Name :- Navnidhi

Uid :- 22BCS15723

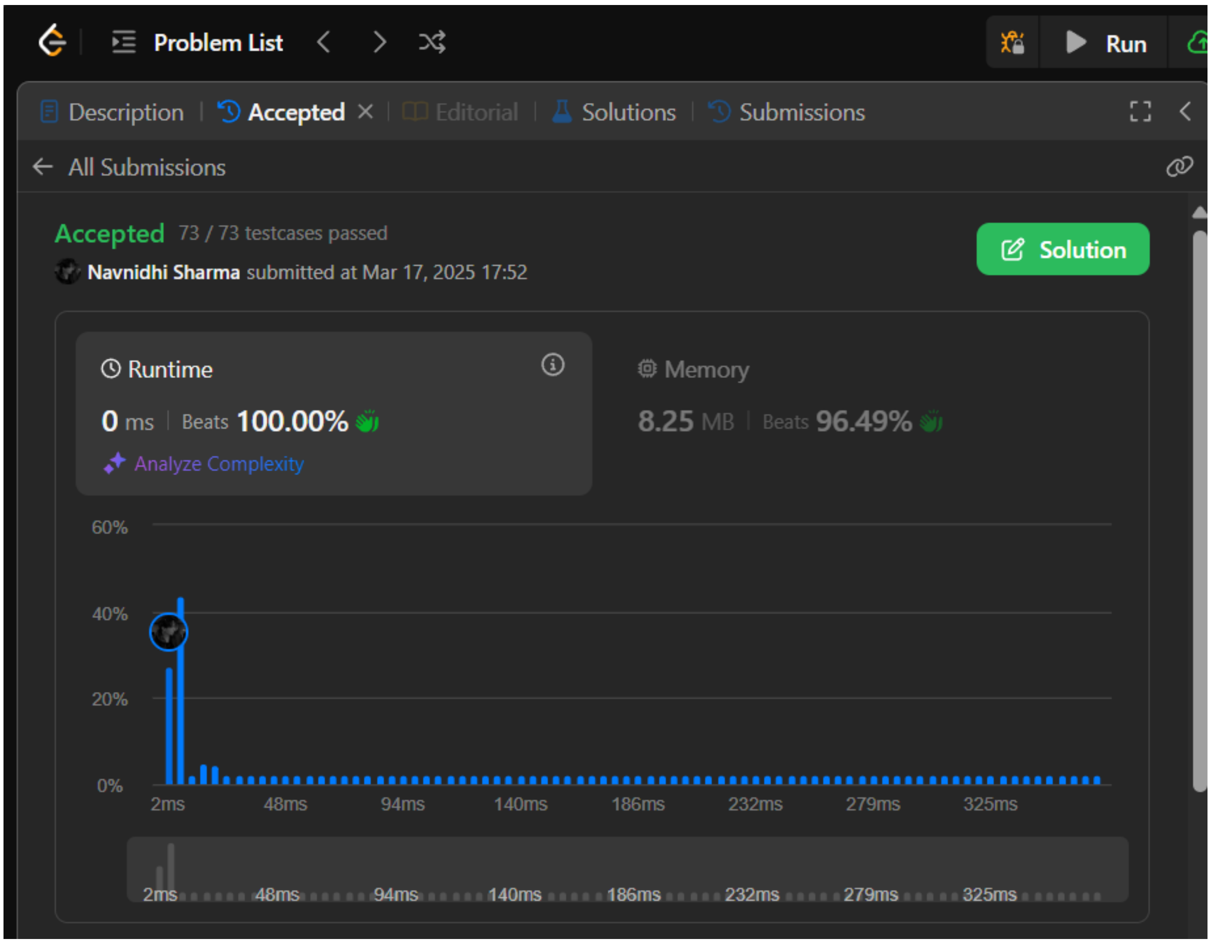
Sec :- 607-B

AP_Assignment4

1763. Longest Nice Substring

```
class Solution {
public:
    string longestNiceSubstring(string s) {
        string output = "";
        int count = 0;
        for(int i = 0;i<s.length();i++){
            int smallMask=0;
            int largeMask = 0;
            char ch = s[i];
            int chint = 0;
            if(ch>=65 && ch<=90){
                chint = ch-'A';
                largeMask = 1<<chint;
            }
            else{
                chint = ch-'a';
                smallMask = 1<<chint;
            }
            for(int j = i+1;j<s.length();j++){
```

```
            ch = s[j];
            if(ch>=65 && ch<=90){
                chint = ch-'A';
                largeMask |= 1<<chint;
            }
            else{
                chint = ch-'a';
                smallMask |= 1<<chint;
            }
            //checking for nice
            if((smallMask^largeMask) == 0){
                if(count<j-i+1){
                    count = j-i+1;
                    string temp(s.begin()+i,s.begin()+j+1);
                    output = temp;
                }
            }
        }
    }
    return output;
  }
};
```



