

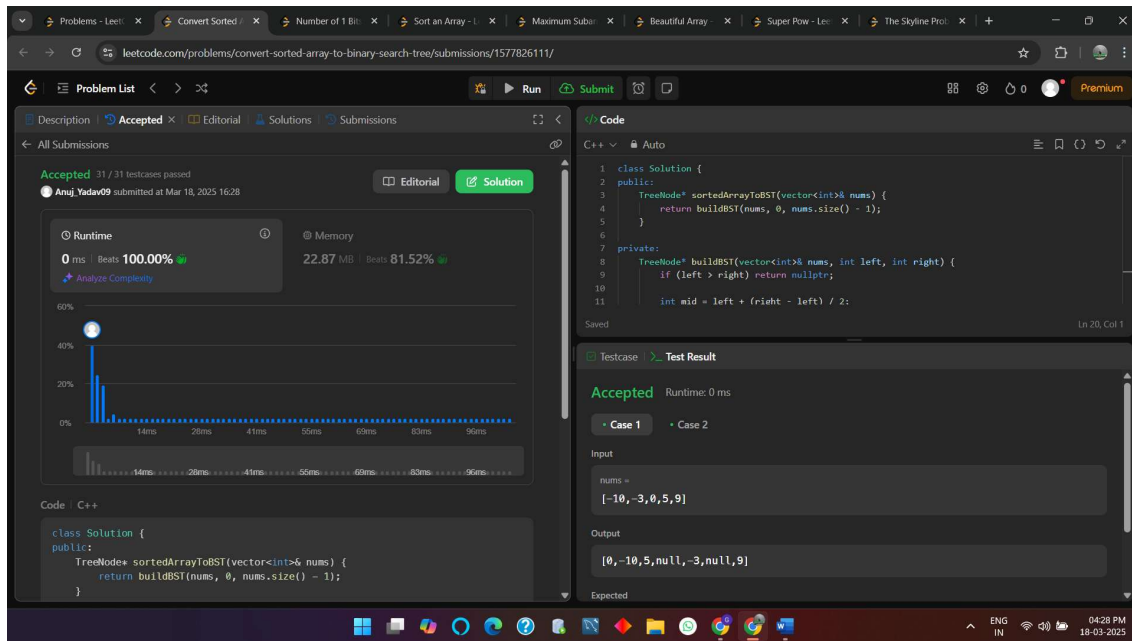
# AP ASSIGNMENT 6

NAME: GAURAV GARG

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SECTION: FL\_IOT\_603/A

## 108. [Convert Sorted Array to Binary Search Tree](#)



## 191. [Number of 1 Bits](#)

GitHub | Convert Sorted Array to BST | CU-Assignments/assignment-1 | Number of 1 Bits - LeetCode | Super Pow - LeetCode

leetcode.com/problems/number-of-1-bits/

Problem List | Description | Editorial | Solutions | Submissions | Accepted

Accepted 601 / 601 testcases passed  
GAURAV GARG submitted at Jul 14, 2023 17:28

Runtime: 0 ms | Beats 100.00% | Memory: 5.96 MB | Beats 100.00%

Code | C++

```
class Solution {
public:
    int hammingWeight(uint32_t n) {
        int count = 0;
        while(n != 0) {
            int bit = n & 1;
            if(bit == 1) {
                count++;
            }
            n = n >> 1;
        }
        return count;
    }
};
```

## 912. Sort an Array

Problems - LeetCode | Sort an Array - LeetCode | Maximum Subarray - LeetCode | Beautiful Array - LeetCode | Super Pow - LeetCode | The Skyline Problem - LeetCode

leetcode.com/problems/sort-an-array/submissions/1577827462/

Problem List | Description | Accepted | Editorial | Solutions | Submissions

Accepted 21 / 21 testcases passed  
Anuj\_Yadav09 submitted at Mar 18, 2025 16:30

Runtime: 404 ms | Beats 38.10% | Memory: 185.75 MB | Beats 25.68%

Code | C++

```
class Solution {
public:
    void merge(vector<int>& nums, int left, int mid, int right) {
        int n1 = mid - left + 1;
        int n2 = right - mid;
```

## 53. Maximum Subarray

Problems - LeetCode | Sort an Array - LeetCode | Maximum Subarray - LeetCode | Beautiful Array - LeetCode | Super Pow - LeetCode | The Skyline Problem - LeetCode

leetcode.com/problems/maximum-subarray/

Problem List | Description | Editorial | Solutions | Submissions | Accepted

All Submissions

Accepted 210 / 210 testcases passed  
Anuj\_Yadav09 submitted at Feb 05, 2025 17:27

