memory of N/A.

On the right, the 'Code' tab is active, showing a C++ solution. The code is as follows:

```
1 class Solution {
2 public:
3     int maxProfit(vector<int>& prices) {
4         int n = prices.size();
5         int minPrice = INT_MAX;
6         int maxProfit = 0;
7         for(int i=0; i<n; i++){
8             minPrice = min(minPrice, prices[i]);
9             maxProfit = max(maxProfit, prices[i] - minPrice);
10        }
11        return maxProfit;
12    }
13};
```

Below the code, the 'Testcase' tab is active, showing the 'Test Result' for 'Case 1'. The result is 'Accepted' with a runtime of 0 ms. The input is 'prices = [7,1,5,3,6,4]'.

4. Sort Colors

- Platform: LeetCode
- Link: <https://leetcode.com/problems/sort-colors/>

The screenshot displays the LeetCode submission interface for the 'Sort Colors' problem. The top navigation bar includes links for Description, Accepted (89 / 89 testcases passed), Editorial, Solutions, and Submissions. The submission is by 'Arpit Mahala' and was submitted on Jun 19, 2025 at 20:33. The status is 'Accepted'.

The performance metrics show a Runtime of 0 ms, beating 100.00% of submissions, and a Memory usage of 11.56 MB, beating 78.92% of submissions. A bar chart below these metrics shows the distribution of runtime performance across different time intervals (1ms, 2ms, 3ms, 4ms).

The C++ code is as follows:

```
9  if(nums[i]==0){
10     number0++;
11 }else if(nums[i]==1){
12     number1++;
13 }else{
14     number2++;
15 }
16
17 for(int i=0; i<number0; i++){
18     nums[i]=0;
19 }
20 for(int i=number0; i<number0+number1; i++){
21     nums[i]=1;
22 }
23 for(int i=number0+number1; i<n; i++){
24     nums[i]=2;
25 }
26
27 ;
```

The test results show 'Accepted' with a Runtime of 0 ms. The input for Case 1 is 'nums = [2,0,2,1,1,0]' and the output is empty.