Accepted 73 / 73 testcases passed

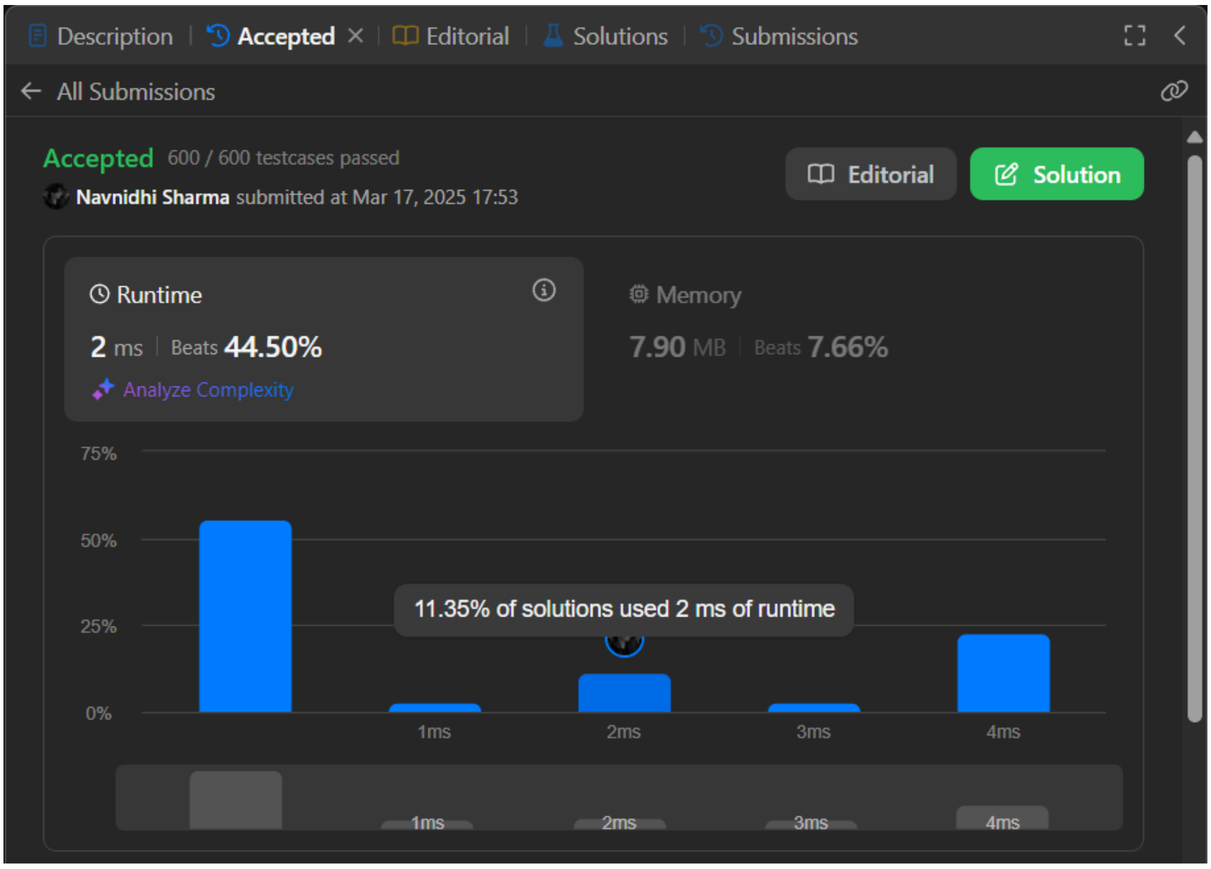
Navnidhi Sharma submitted at Mar 17, 2025 17:52

Runtime
0 ms | Beats 100.00%

Memory
8.25 MB | Beats 96.49%

190. Reverse Bits

```
class Solution {
public:
    uint32_t reverseBits(uint32_t n) {
        string str = bitset<32>(n).to_string();
        reverse(str.begin(),str.end());
        uint32_t num = bitset<32>(str).to_ulong();
        return num;
    }
};
```



