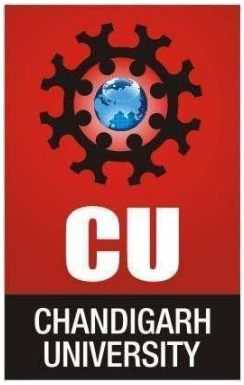


Subject: Advance programming lab

Subject code: 22CSH-351

Assignment No.: 4

Student Name: Muskan

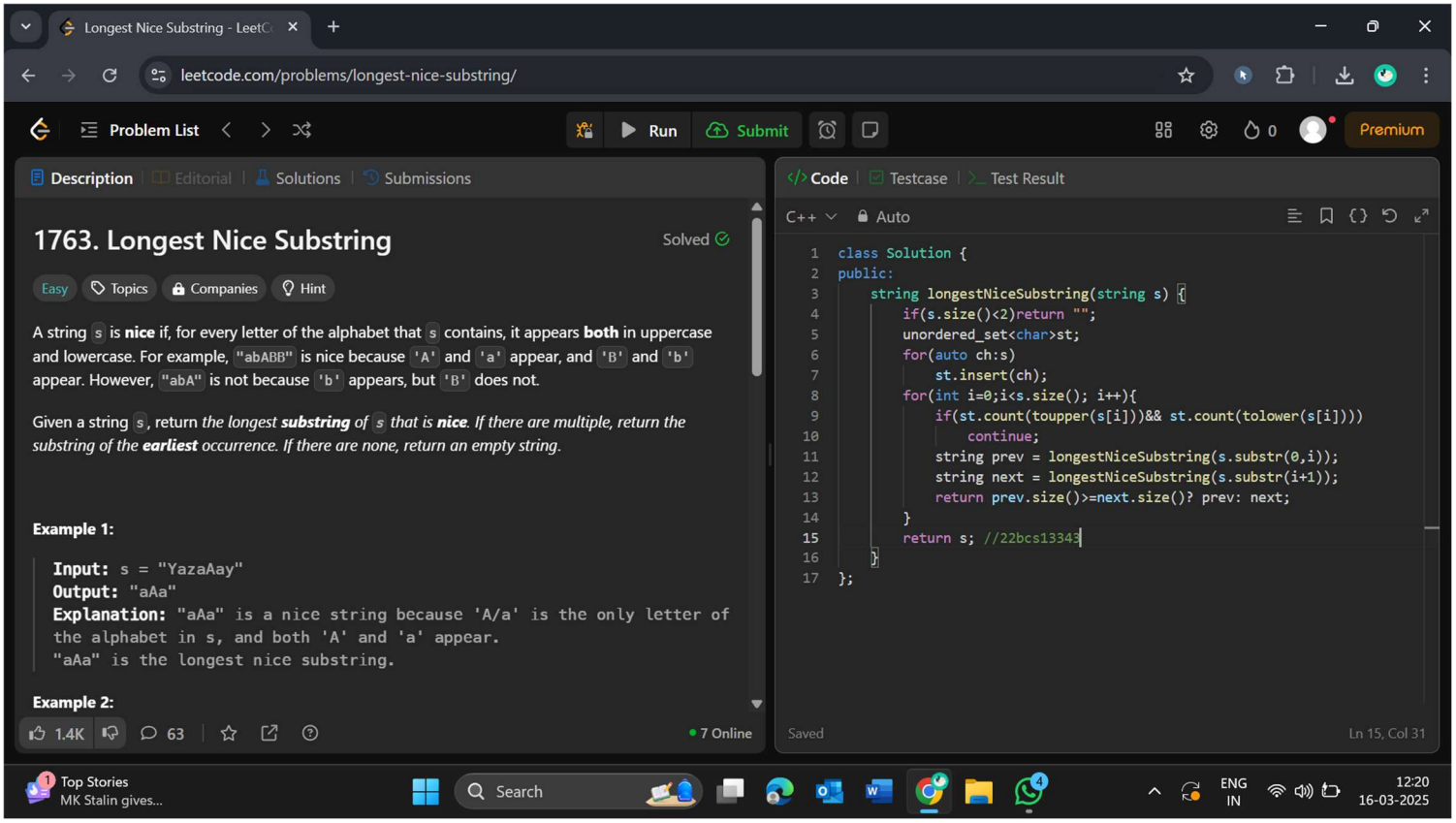
UID: 22BCS13343

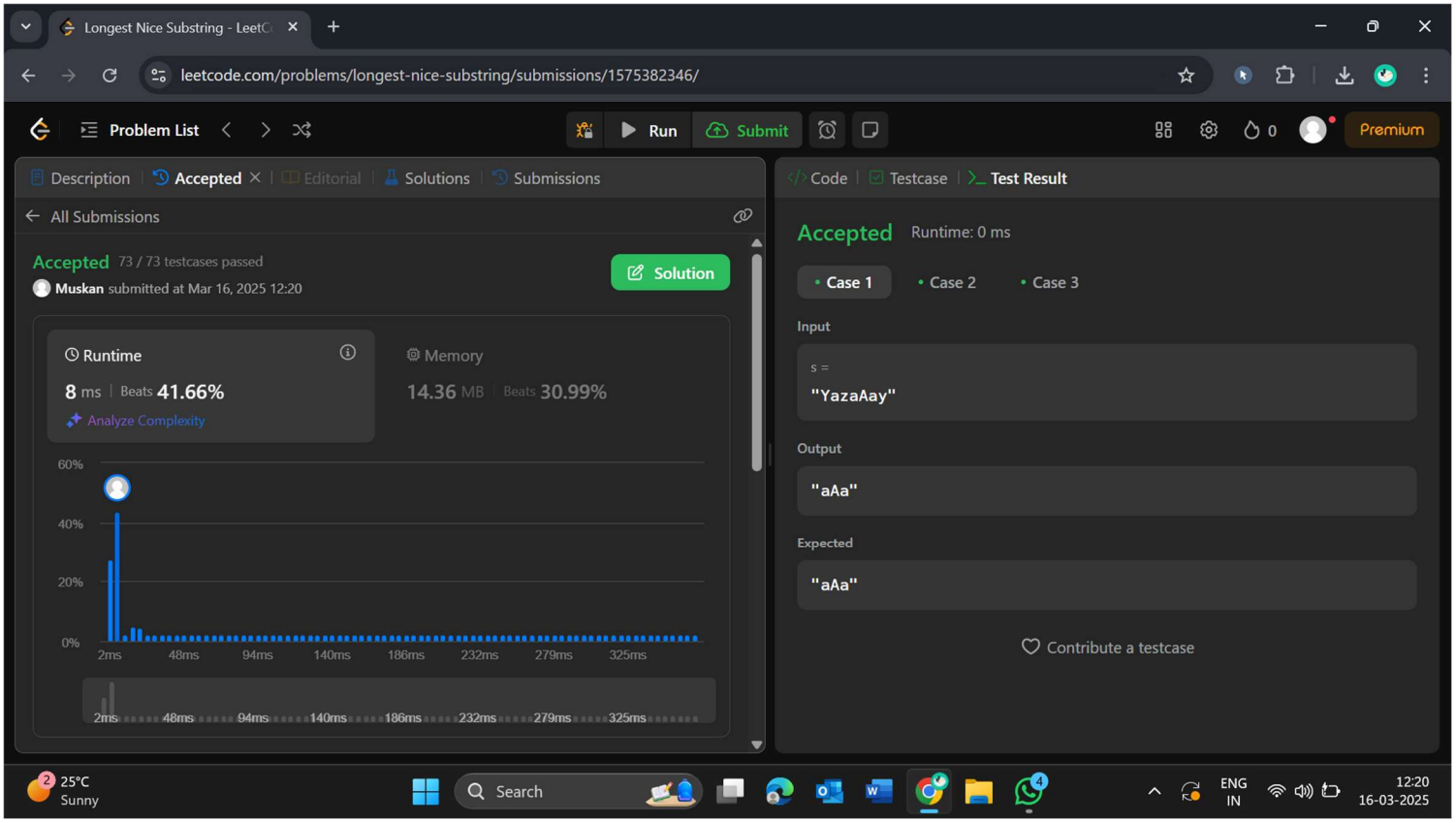
Branch: BE-CSE

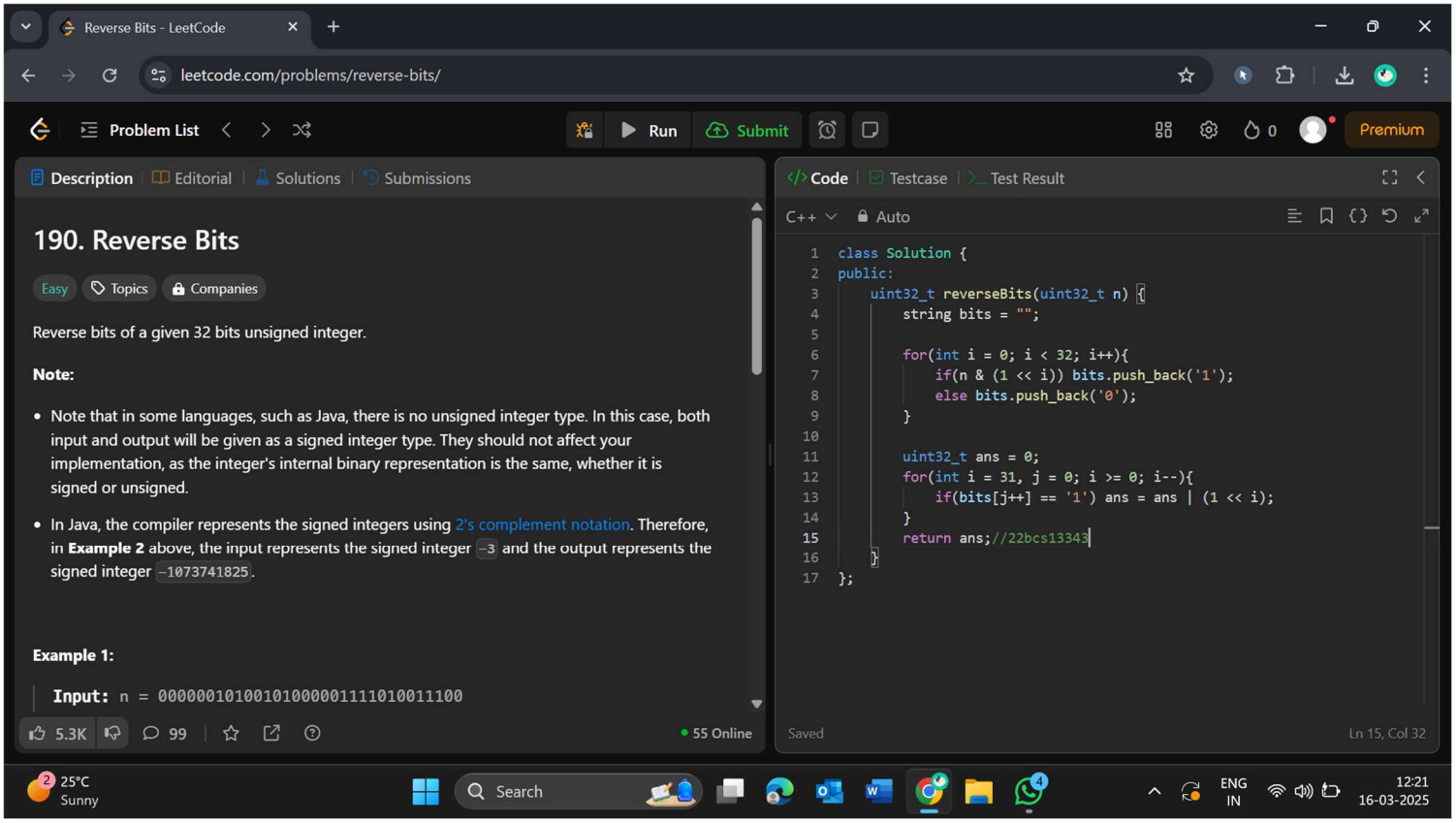
Section/Group: 22BCS_IOT-607(B)