Runtime: 1 ms | Beats: 99.52% | Memory: 57.38 MB | Beats: 21.29%

Code: Java

```
class Solution {
    public int maxSubArray(int[] nums) {
        int maxSum = Integer.MIN_VALUE;
        int currentSum = 0;

        for (int i = 0; i < nums.length; i++) {
            currentSum += nums[i];
            if (currentSum > maxSum) {
                maxSum = currentSum;
            }
        }
    }
}
```

Testcase: Test Result

Case 1 Case 2 Case 3

nums = [-2,1,-3,4,-1,2,1,-5,4]

Source

## 932. Beautiful Array

Problems - LeetCode | Sort an Array - LeetCode | Beautiful Array - LeetCode | Super Pow - LeetCode | The Skyline Problem - LeetCode

leetcode.com/problems/beautiful-array/

Problem List | Description | Editorial | Solutions | Submissions | Accepted

All Submissions

Accepted 38 / 38 testcases passed  
Anuj\_Yadav09 submitted at Feb 05, 2025 23:33

Runtime: 0 ms | Beats: 100.00% | Memory: 42.50 MB | Beats: 64.38%

Code: Java

```
class Solution {
    public int[] beautifulArray(int N) {
        int[] res = new int[N];
        if (N == 1) {
            return new int[] {1};
        }
        else if (N == 2) {
            return new int[] {1, 2};
        }
    }
}
```

Testcase: Test Result

Accepted Runtime: 0 ms

Case 1 Case 2

Input: n = 4

Output: [1,3,2,4]

Expected:

## 372. Super Pow

GitHub | Convert Sorted Array to BST | CU-Assignments/assignment-1 | Super Pow - LeetCode

leetcode.com/problems/super-pow/

Problem List | Description | Editorial | Solutions | Submissions | Accepted x

All Submissions

Accepted 57 / 57 testcases passed

GAURAV GARG submitted at Feb 20, 2025 10:57

Runtime: 0 ms | Beats 100.00% | Memory: 15.29 MB | Beats 51.99%

Analyze Complexity

Code | C++

```
#include <vector>

class Solution {
public:
    const int MOD = 1337;

    int modPow(int x, int y, int mod) {
        int res = 1;
        x %= mod;
        while (y > 0) {
            if (y % 2 == 1) res = (res * x) % mod;
            x = (x * x) % mod;
            y /= 2;
        }
        return res;
    }

    int superPow(int a, std::vector<int>& b) {
        int result = 1;
        for (int digit : b) {
            result = modPow(result, 10, MOD) * modPow(a, digit, MOD) % MOD;
        }
        return result;
    }
};
```

Saved

Ln 16, Col 6

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## 218. The Skyline Problem

Problems - LeetCode | Sort an Array - LeetCode | The Skyline Problem - LeetCode

leetcode.com/problems/the-skyline-problem/

Problem List | Description | Editorial | Solutions | Submissions | Accepted x

All Submissions

Accepted 44 / 44 testcases passed

Anuj Yadav09 submitted at Feb 05, 2025 23:37

Runtime: 41 ms | Beats 52.14% | Memory: 50.40 MB | Beats 95.14%

Analyze Complexity

Code | Java

```
class Solution {
    public List<List<Integer>> getSkyLine(int[][] B) {
        //think of this array as bars representing borders of buildings
        int[][] H = new int[2 * B.length][2];
        for (int i = 0; i < B.length; i++) {
            H[i * 2] = new int[]{B[i][0], -B[i][2]}; //left, -height
            H[i * 2 + 1] = new int[]{B[i][1], B[i][2]}; //right, height
        }
        //sort the bars based on position, use height as tie-breaker
        Arrays.sort(H, (a, b) -> a[0] != b[0] ? a[0] - b[0] : a[1] - b[1]);
        //reason for not choosing priority queue is removal of given item other than root can
    }
}
```

Saved

Ln 31, Col 2

Testcase | Test Result

Accepted Runtime: 1 ms

Case 1

Input

buildings =

[ [2,9,10], [3,7,15], [5,12,12], [15,20,10], [19,24,8] ]

Output

[ [2,10], [3,15], [7,12], [12,0], [15,10], [20,8], [24,0] ]

Expected

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