Accepted 600 / 600 testcases passed

Navnidhi Sharma submitted at Mar 17, 2025 17:53

Runtime

2 ms | Beats 44.50%

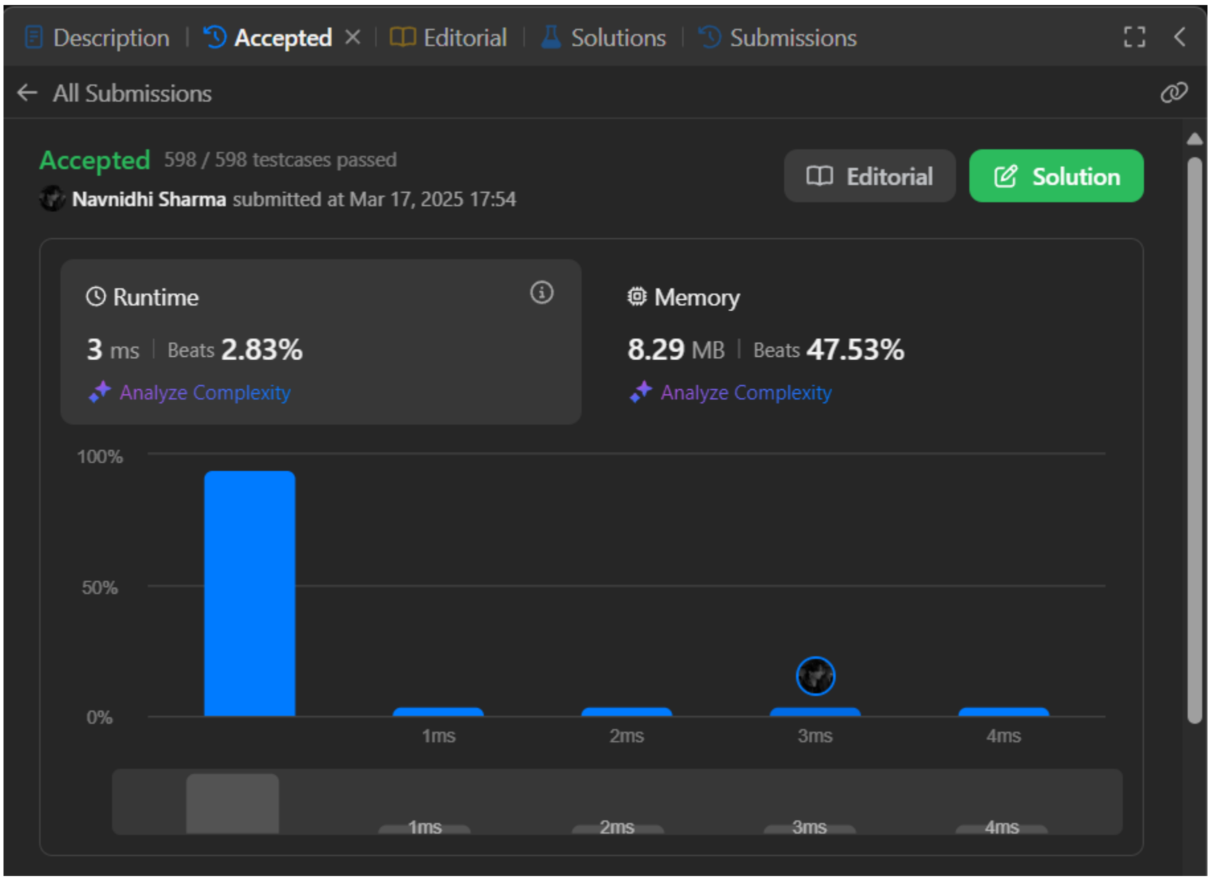
Memory

7.90 MB | Beats 7.66%

11.35% of solutions used 2 ms of runtime

191. Number of 1 Bits

```
class Solution {
public:
    int hammingWeight(int n) {
        int count = 0;
        for(int i = 31; i >= 0; i--){
            if(((n >> i) & 1) == 1)
                count++;
        }
        return count;
    }
};
```