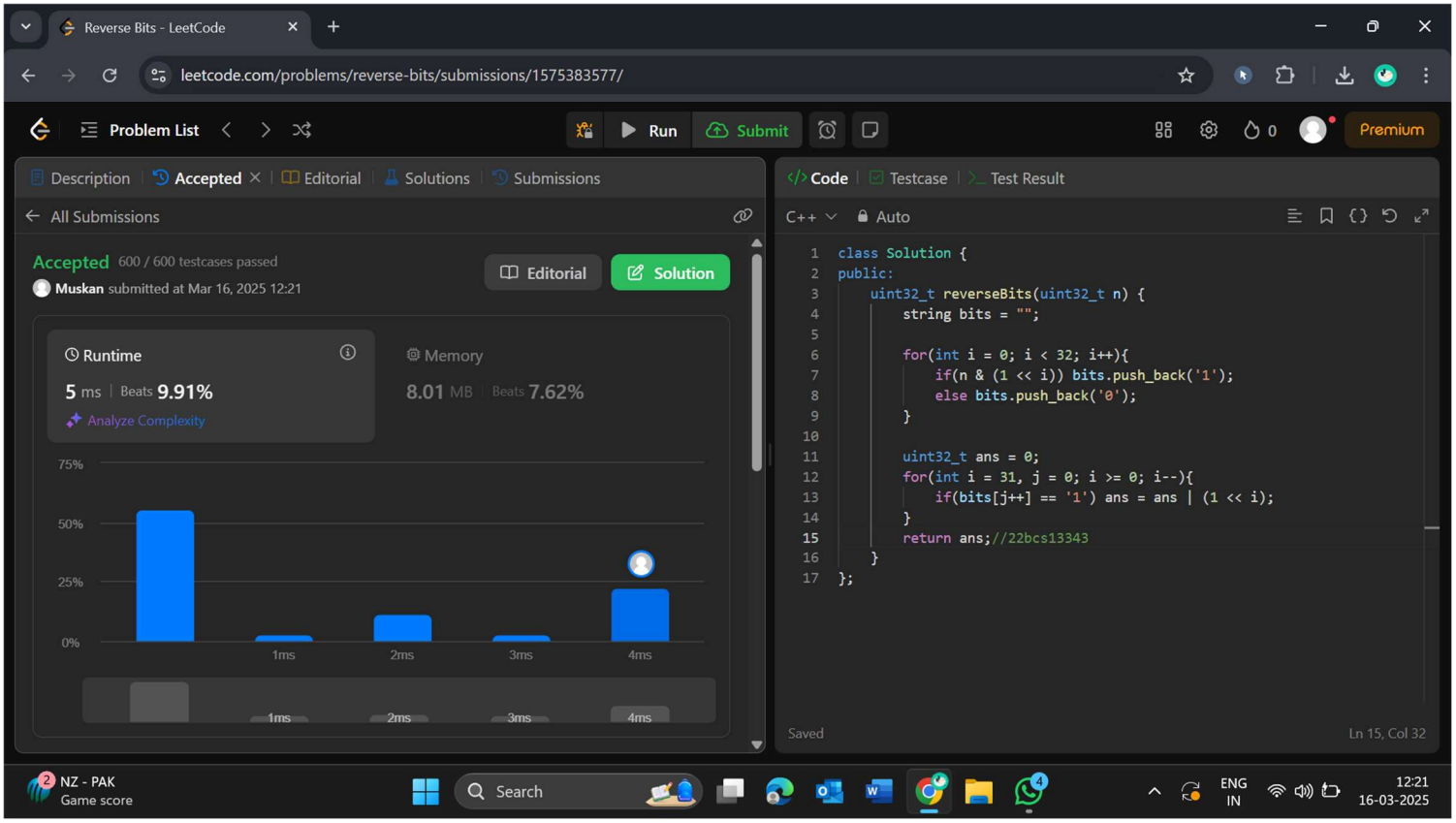
Submitted to: Er. Pratima sonalie

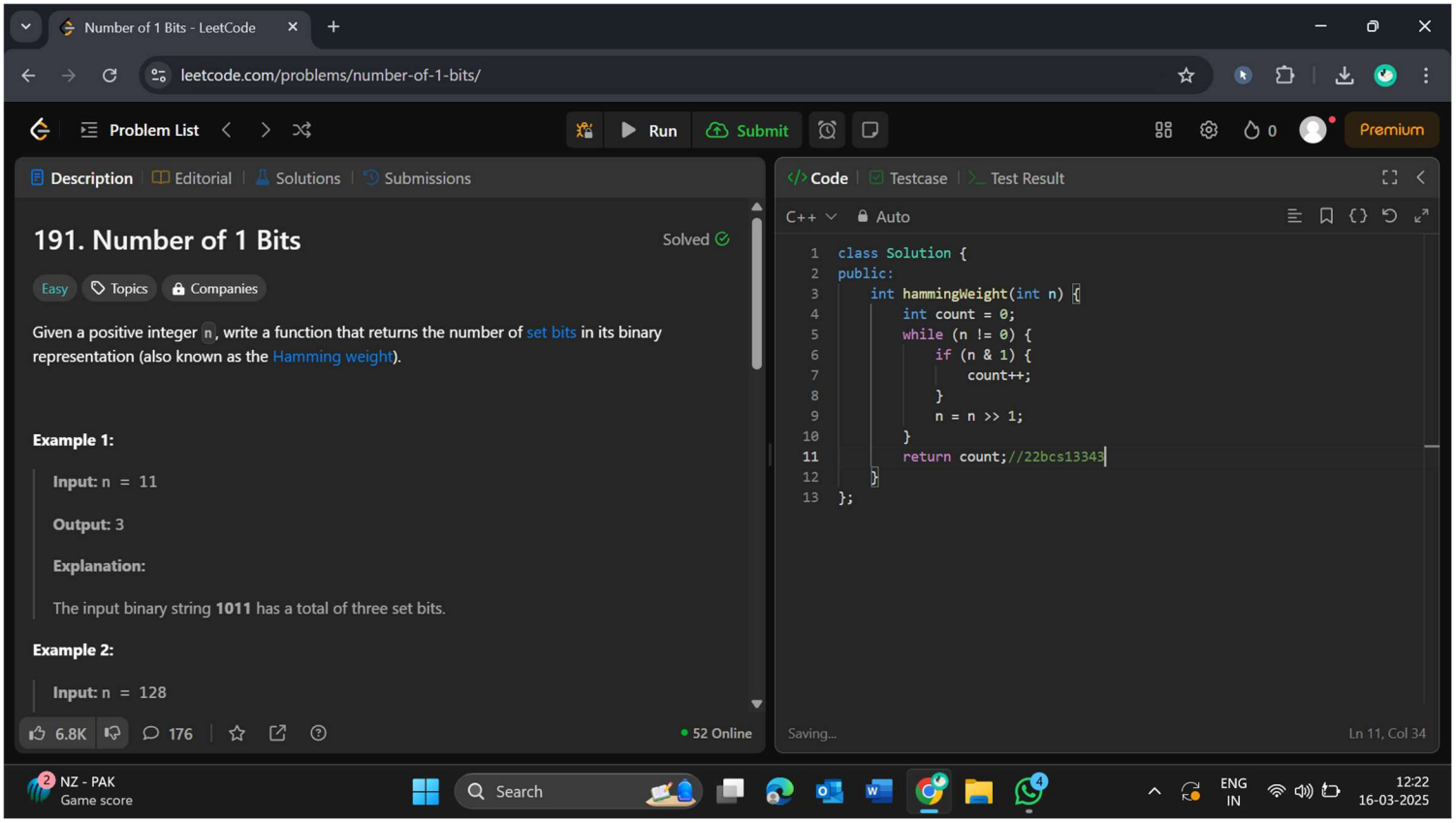
Date of Submission: 16-03-25

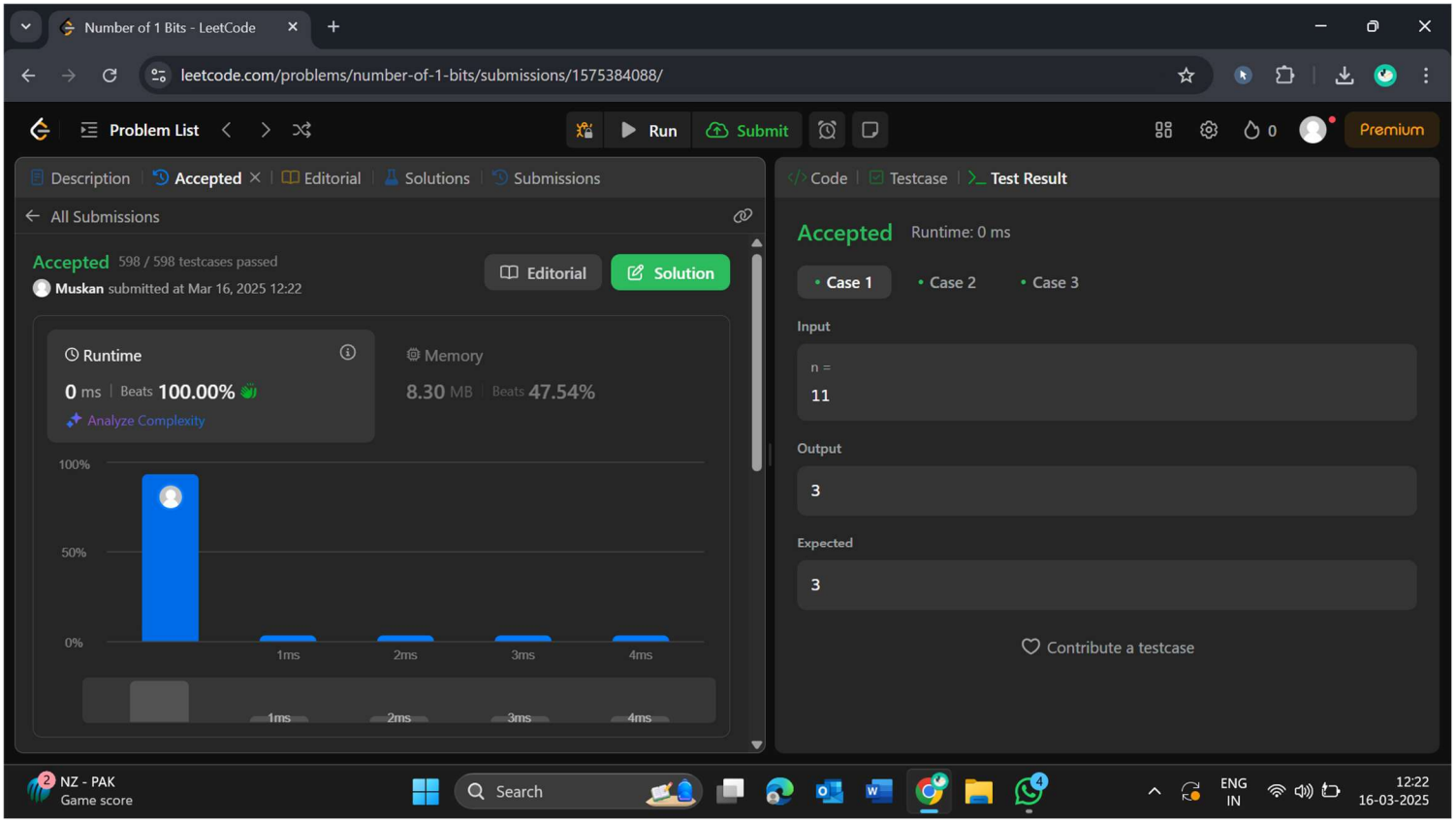

Longest Nice Substring - LeetC
leetcode.com/problems/longest-nice-substring/
Problem List
Run
Submit
Premium
Description | Editorial | Solutions | Submissions
1763. Longest Nice Substring
Solved
Easy
Topics
Companies
Hint
A string s is nice if, for every letter of the alphabet that s contains, it appears both in uppercase and lowercase. For example, "abABB" is nice because 'A' and 'a' appear, and 'B' and 'b' appear. However, "abA" is not because 'b' appears, but 'B' does not.
Given a string s, return the longest substring of s that is nice. If there are multiple, return the substring of the earliest occurrence. If there are none, return an empty string.
Example 1:
Input: s = "YazaAay"
Output: "aAa"
Explanation: "aAa" is a nice string because 'A/a' is the only letter of the alphabet in s, and both 'A' and 'a' appear.
"aAa" is the longest nice substring.
Example 2:
1.4K
63
7 Online
Code | Testcase | Test Result
C++
Auto
class Solution {
public:
string longestNiceSubstring(string s) {
if(s.size()<2)return "";
unordered_set<char>st;
for(auto ch:s)
st.insert(ch);
for(int i=0;i<s.size(); i++){
if(st.count(toupper(s[i]))&& st.count(tolower(s[i])))
continue;
string prev = longestNiceSubstring(s.substr(0,i));
string next = longestNiceSubstring(s.substr(i+1));
return prev.size()>=next.size()? prev: next;
}
return s; //22bcs13343
}
};
Saved
Ln 15, Col 31
Top Stories
MK Stalin gives...
Search
ENG
IN
12:20
16-03-2025

