DEPARTMENT OF
COMPUTER SCIENCE & ENGINEERING
CHANDIGARH UNIVERSITY
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ASSIGNMENT 6

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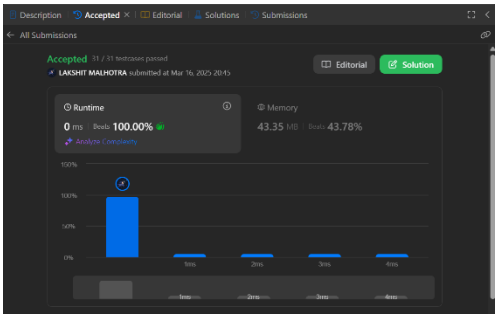
BRANCH: CSE **SECTION:** 22BCS_FL_IOT_601A
SEMESTER: 6 **DATE OF SUBMISSION:** 16/3/25
SUBJECT NAME: AP LAB -2 **SUBJECT CODE:** 22CSP-351

LEET CODE QUESTIONS :

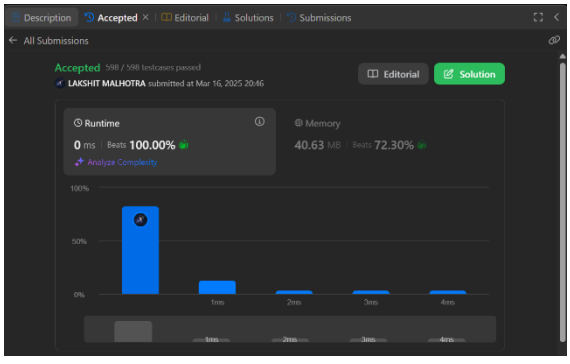
108.CONVERT SORTED ARRAY TO BINARY SEARCH TREE

```
class Solution {
    public TreeNode sortedArrayToBST(int[] nums) {
        return helper(nums, 0, nums.length - 1);
    }
    private TreeNode helper(int[] nums, int left, int right) {
        if (left > right) return null;
        int mid = left + (right - left) / 2;
        TreeNode node = new TreeNode(nums[mid]);
        node.left = helper(nums, left, mid - 1);
        node.right = helper(nums, mid + 1, right);
        return node;
    }
}
```