Description | Accepted | Editorial | Solutions | Submissions

All Submissions

Accepted 598 / 598 testcases passed

Navnidhi Sharma submitted at Mar 17, 2025 17:54

Runtime

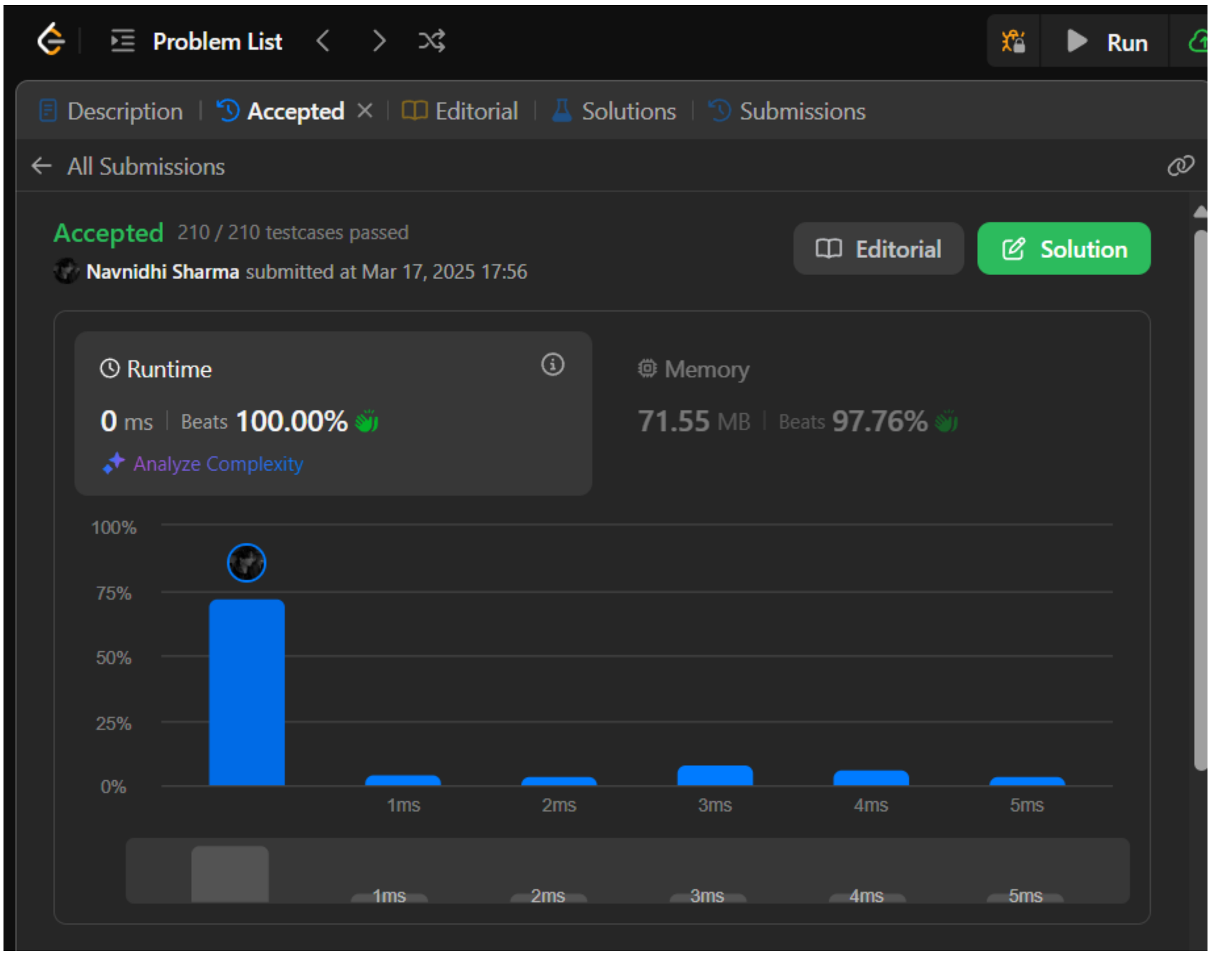
3 ms | Beats 2.83%

Memory

8.29 MB | Beats 47.53%

[53. Maximum Subarray]

```
class Solution {

public:

    int maxSubArray(vector<int>& nums) {

        int max = INT_MIN;

        int sum = 0;

        int n = nums.size();

        for(int i = 0; i<n; i++){

            sum = sum + nums[i];

            if(sum> max){

                max = sum;

            }
            if(sum<0){
                sum = 0;
            }
        }
        return max;
    }
};
```