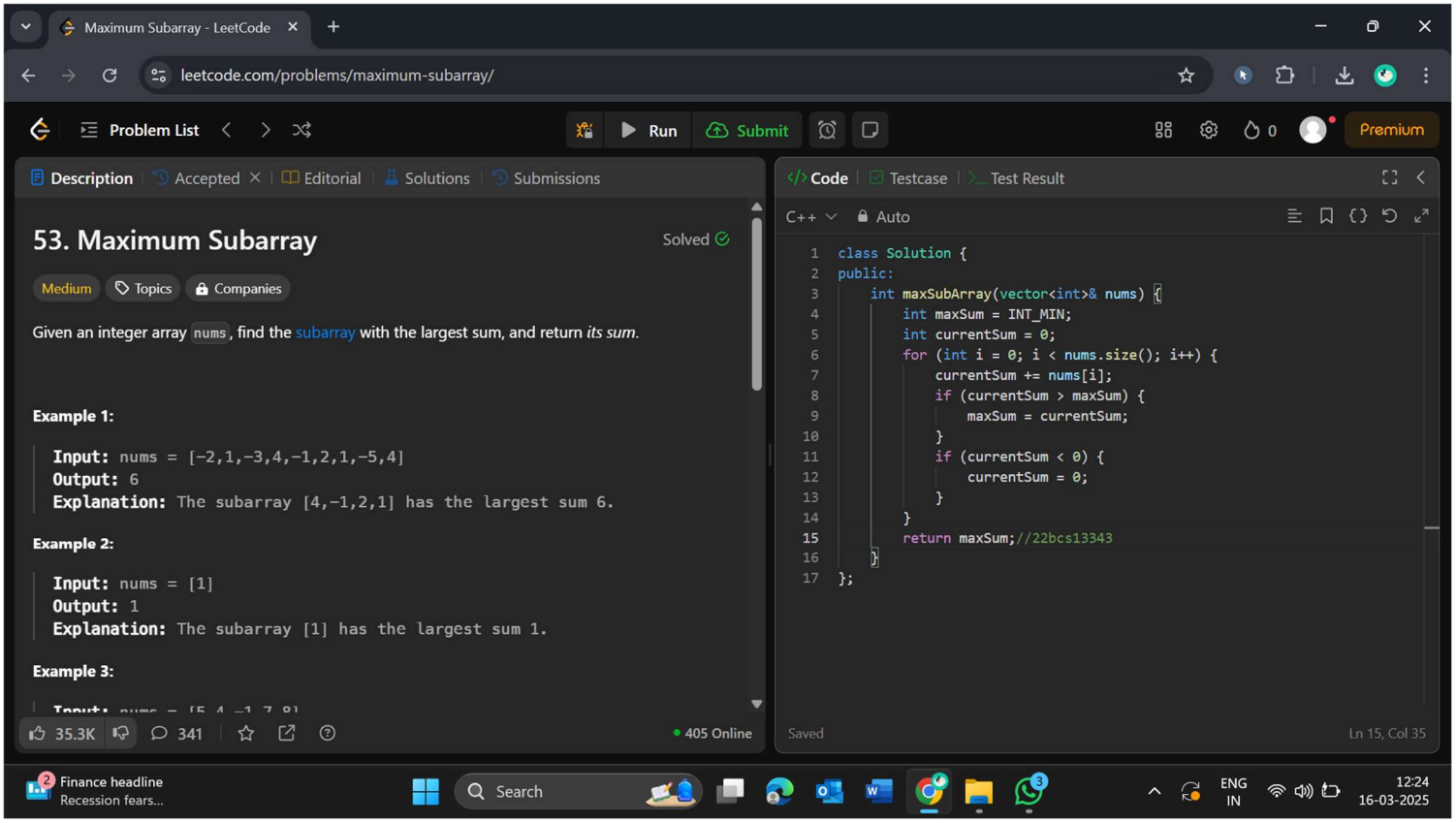

Longest Nice Substring - LeetC
leetcode.com/problems/longest-nice-substring/submissions/1575382346/
Problem List
Run
Submit
Premium
Description
Accepted
Editorial
Solutions
Submissions
All Submissions
Accepted 73 / 73 testcases passed
Muskan submitted at Mar 16, 2025 12:20
Solution
Runtime
8 ms | Beats 41.66%
Analyze Complexity
Memory
14.36 MB | Beats 30.99%
60%
40%
20%
0%
2ms
48ms
94ms
140ms
186ms
232ms
279ms
325ms
Code
Testcase
Test Result
Accepted Runtime: 0 ms
Case 1
Case 2
Case 3
Input
s =
"YazaAay"
Output
"aAa"
Expected
"aAa"
Contribute a testcase
25°C
Sunny
Search
ENG
IN
12:20
16-03-2025

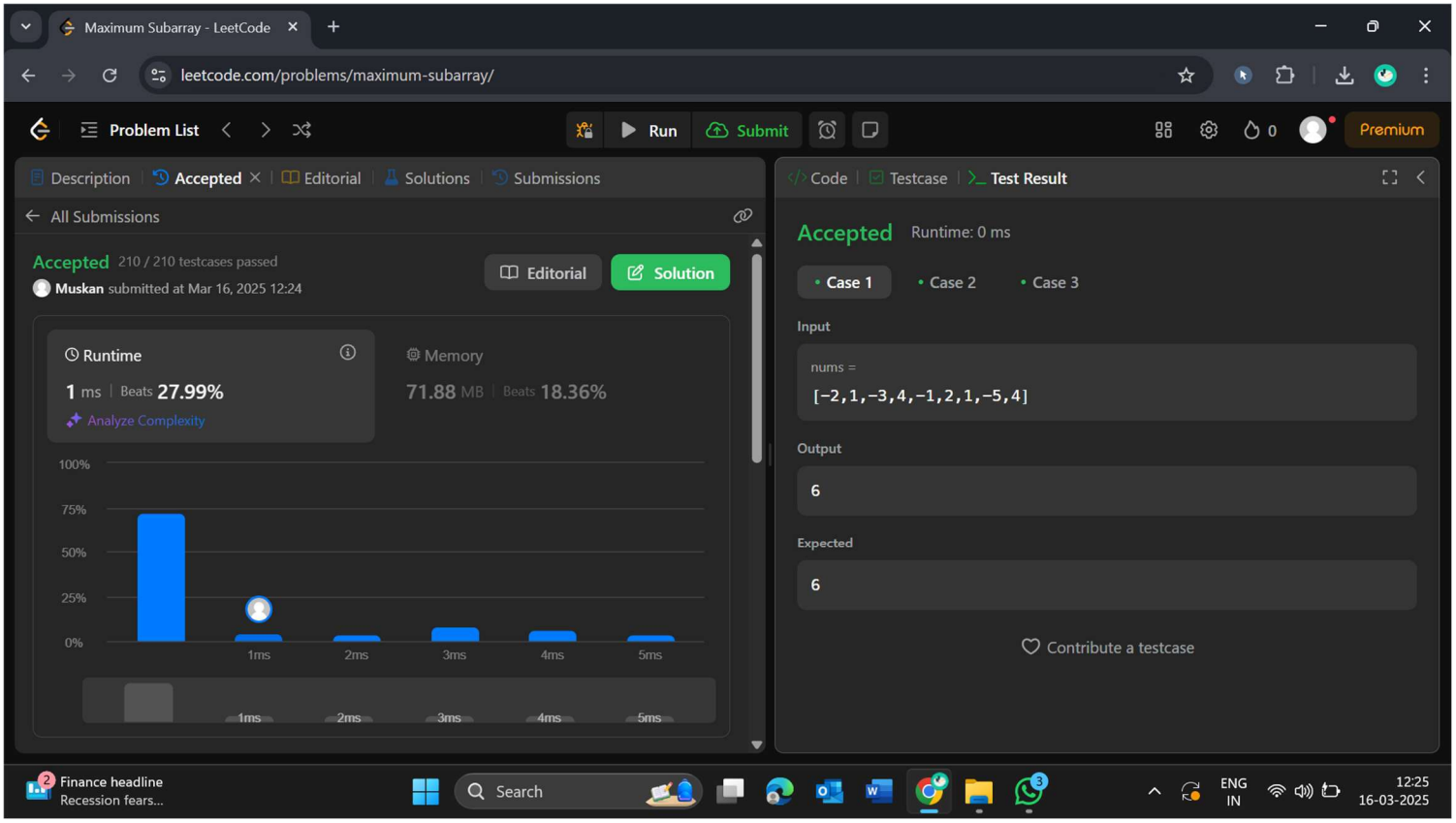

Reverse Bits - LeetCode
leetcode.com/problems/reverse-bits/
Problem List
Run
Submit
Premium
Description
Editorial
Solutions
Submissions
190. Reverse Bits
Easy
Topics
Companies
Reverse bits of a given 32 bits unsigned integer.
Note:
Note that in some languages, such as Java, there is no unsigned integer type. In this case, both input and output will be given as a signed integer type. They should not affect your implementation, as the integer's internal binary representation is the same, whether it is signed or unsigned.
In Java, the compiler represents the signed integers using 2's complement notation. Therefore, in Example 2 above, the input represents the signed integer -3 and the output represents the signed integer -1073741825.
Example 1:
Input: n = 00000010100101000001111010011100
5.3K
99
55 Online
Code
Testcase
Test Result
C++
Auto
class Solution {
public:
uint32_t reverseBits(uint32_t n) {
string bits = "";
for(int i = 0; i < 32; i++){
if(n & (1 << i)) bits.push_back('1');
else bits.push_back('0');
}
uint32_t ans = 0;
for(int i = 31, j = 0; i >= 0; i--){
if(bits[j++] == '1') ans = ans | (1 << i);
}
return ans;//22bcs13343
}
};
Saved
Ln 15, Col 32
25°C
Sunny
Search
ENG
IN
12:21
16-03-2025


Reverse Bits - LeetCode
leetcode.com/problems/reverse-bits/submissions/1575383577/
Problem List
Run
Submit
Premium
Description
Accepted
Editorial
Solutions
Submissions
All Submissions
Accepted 600 / 600 testcases passed
Muskan submitted at Mar 16, 2025 12:21
Editorial
Solution
Runtime
5 ms | Beats 9.91%
Analyze Complexity
Memory
8.01 MB | Beats 7.62%
75%
50%
25%
0%
1ms
2ms
3ms
4ms
Code
Testcase
Test Result
C++
Auto
1 class Solution {
2 public:
3 uint32_t reverseBits(uint32_t n) {
4 string bits = "";
5
6 for(int i = 0; i < 32; i++){
7 if(n & (1 << i)) bits.push_back('1');
8 else bits.push_back('0');
9 }
10
11 uint32_t ans = 0;
12 for(int i = 31, j = 0; i >= 0; i--){
13 if(bits[j++] == '1') ans = ans | (1 << i);
14 }
15 return ans;//22bcs13343
16 }
17 };
Saved
Ln 15, Col 32
NZ - PAK
Game score
Search
ENG
IN
12:21
16-03-2025