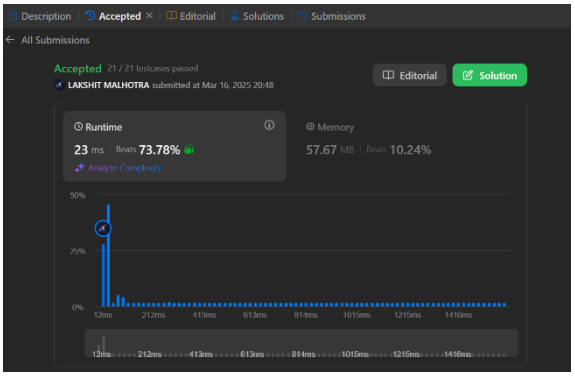


191.NUMBER OF 1 BITS

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

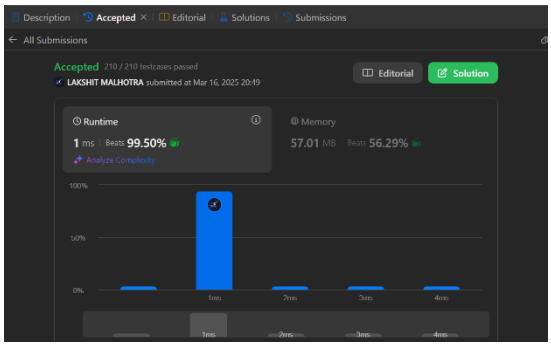


912.SORT AN ARRAY

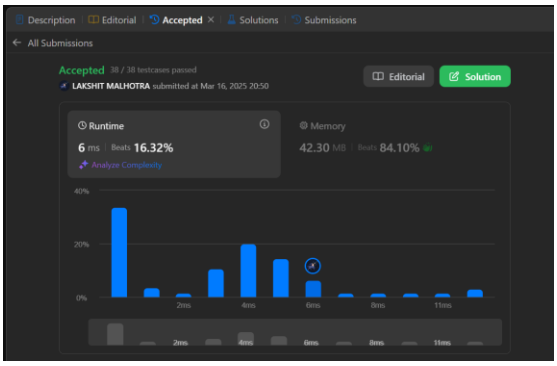



```
class Solution {
    public int[] sortArray(int[] nums) {
        mergeSort(nums, 0, nums.length - 1);
        return nums;
    }
    private void mergeSort(int[] nums, int left, int right)
{
        if (left >= right) return;
        int mid = left + (right - left) / 2;
        mergeSort(nums, left, mid);
        mergeSort(nums, mid + 1, right);
        merge(nums, left, mid, right);
    }
    private void merge(int[] nums, int left, int mid, int right) {
        int[] temp = new int[right - left + 1];
        int i = left, j = mid + 1, k = 0;
        while (i <= mid && j <= right) {
            if (nums[i] <= nums[j]) temp[k++] = nums[i++];
            else temp[k++] = nums[j++];
        }
        while (i <= mid) temp[k++] = nums[i++];
        while (j <= right) temp[k++] = nums[j++];
        System.arraycopy(temp, 0, nums, left, temp.length);
    }
}
```

53.MAXIMUM SUBARRAY

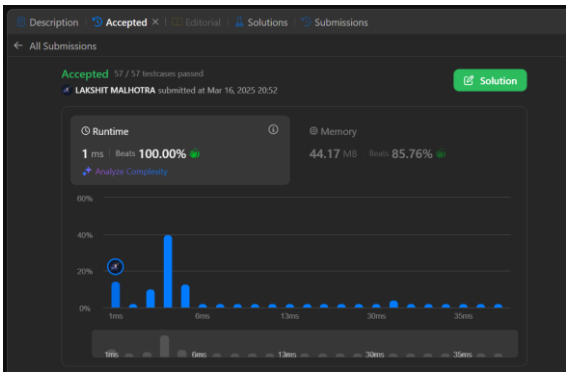



```
class Solution {
    public int maxSubArray(int[] nums) {
        int maxSum = nums[0], currSum = nums[0];
        for (int i = 1; i < nums.length; i++) {
            currSum = Math.max(nums[i], currSum +
nums[i]);
            maxSum = Math.max(maxSum, currSum);
        }
        return maxSum;
    }
}
```



932.BEAUTIFUL ARRAY

```
class Solution {
    public int[] beautifulArray(int n) {
        List<Integer> res = new ArrayList<>();
        res.add(1);
        while (res.size() < n) {
            List<Integer> temp = new ArrayList<>();
            for (int num : res) if (num * 2 - 1 <= n) temp.add(num * 2 - 1);
            for (int num : res) if (num * 2 <= n) temp.add(num * 2);
            res = temp;
        }
        return res.stream().mapToInt(i -> i).toArray();
    }
}
```



372.SUPER POW

```
class Solution {
    private static final int MOD = 1337;
    public int superPow(int a, int[] b) {
        return modPow(a, arrayToInt(b), MOD);
    }
    private int arrayToInt(int[] b) {
        int num = 0;
        for (int digit : b) num = (num * 10 + digit) % 1140;
        return num == 0 ? 1140 : num;
    }
    private int modPow(int a, int b, int mod) {
        a %= mod;
        int res = 1;
        while (b > 0) {
            if ((b & 1) == 1) res = (res * a) % mod;
            a = (a * a) % mod;
            b >>= 1;
        }
        return res;
    }
}
```

218.THE SKYLINE PROBLEM

```
class Solution {
    public List<List<Integer>> getSkyline(int[][] buildings) {
        List<int[]> events = new ArrayList<>();
        for (int[] b : buildings) {
            events.add(new int[]{b[0], -b[2]});
            events.add(new int[]{b[1], b[2]});
        }
        Collections.sort(events, (a, b) -> a[0] == b[0] ? Integer.compare(a[1], b[1]) :
Integer.compare(a[0], b[0]));
        List<List<Integer>> res = new ArrayList<>();
        TreeMap<Integer, Integer> heightMap = new
TreeMap<>(Collections.reverseOrder());
        heightMap.put(0, 1);
        int prevHeight = 0;
        for (int[] e : events) {
            if (e[1] < 0) heightMap.put(-e[1], heightMap.getOrDefault(-e[1], 0) + 1);
            else {
                if (heightMap.get(e[1]) == 1) heightMap.remove(e[1]);
                else heightMap.put(e[1], heightMap.get(e[1]) - 1);
            }
            int currHeight = heightMap.firstKey();
            if (currHeight != prevHeight) {
                res.add(Arrays.asList(e[0], currHeight));
                prevHeight = currHeight;
            }
        }
        return res;
    }
}
```