Accepted 210 / 210 testcases passed

Navnidhi Sharma submitted at Mar 17, 2025 17:56

Runtime

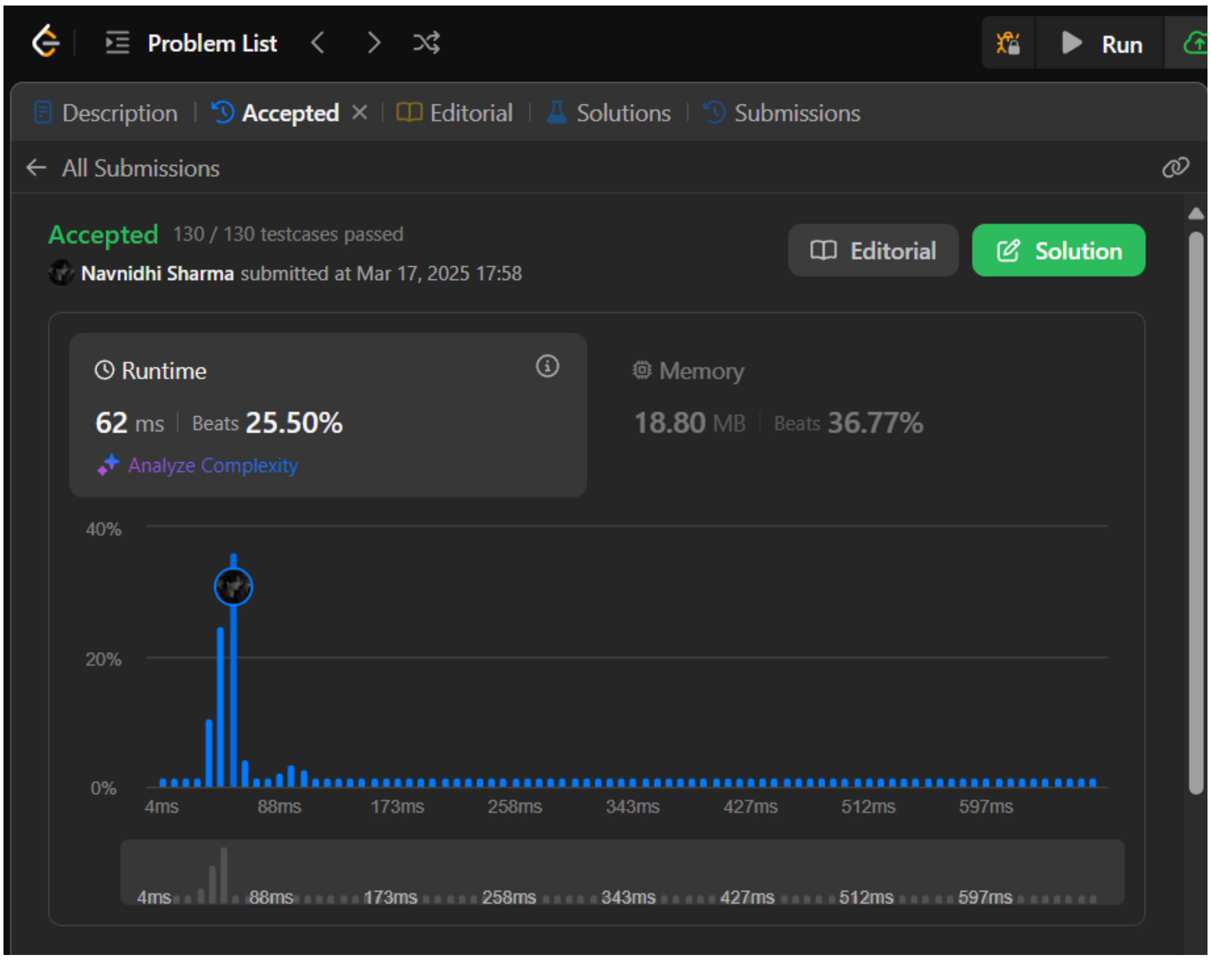
0 ms | Beats 100.00%

Memory

71.55 MB | Beats 97.76%

[240. Search a 2D Matrix II]()

```
class Solution {
public:
    bool searchMatrix(vector<vector<int>>& matrix, int target) {
        int n = matrix[0].size();
        int m = matrix.size();
        int cols = n-1; //last col
        int rows =0; //1st row
        while(rows<m && cols>=0){
            if(target==matrix[rows][cols]) return true;
            else if(target<matrix[rows][cols]) cols--;
            else if(target>matrix[rows][cols]) rows++;
        }
        return false;
    }
};
```