Number of 1 Bits - LeetCode
leetcode.com/problems/number-of-1-bits/
Problem List
Run
Submit
Premium
Description
Editorial
Solutions
Submissions
191. Number of 1 Bits
Solved
Easy
Topics
Companies
Given a positive integer n, write a function that returns the number of set bits in its binary representation (also known as the Hamming weight).
Example 1:
Input: n = 11
Output: 3
Explanation:
The input binary string 1011 has a total of three set bits.
Example 2:
Input: n = 128
6.8K
176
52 Online
Code
Testcase
Test Result
C++
Auto
class Solution {
public:
int hammingWeight(int n) {
int count = 0;
while (n != 0) {
if (n & 1) {
count++;
}
n = n >> 1;
}
return count;//22bcs13343
}
};
Saving...
Ln 11, Col 34
NZ - PAK
Game score
Search
ENG
IN
12:22
16-03-2025


Number of 1 Bits - LeetCode
leetcode.com/problems/number-of-1-bits/submissions/1575384088/
Problem List
Run
Submit
Premium
Description
Accepted
Editorial
Solutions
Submissions
All Submissions
Accepted 598 / 598 testcases passed
Muskan submitted at Mar 16, 2025 12:22
Editorial
Solution
Runtime
0 ms | Beats 100.00%
Analyze Complexity
Memory
8.30 MB | Beats 47.54%
100%
50%
0%
1ms
2ms
3ms
4ms
Code
Testcase
Test Result
Accepted Runtime: 0 ms
Case 1
Case 2
Case 3
Input
n =
11
Output
3
Expected
3
Contribute a testcase
NZ - PAK
Game score
Search
ENG
IN
12:22
16-03-2025


Maximum Subarray - LeetCode
leetcode.com/problems/maximum-subarray/
Problem List
Run
Submit
Premium
Description
Accepted
Editorial
Solutions
Submissions
53. Maximum Subarray
Solved
Medium
Topics
Companies
Given an integer array nums, find the subarray with the largest sum, and return its sum.
Example 1:
Input: nums = [-2,1,-3,4,-1,2,1,-5,4]
Output: 6
Explanation: The subarray [4,-1,2,1] has the largest sum 6.
Example 2:
Input: nums = [1]
Output: 1
Explanation: The subarray [1] has the largest sum 1.
Example 3:
35.3K
341
405 Online
Code
Testcase
Test Result
C++
Auto
class Solution {
public:
int maxSubArray(vector<int>& nums) {
int maxSum = INT_MIN;
int currentSum = 0;
for (int i = 0; i < nums.size(); i++) {
currentSum += nums[i];
if (currentSum > maxSum) {
maxSum = currentSum;
}
if (currentSum < 0) {
currentSum = 0;
}
}
return maxSum;//22bcs13343
}
};
Saved
Ln 15, Col 35
Finance headline
Recession fears...
Search
ENG
IN
12:24
16-03-2025


Maximum Subarray - LeetCode
leetcode.com/problems/maximum-subarray/
Problem List
Run
Submit
Premium
Description
Accepted
Editorial
Solutions
Submissions
All Submissions
Accepted 210 / 210 testcases passed
Muskan submitted at Mar 16, 2025 12:24
Editorial
Solution
Runtime
1 ms | Beats 27.99%
Analyze Complexity
Memory
71.88 MB | Beats 18.36%
100%
75%
50%
25%
0%
1ms
2ms
3ms
4ms
5ms
Code
Testcase
Test Result
Accepted Runtime: 0 ms
Case 1
Case 2
Case 3
Input
nums =
[-2,1,-3,4,-1,2,1,-5,4]
Output
6
Expected
6
Contribute a testcase
Finance headline
Recession fears...
Search
ENG
IN
12:25
16-03-2025

Search a 2D Matrix II - LeetCod

leetcode.com/problems/search-a-2d-matrix-ii/

Problem List | Run | Submit | 0 | Premium

Description | Accepted | Editorial | Solutions | Submissions

240. Search a 2D Matrix II

Solved

Medium | Topics | Companies

Write an efficient algorithm that searches for a value `target` in an `m x n` integer matrix `matrix`. This matrix has the following properties:

- Integers in each row are sorted in ascending from left to right.
- Integers in each column are sorted in ascending from top to bottom.

Example 1:

1	4	7	11	15
2	5	8	12	19

12.3K | 87 | 57 Online

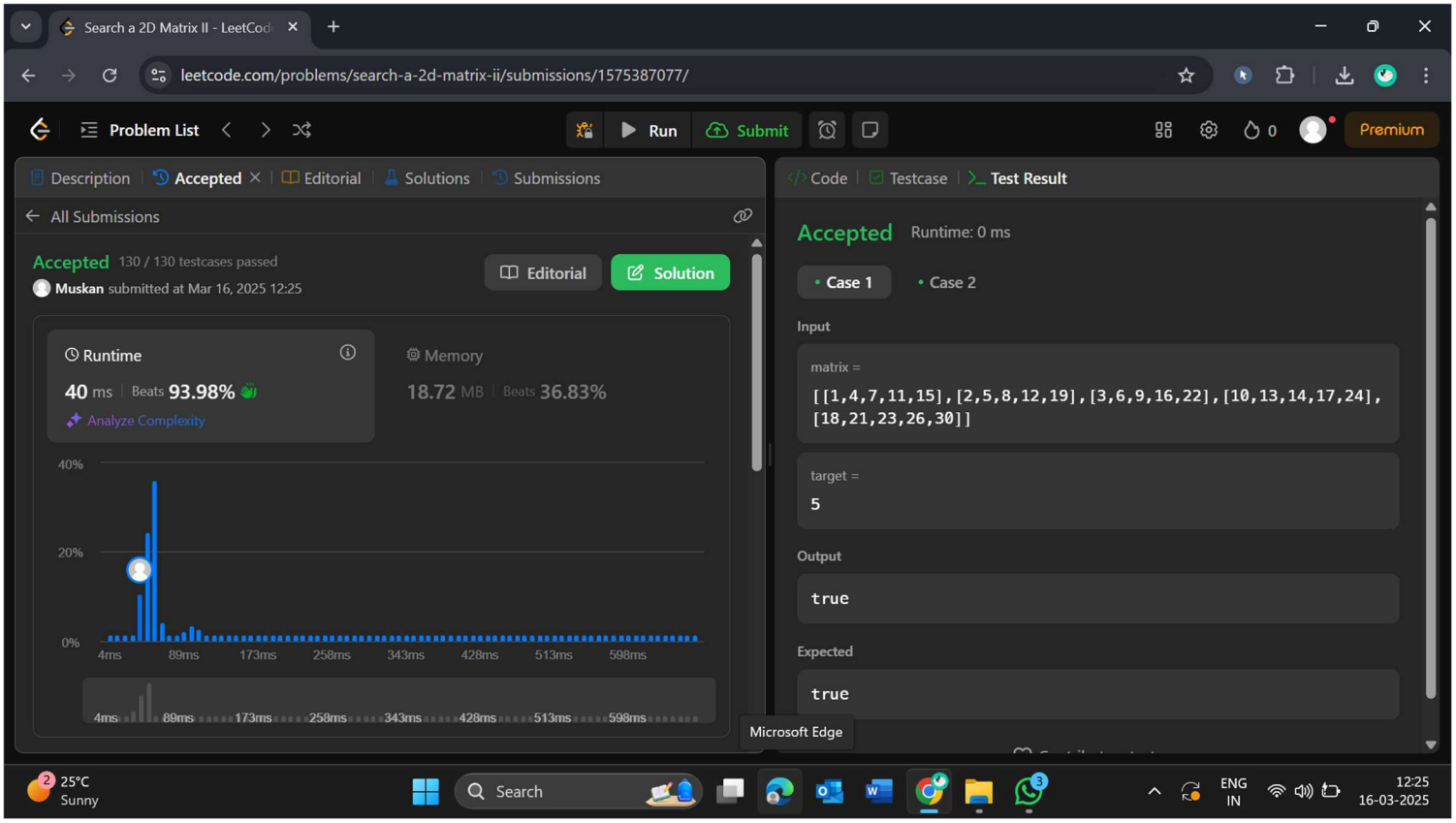
Code | Testcase | Test Result

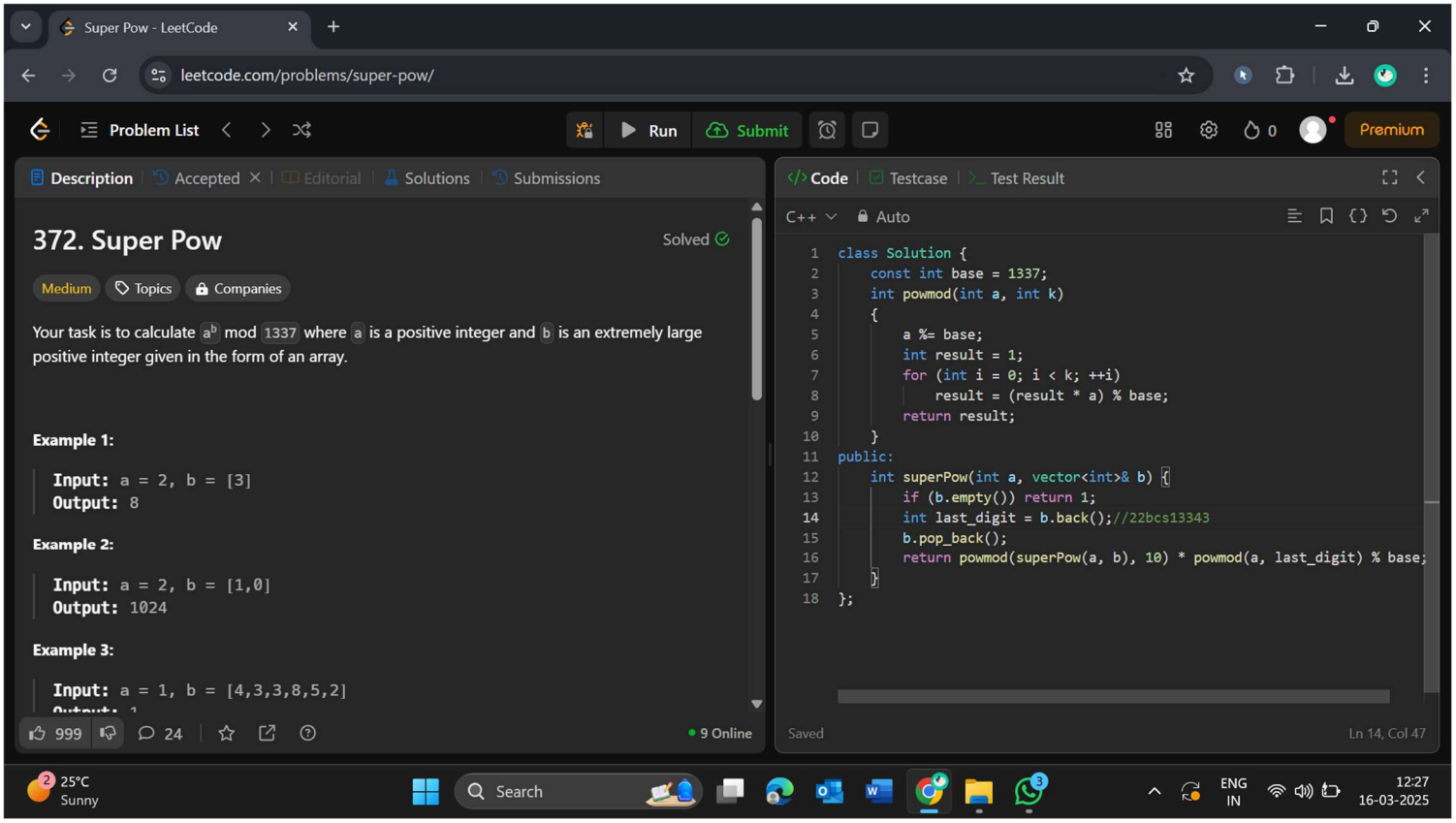
C++ | Auto

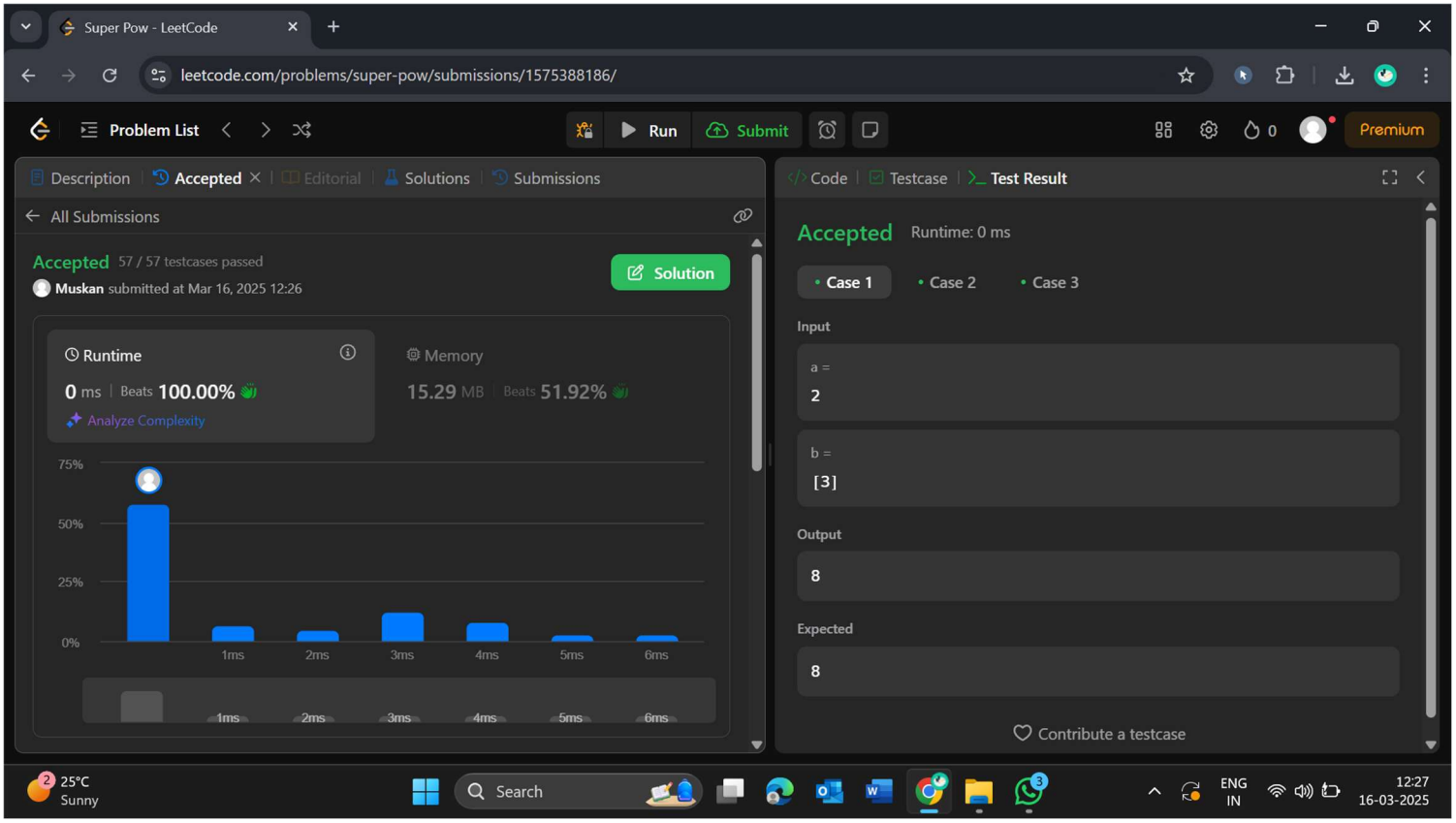
```cpp
class Solution {
public:
    bool searchMatrix(vector<vector<int>>& matrix, int target) {
        int r=0,c=matrix[0].size()-1;
        while (r<matrix.size() && c>=0){
            if (matrix[r][c]==target){return true;}
            else if (matrix[r][c]<target){r++;}
            else {c--;}
        }
        return false;//22bcs13343
    }
};
```

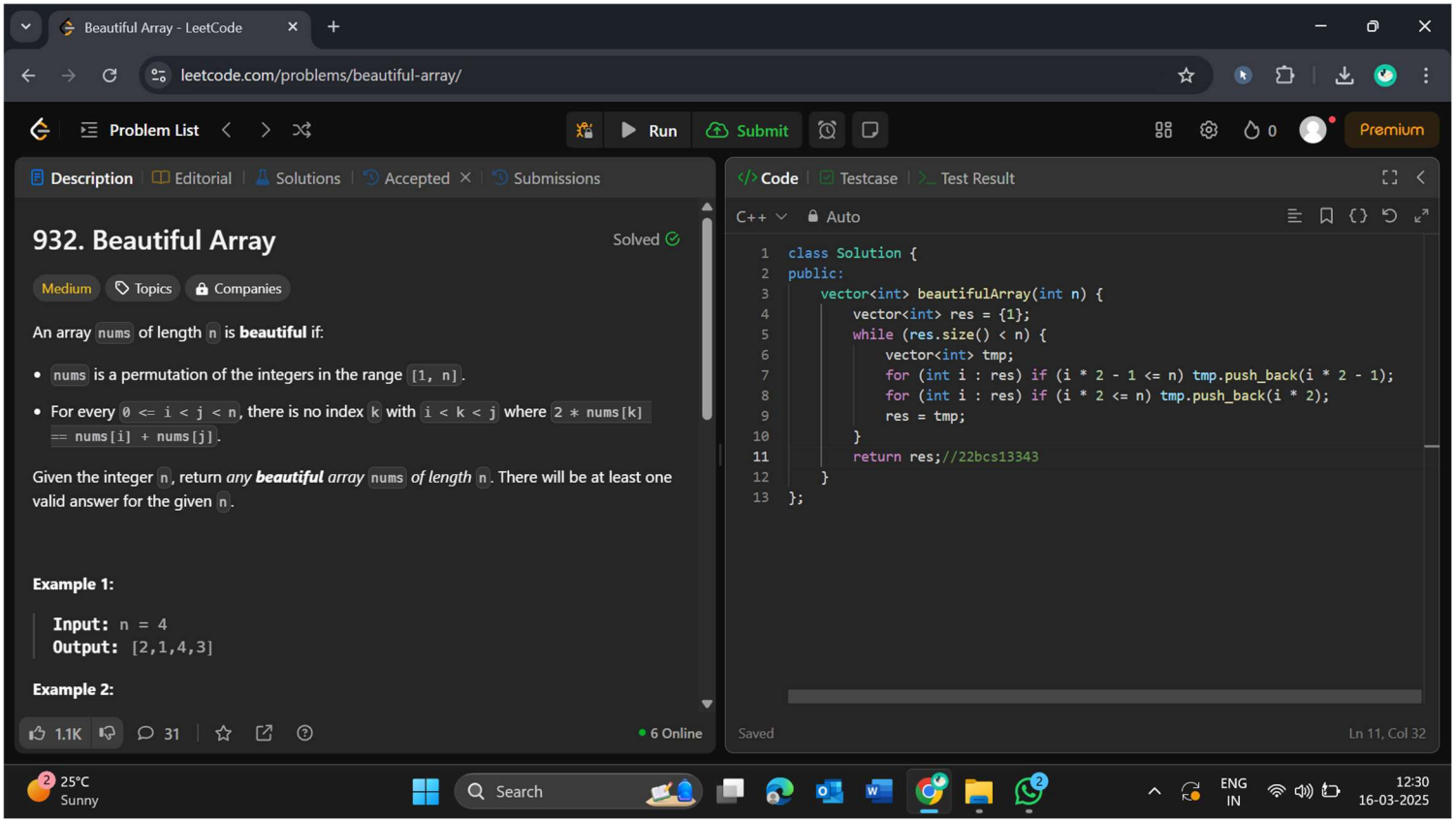
Saved | Ln 10, Col 34

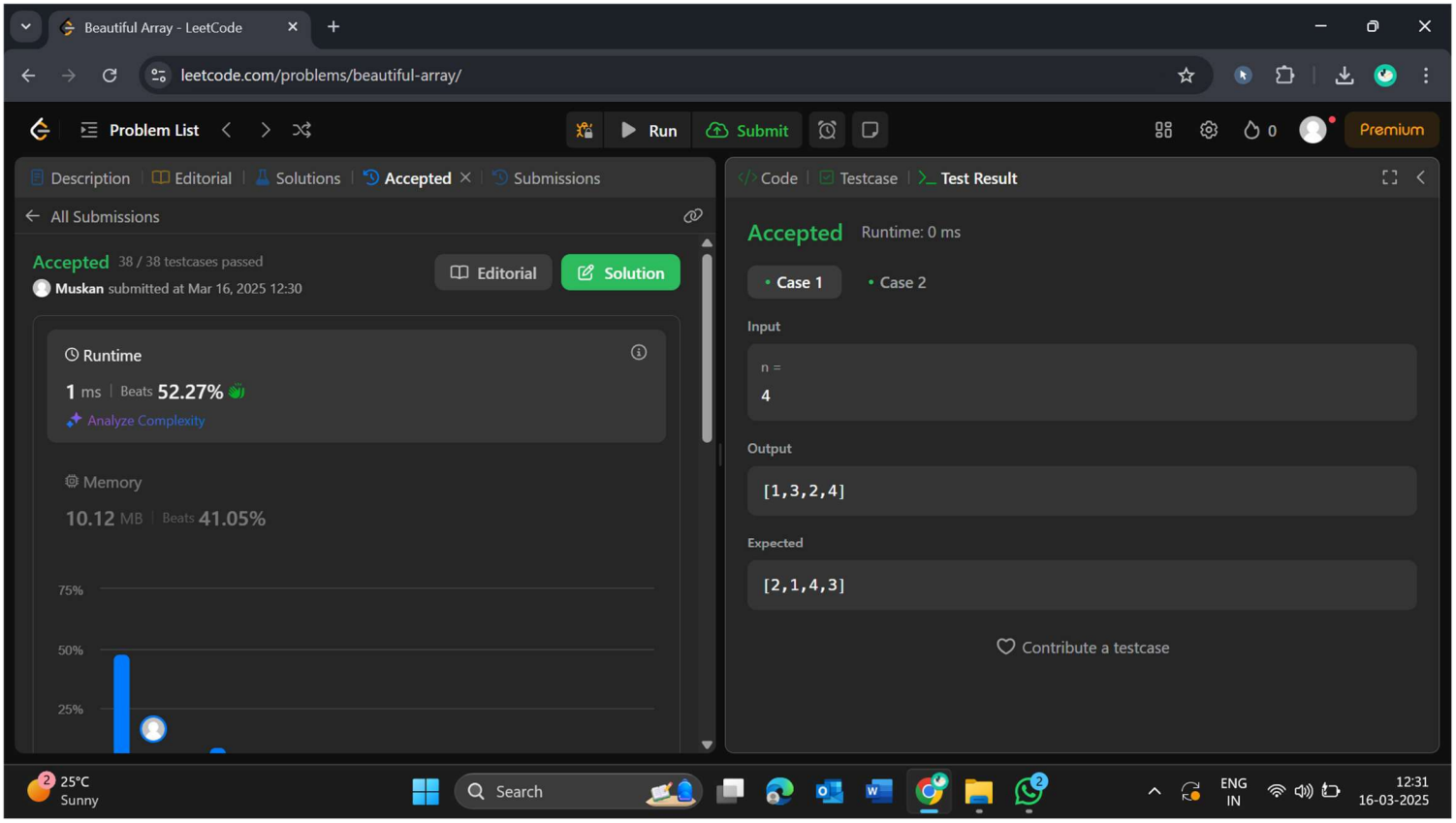
25°C Sunny | Search | ENG IN | 12:25 16-03-2025