Accepted 130 / 130 testcases passed

Navnidhi Sharma submitted at Mar 17, 2025 17:58

Runtime

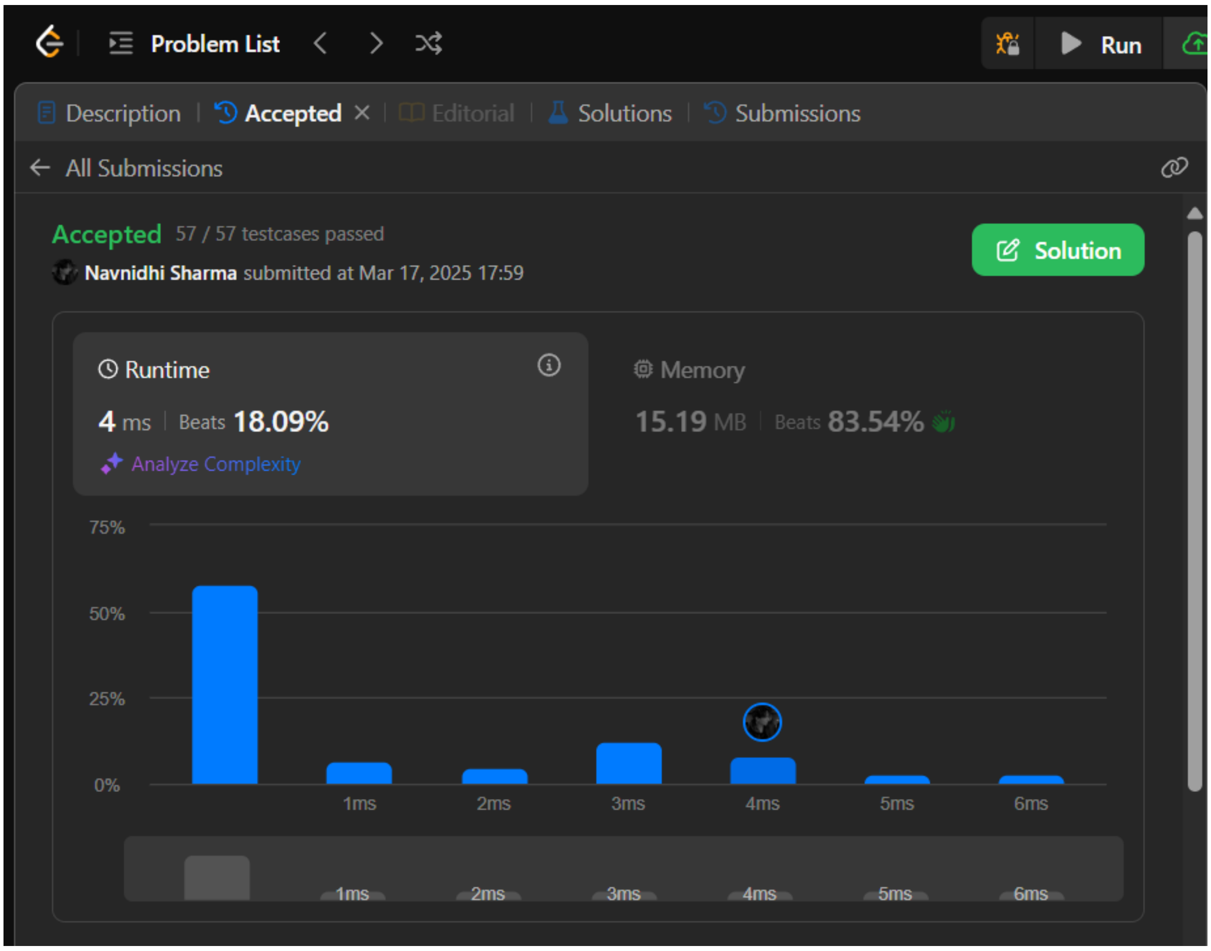
62 ms | Beats 25.50%

Memory

18.80 MB | Beats 36.77%

372. Super Pow

```
class Solution {
    const int base = 1337;
    int powmod(int a, int k) //a^k mod 1337 where 0 <= k <= 10
    {
        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();
        b.pop_back();
        return powmod(superPow(a, b), 10) * powmod(a, last_digit) % base;
    }
};
```