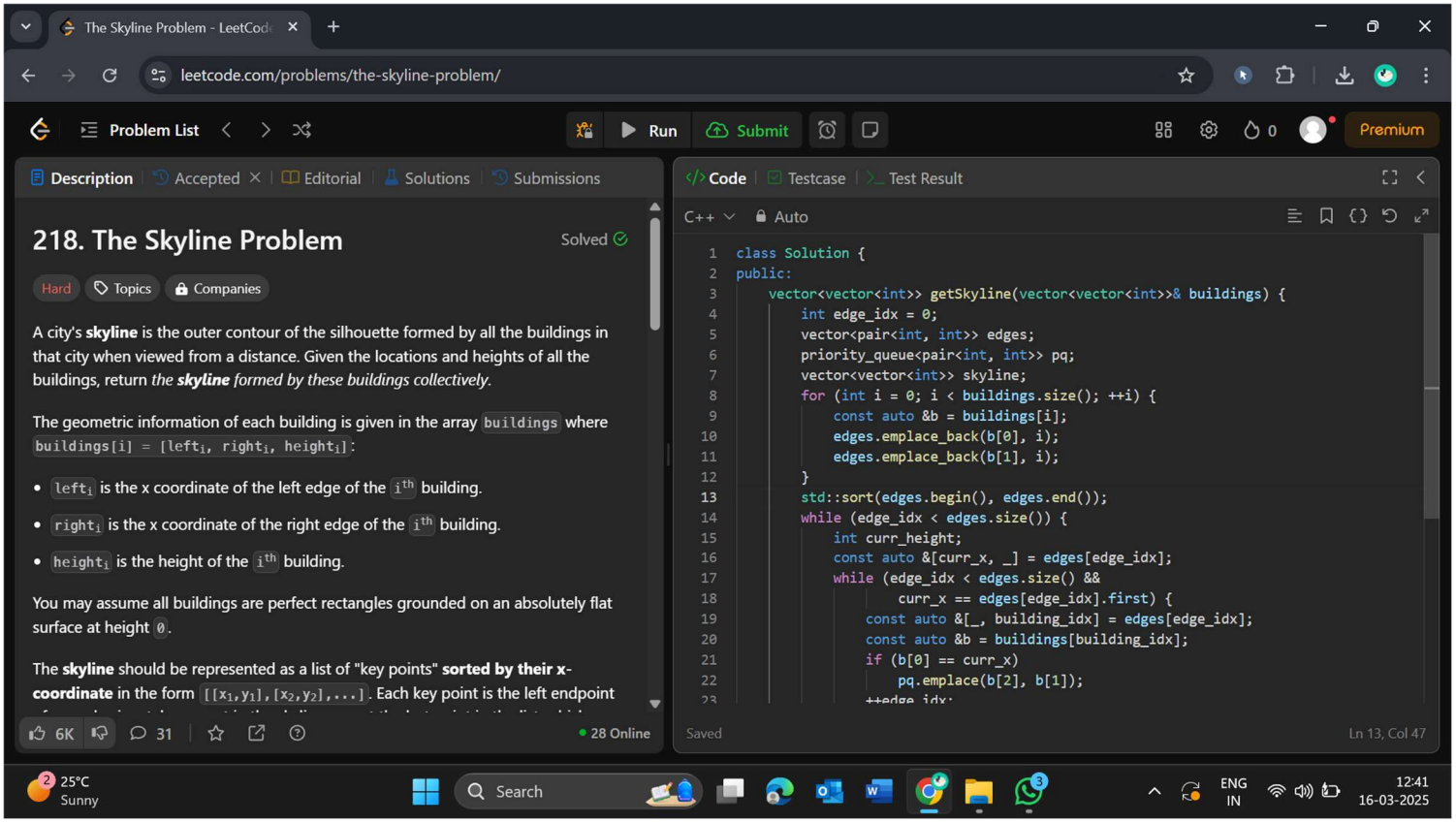

Search a 2D Matrix II - LeetCod
leetcode.com/problems/search-a-2d-matrix-ii/submissions/1575387077/
Problem List
Run
Submit
Premium
Description
Accepted
Editorial
Solutions
Submissions
All Submissions
Accepted 130 / 130 testcases passed
Muskan submitted at Mar 16, 2025 12:25
Editorial
Solution
Runtime
40 ms | Beats 93.98%
Analyze Complexity
Memory
18.72 MB | Beats 36.83%
40%
20%
0%
4ms
89ms
173ms
258ms
343ms
428ms
513ms
598ms
Code
Testcase
Test Result
Accepted Runtime: 0 ms
Case 1
Case 2
Input
matrix =
[[1,4,7,11,15],[2,5,8,12,19],[3,6,9,16,22],[10,13,14,17,24],[18,21,23,26,30]]
target =
5
Output
true
Expected
true
Microsoft Edge
25°C
Sunny
Search
ENG
IN
12:25
16-03-2025

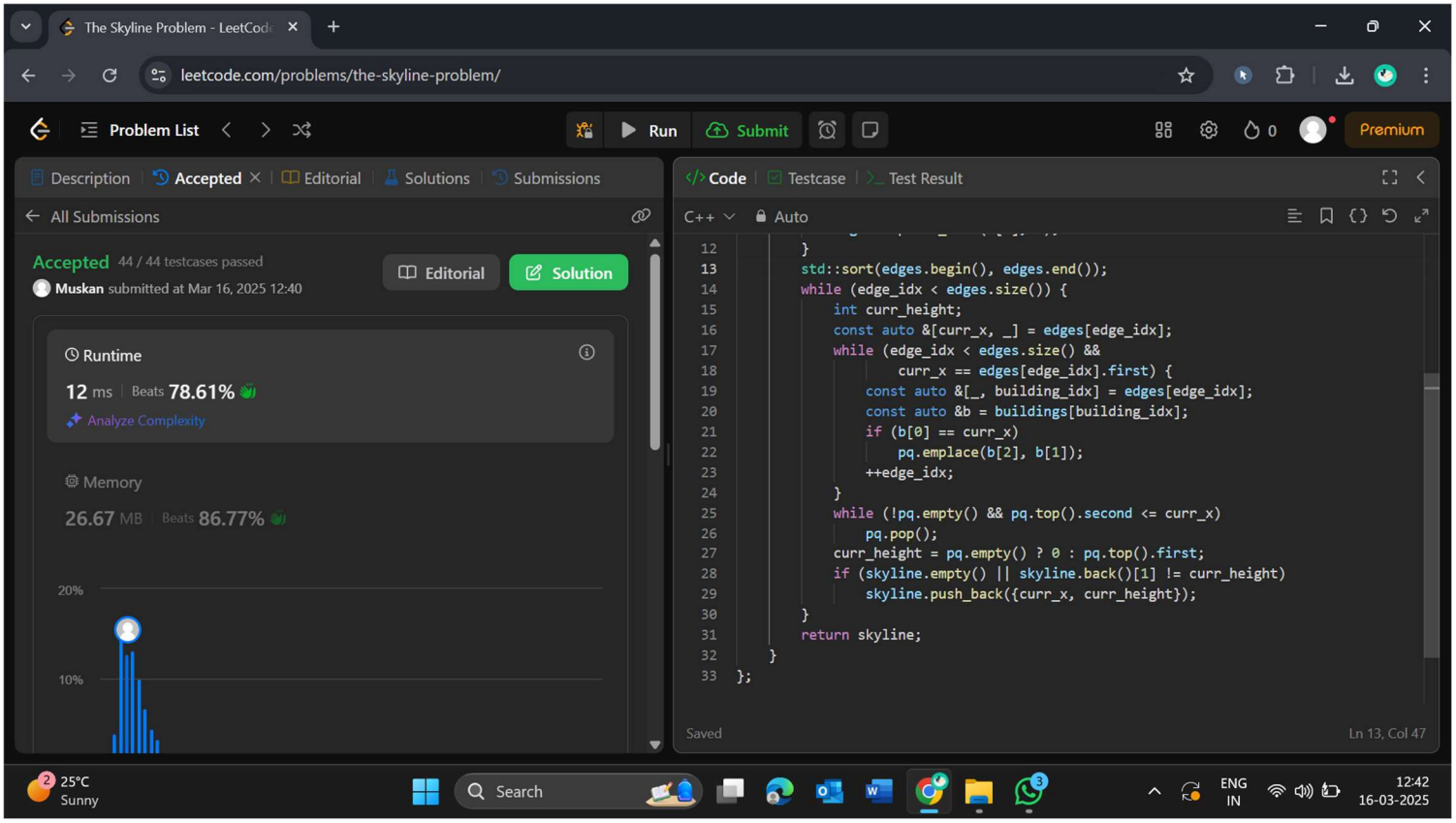

Super Pow - LeetCode
leetcode.com/problems/super-pow/
Problem List
Run
Submit
Premium
Description
Accepted
Editorial
Solutions
Submissions
372. Super Pow
Solved
Medium
Topics
Companies
Your task is to calculate a^b mod 1337 where a is a positive integer and b is an extremely large positive integer given in the form of an array.
Example 1:
Input: a = 2, b = [3]
Output: 8
Example 2:
Input: a = 2, b = [1,0]
Output: 1024
Example 3:
Input: a = 1, b = [4,3,3,8,5,2]
999
24
9 Online
Code
Testcase
Test Result
C++
Auto
class Solution {
const int base = 1337;
int powmod(int a, int k)
{
a %= base;
int result = 1;
for (int i = 0; i < k; ++i)
result = (result * a) % base;
return result;
}
public:
int superPow(int a, vector<int>& b) {
if (b.empty()) return 1;
int last_digit = b.back();//22bcs13343
b.pop_back();
return powmod(superPow(a, b), 10) * powmod(a, last_digit) % base;
}
};
Saved
Ln 14, Col 47
25°C
Sunny
Search
ENG
IN
12:27
16-03-2025

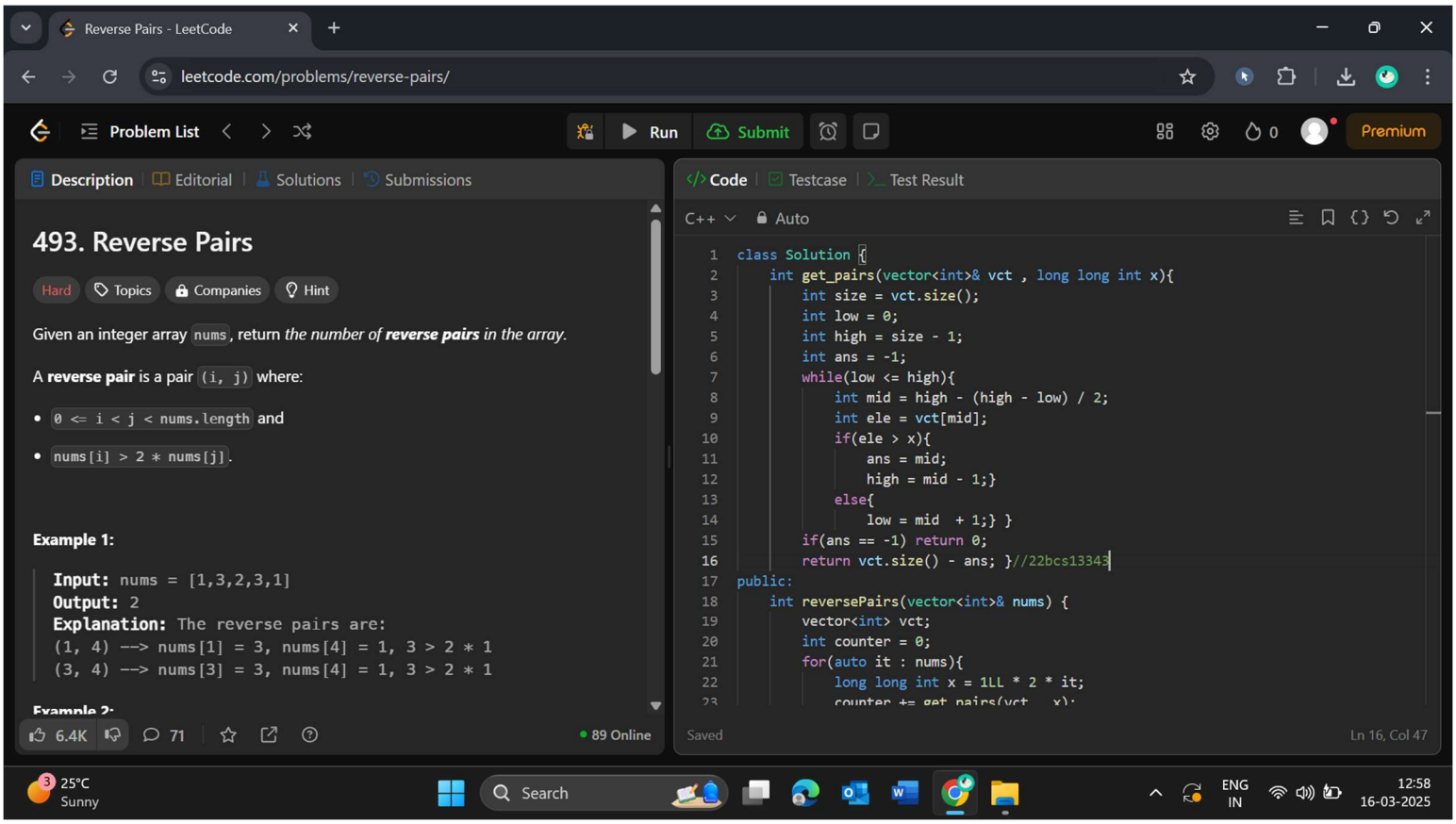

Super Pow - LeetCode
leetcode.com/problems/super-pow/submissions/1575388186/
Problem List
Run
Submit
Premium
Description
Accepted
Editorial
Solutions
Submissions
All Submissions
Accepted 57 / 57 testcases passed
Muskan submitted at Mar 16, 2025 12:26
Solution
Runtime
0 ms | Beats 100.00%
Analyze Complexity
Memory
15.29 MB | Beats 51.92%
75%
50%
25%
0%
1ms
2ms
3ms
4ms
5ms
6ms
Code
Testcase
Test Result
Accepted Runtime: 0 ms
Case 1
Case 2
Case 3
Input
a =
2
b =
[3]
Output
8
Expected
8
Contribute a testcase
25°C
Sunny
Search
ENG
IN
12:27
16-03-2025

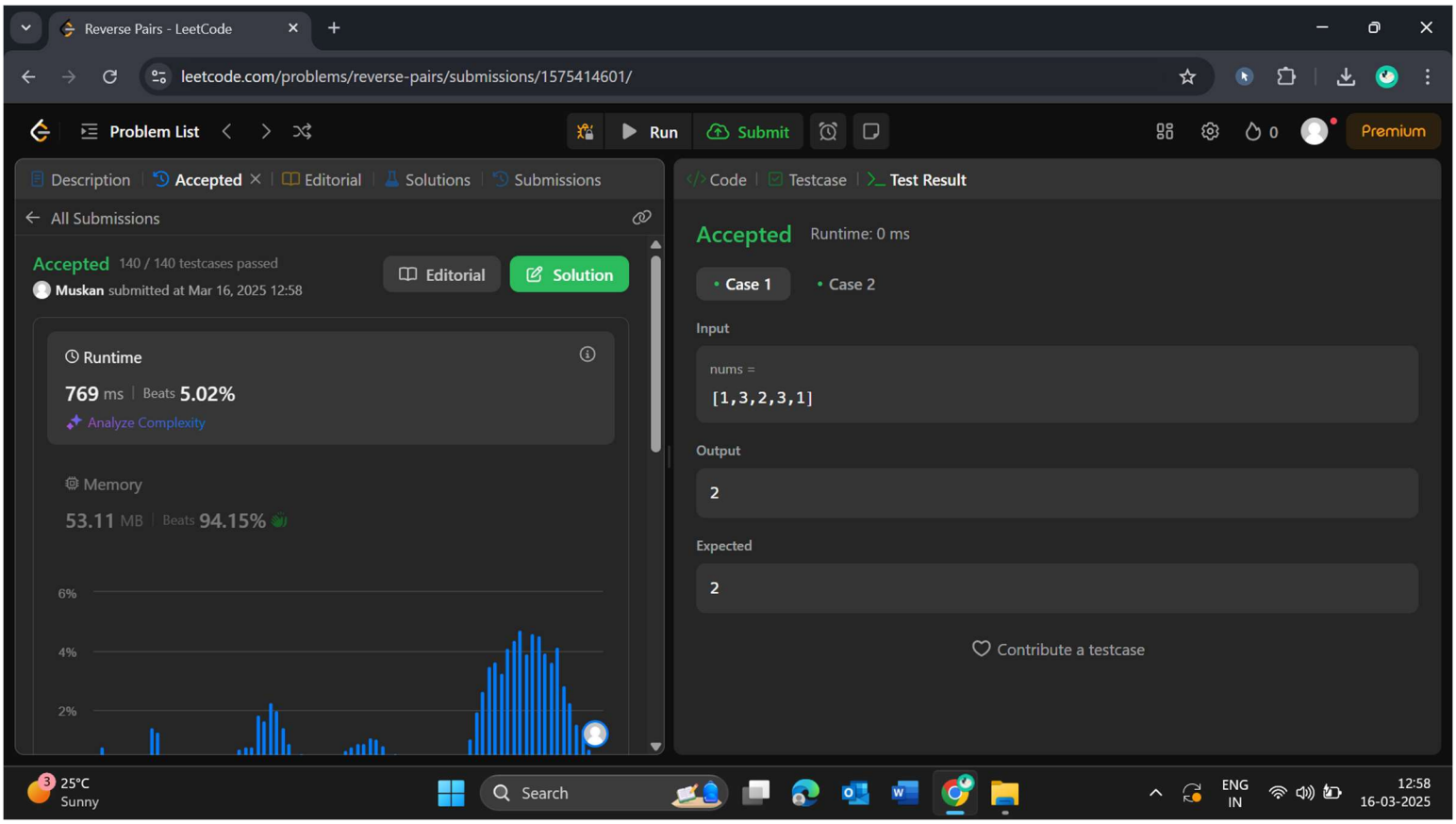

Beautiful Array - LeetCode
leetcode.com/problems/beautiful-array/
Problem List
Run
Submit
Premium
Description
Editorial
Solutions
Accepted
Submissions
932. Beautiful Array
Solved
Medium
Topics
Companies
An array nums of length n is beautiful if:
nums is a permutation of the integers in the range [1, n].
For every 0 <= i < j < n, there is no index k with i < k < j where 2 * nums[k] == nums[i] + nums[j].
Given the integer n, return any beautiful array nums of length n. There will be at least one valid answer for the given n.
Example 1:
Input: n = 4
Output: [2,1,4,3]
Example 2:
1.1K
31
6 Online
Code
Testcase
Test Result
C++
Auto
class Solution {
public:
vector<int> beautifulArray(int n) {
vector<int> res = {1};
while (res.size() < n) {
vector<int> tmp;
for (int i : res) if (i * 2 - 1 <= n) tmp.push_back(i * 2 - 1);
for (int i : res) if (i * 2 <= n) tmp.push_back(i * 2);
res = tmp;
}
return res;//22bcs13343
}
};
Saved
Ln 11, Col 32
25°C
Sunny
Search
ENG
IN
12:30
16-03-2025

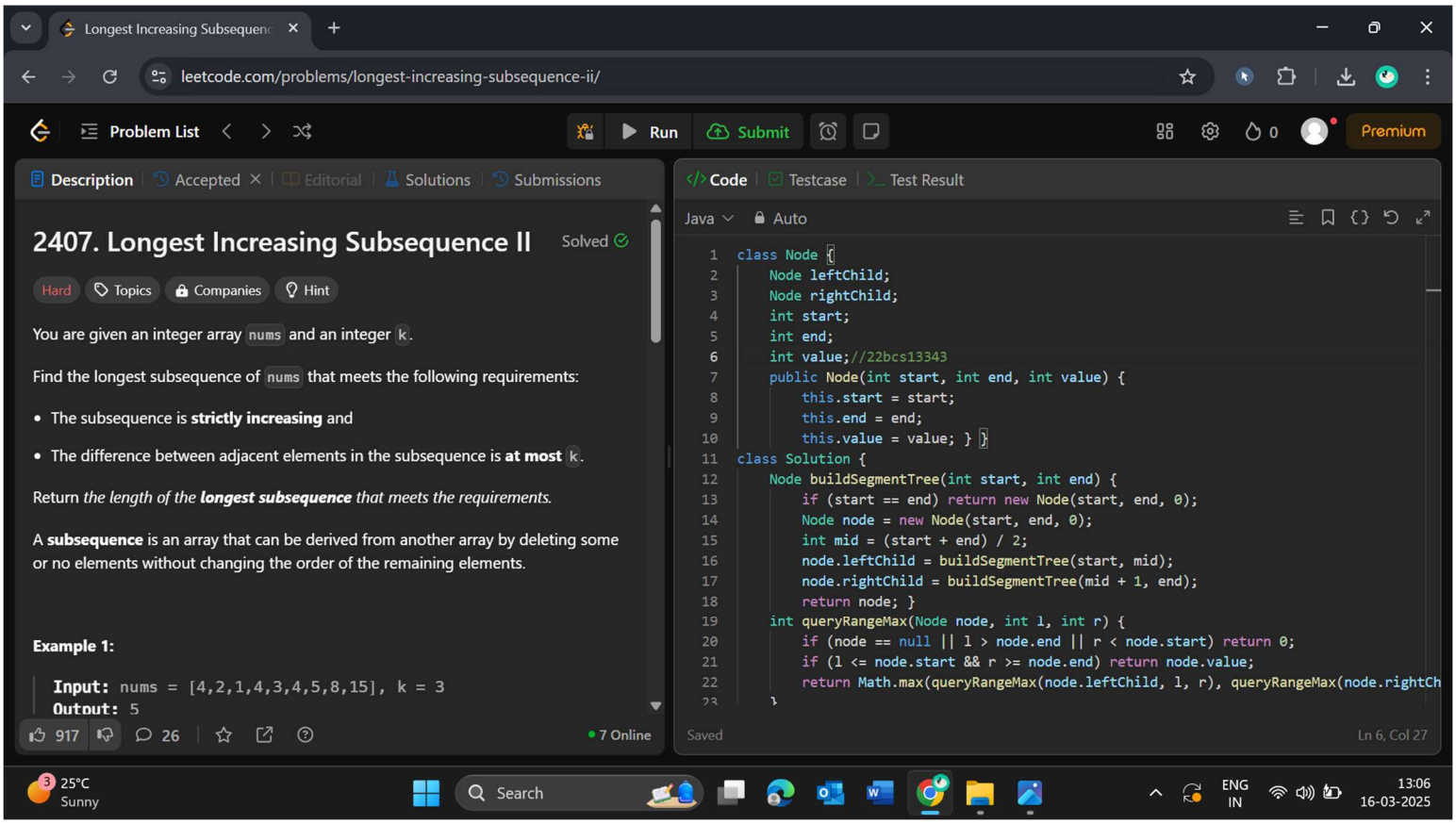

Beautiful Array - LeetCode
leetcode.com/problems/beautiful-array/
Problem List
Run
Submit
Premium
Description
Editorial
Solutions
Accepted
Submissions
All Submissions
Accepted 38 / 38 testcases passed
Muskan submitted at Mar 16, 2025 12:30
Editorial
Solution
Runtime
1 ms | Beats 52.27%
Analyze Complexity
Memory
10.12 MB | Beats 41.05%
75%
50%
25%
Code
Testcase
Test Result
Accepted Runtime: 0 ms
Case 1
Case 2
Input
n =
4
Output
[1,3,2,4]
Expected
[2,1,4,3]
Contribute a testcase
25°C
Sunny
Search
ENG
IN
12:31
16-03-2025