Accepted 57 / 57 testcases passed

Navnidhi Sharma submitted at Mar 17, 2025 17:59

Runtime

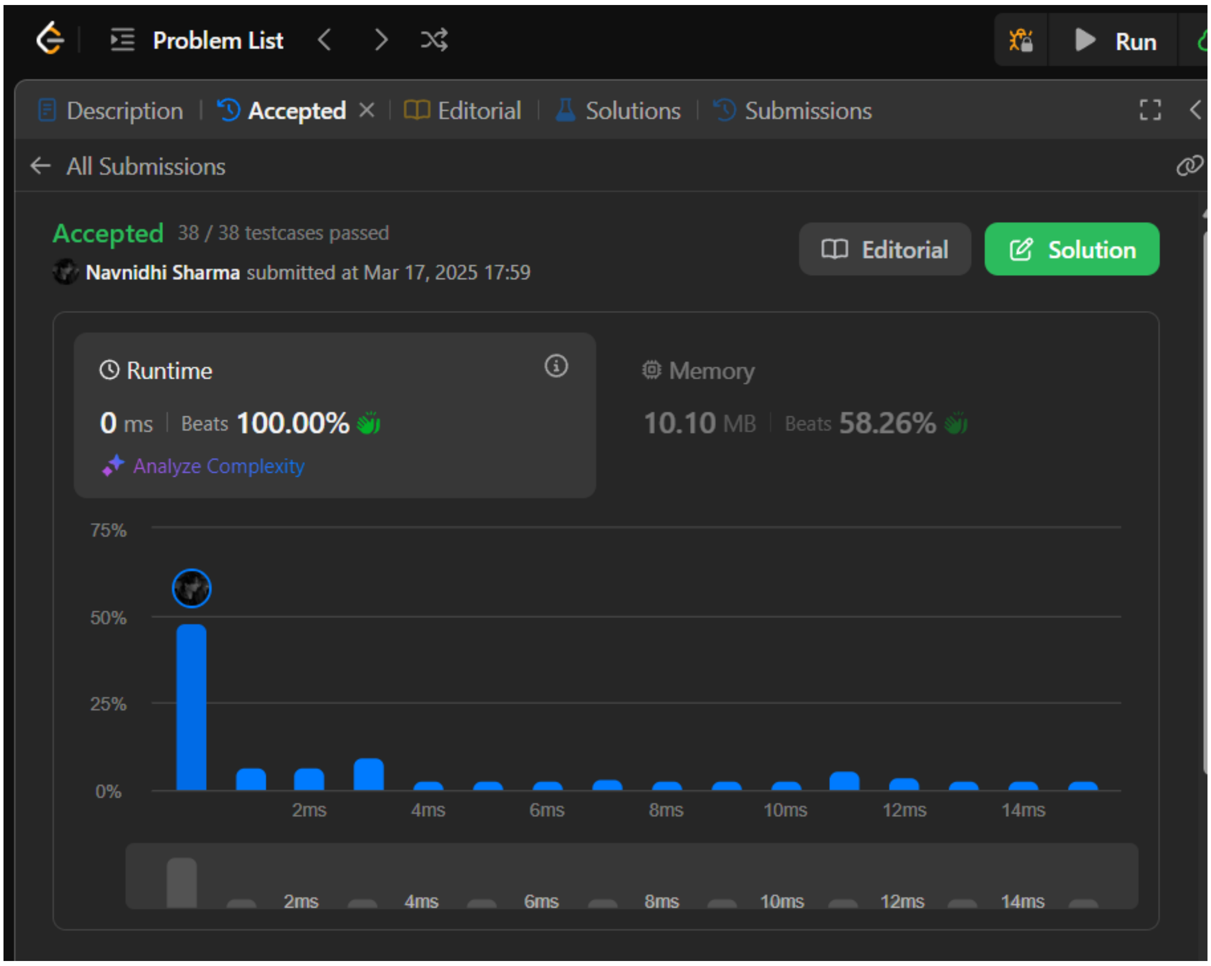
4 ms | Beats 18.09%

Memory

15.19 MB | Beats 83.54%

[932. Beautiful Array]

```
class Solution {
public:
  static bool comp(const int &a, const int &b){
    int mask = 1;
    while(true)
      if((a&mask) == (b&mask)) mask = mask<<1;
      else return (a&mask) > (b&mask);
  }
  vector<int> beautifulArray(int n) {
    vector<int> answer;
    while(n) answer.push_back(n--);
    sort(answer.begin(), answer.end(), comp);
    return answer;
  }
};
```



Accepted 38 / 38 testcases passed

Navnidhi Sharma submitted at Mar 17, 2025 17:59

Runtime
0 ms | Beats 100.00%

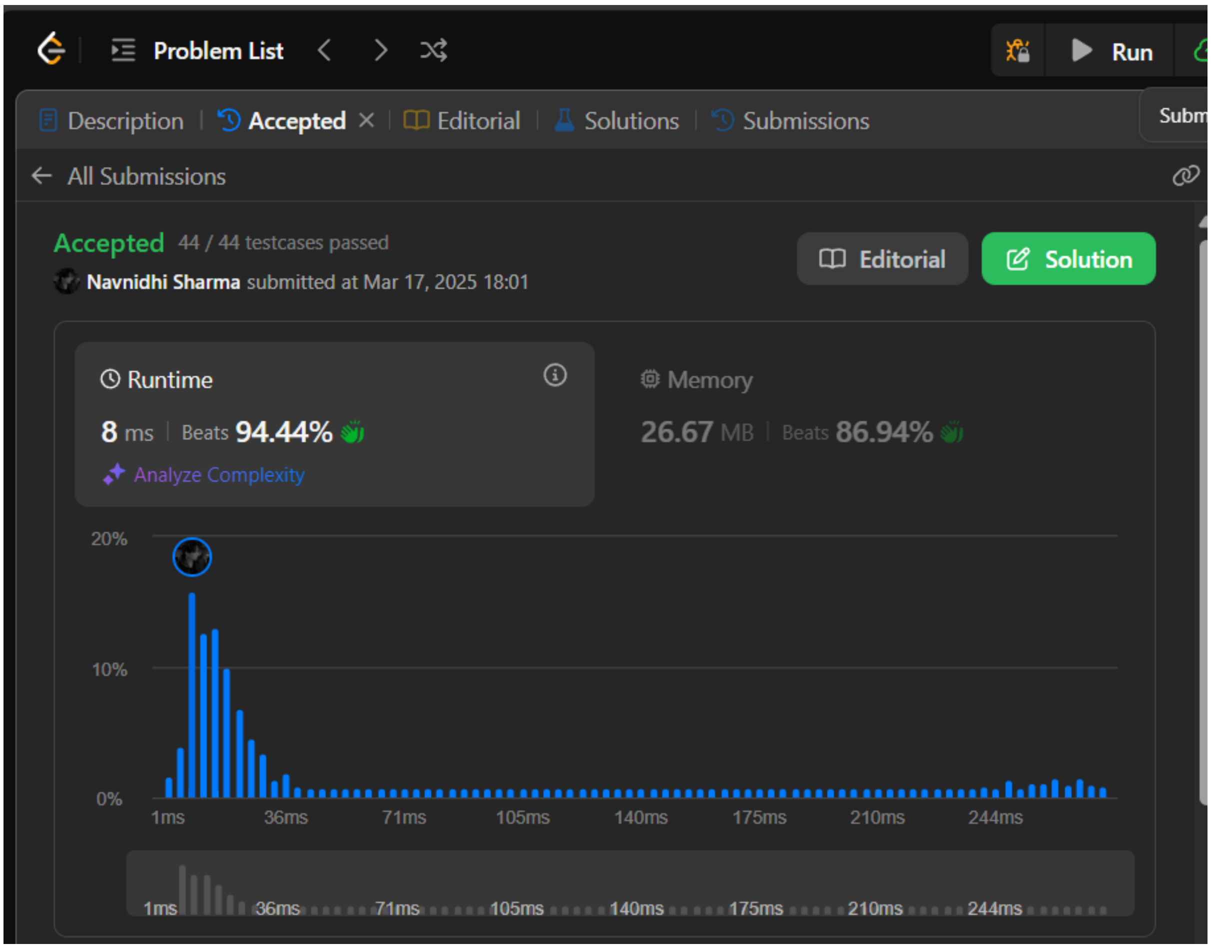
Memory
10.10 MB | Beats 58.26%

218. The Skyline Problem

```
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]);
      ++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;
    }
};
```