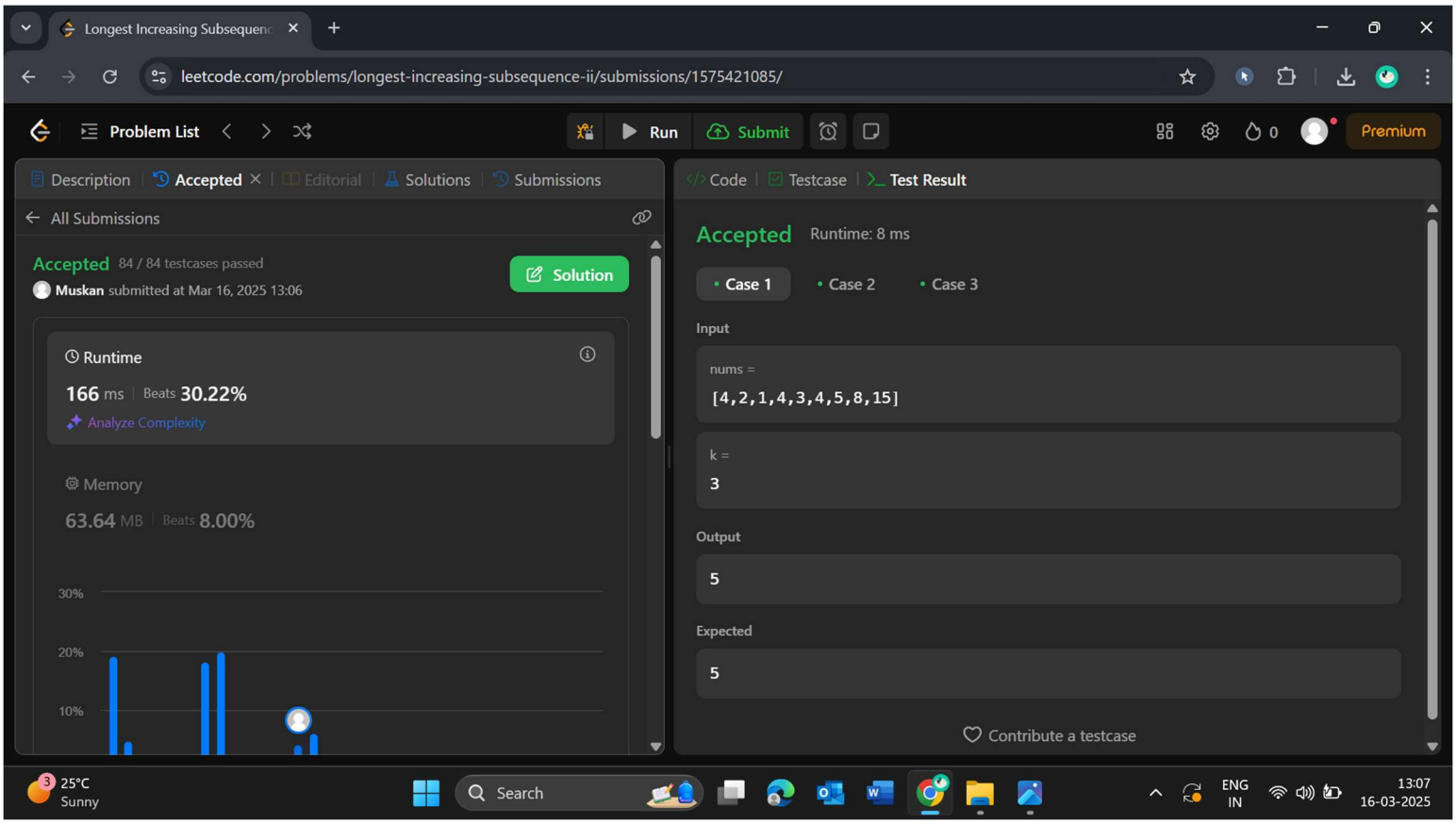

The Skyline Problem - LeetCod
leetcode.com/problems/the-skyline-problem/
Problem List
Run
Submit
Premium
Description
Accepted
Editorial
Solutions
Submissions
218. The Skyline Problem
Solved
Hard
Topics
Companies
A city's skyline is the outer contour of the silhouette formed by all the buildings in that city when viewed from a distance. Given the locations and heights of all the buildings, return the skyline formed by these buildings collectively.
The geometric information of each building is given in the array buildings where buildings[i] = [left_i, right_i, height_i]:
left_i is the x coordinate of the left edge of the i^th building.
right_i is the x coordinate of the right edge of the i^th building.
height_i is the height of the i^th building.
You may assume all buildings are perfect rectangles grounded on an absolutely flat surface at height 0.
The skyline should be represented as a list of "key points" sorted by their x-coordinate in the form [[x1,y1],[x2,y2],...]. Each key point is the left endpoint
6K
31
28 Online
Code
Testcase
Test Result
C++
Auto
class Solution {
public:
vector<vector<int>> getSkyline(vector<vector<int>>& buildings) {
int edge_idx = 0;
vector<pair<int, int>> edges;
priority_queue<pair<int, int>> pq;
vector<vector<int>> skyline;
for (int i = 0; i < buildings.size(); ++i) {
const auto &b = buildings[i];
edges.emplace_back(b[0], i);
edges.emplace_back(b[1], i);
}
std::sort(edges.begin(), edges.end());
while (edge_idx < edges.size()) {
int curr_height;
const auto &[curr_x, _] = edges[edge_idx];
while (edge_idx < edges.size() &&
curr_x == edges[edge_idx].first) {
const auto &[_, building_idx] = edges[edge_idx];
const auto &b = buildings[building_idx];
if (b[0] == curr_x)
pq.emplace(b[2], b[1]);
Saved
Ln 13, Col 47
25°C
Sunny
Search
ENG
IN
12:41
16-03-2025


The Skyline Problem - LeetCod
leetcode.com/problems/the-skyline-problem/
Problem List
Run
Submit
Premium
Description
Accepted
Editorial
Solutions
Submissions
All Submissions
Accepted 44 / 44 testcases passed
Muskan submitted at Mar 16, 2025 12:40
Editorial
Solution
Runtime
12 ms | Beats 78.61%
Analyze Complexity
Memory
26.67 MB | Beats 86.77%
20%
10%
Code
Testcase
Test Result
C++
Auto
}
std::sort(edges.begin(), edges.end());
while (edge_idx < edges.size()) {
int curr_height;
const auto &[curr_x, _] = edges[edge_idx];
while (edge_idx < edges.size() &&
curr_x == edges[edge_idx].first) {
const auto &[_, building_idx] = edges[edge_idx];
const auto &b = buildings[building_idx];
if (b[0] == curr_x)
pq.emplace(b[2], b[1]);
++edge_idx;
}
while (!pq.empty() && pq.top().second <= curr_x)
pq.pop();
curr_height = pq.empty() ? 0 : pq.top().first;
if (skyline.empty() || skyline.back()[1] != curr_height)
skyline.push_back({curr_x, curr_height});
}
return skyline;
}
};
Saved
Ln 13, Col 47
25°C
Sunny
Search
ENG
IN
12:42
16-03-2025


Reverse Pairs - LeetCode
leetcode.com/problems/reverse-pairs/
Problem List
Run
Submit
Premium
Description
Editorial
Solutions
Submissions
493. Reverse Pairs
Hard
Topics
Companies
Hint
Given an integer array nums, return the number of reverse pairs in the array.
A reverse pair is a pair (i, j) where:
0 <= i < j < nums.length and
nums[i] > 2 * nums[j].
Example 1:
Input: nums = [1,3,2,3,1]
Output: 2
Explanation: The reverse pairs are:
(1, 4) --> nums[1] = 3, nums[4] = 1, 3 > 2 * 1
(3, 4) --> nums[3] = 3, nums[4] = 1, 3 > 2 * 1
6.4K
71
89 Online
Code
Testcase
Test Result
C++
Auto
class Solution {
int get_pairs(vector<int>& vct , long long int x){
int size = vct.size();
int low = 0;
int high = size - 1;
int ans = -1;
while(low <= high){
int mid = high - (high - low) / 2;
int ele = vct[mid];
if(ele > x){
ans = mid;
high = mid - 1;}
else{
low = mid + 1;} }
if(ans == -1) return 0;
return vct.size() - ans; }//22bcs13343
public:
int reversePairs(vector<int>& nums) {
vector<int> vct;
int counter = 0;
for(auto it : nums){
long long int x = 1LL * 2 * it;
Saved
Ln 16, Col 47
25°C
Sunny
Search
ENG
IN
12:58
16-03-2025


Reverse Pairs - LeetCode
leetcode.com/problems/reverse-pairs/submissions/1575414601/
Problem List
Run
Submit
Premium
Description
Accepted
Editorial
Solutions
Submissions
All Submissions
Accepted 140 / 140 testcases passed
Muskan submitted at Mar 16, 2025 12:58
Editorial
Solution
Runtime
769 ms | Beats 5.02%
Analyze Complexity
Memory
53.11 MB | Beats 94.15%
6%
4%
2%
Code
Testcase
Test Result
Accepted Runtime: 0 ms
Case 1
Case 2
Input
nums =
[1,3,2,3,1]
Output
2
Expected
2
Contribute a testcase
25°C
Sunny
Search
ENG
IN
12:58
16-03-2025


Longest Increasing Subsequenc
leetcode.com/problems/longest-increasing-subsequence-ii/
Problem List
Run
Submit
Premium
Description
Accepted
Editorial
Solutions
Submissions
2407. Longest Increasing Subsequence II
Solved
Hard
Topics
Companies
Hint
You are given an integer array nums and an integer k.
Find the longest subsequence of nums that meets the following requirements:
The subsequence is strictly increasing and
The difference between adjacent elements in the subsequence is at most k.
Return the length of the longest subsequence that meets the requirements.
A subsequence is an array that can be derived from another array by deleting some or no elements without changing the order of the remaining elements.
Example 1:
Input: nums = [4,2,1,4,3,4,5,8,15], k = 3
Output: 5
917
26
7 Online
Code
Testcase
Test Result
Java
Auto
class Node {
Node leftChild;
Node rightChild;
int start;
int end;
int value;//22bcs13343
public Node(int start, int end, int value) {
this.start = start;
this.end = end;
this.value = value; } }
class Solution {
Node buildSegmentTree(int start, int end) {
if (start == end) return new Node(start, end, 0);
Node node = new Node(start, end, 0);
int mid = (start + end) / 2;
node.leftChild = buildSegmentTree(start, mid);
node.rightChild = buildSegmentTree(mid + 1, end);
return node; }
int queryRangeMax(Node node, int l, int r) {
if (node == null || l > node.end || r < node.start) return 0;
if (l <= node.start && r >= node.end) return node.value;
return Math.max(queryRangeMax(node.leftChild, l, r), queryRangeMax(node.rightCh
}
Saved
Ln 6, Col 27
25°C
Sunny
Search
ENG
IN
13:06
16-03-2025


Longest Increasing Subsequenc
leetcode.com/problems/longest-increasing-subsequence-ii/submissions/1575421085/
Problem List
Run
Submit
Premium
Description
Accepted
Editorial
Solutions
Submissions
All Submissions
Accepted 84 / 84 testcases passed
Muskan submitted at Mar 16, 2025 13:06
Solution
Runtime
166 ms | Beats 30.22%
Analyze Complexity
Memory
63.64 MB | Beats 8.00%
30%
20%
10%
Code
Testcase
Test Result
Accepted Runtime: 8 ms
Case 1
Case 2
Case 3
Input
nums =
[4,2,1,4,3,4,5,8,15]
k =
3
Output
5
Expected
5
Contribute a testcase
25°C
Sunny
Search
ENG
IN
13:07
16-03-2025