Accepted 44 / 44 testcases passed

Navnidhi Sharma submitted at Mar 17, 2025 18:01

Runtime

8 ms | Beats 94.44%

Memory

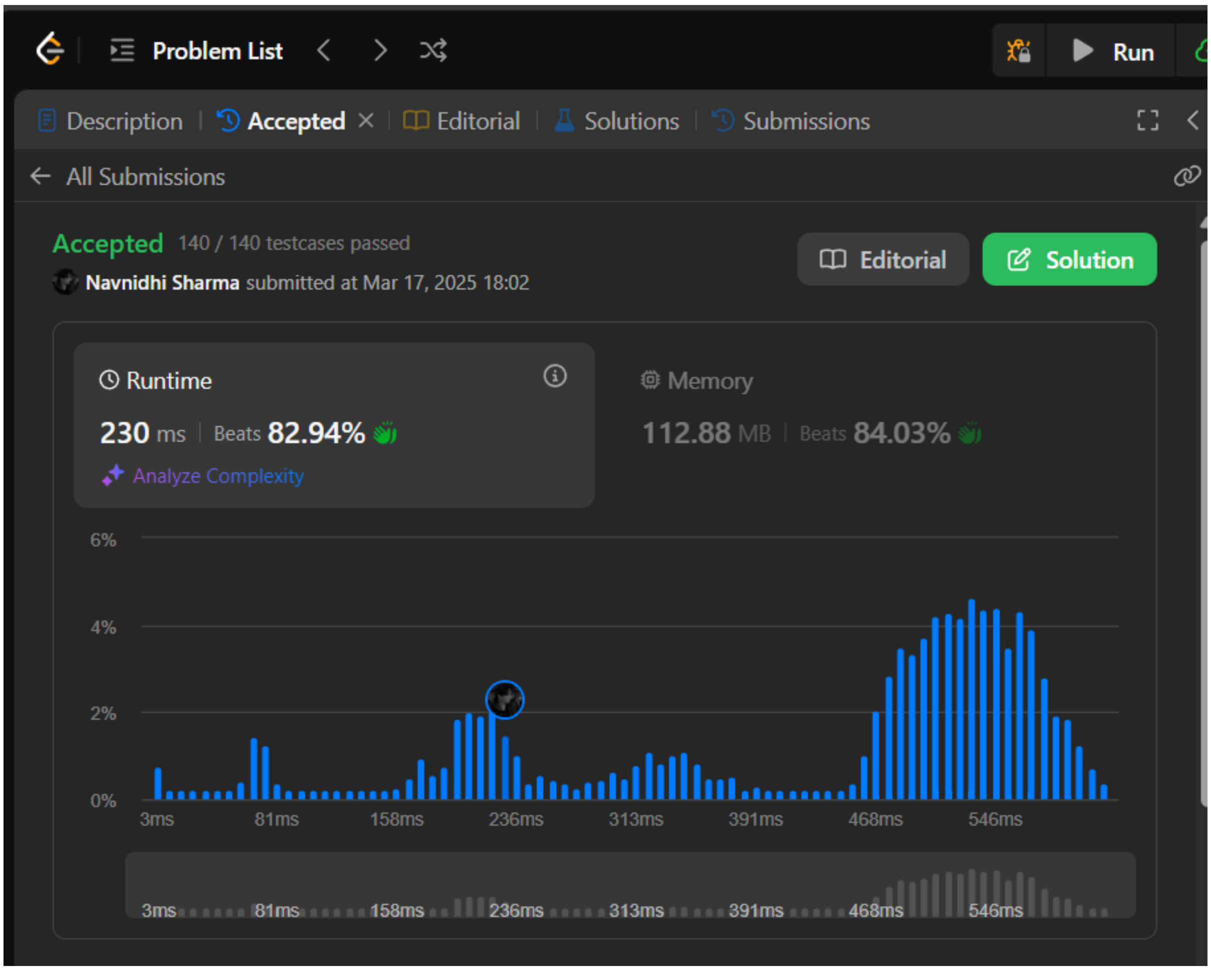
26.67 MB | Beats 86.94%

[493. Reverse Pairs]

```
class Solution {
private:
    void merge(vector<int>& nums, int low, int mid, int high, int& reversePairsCount){
        int j = mid+1;
        for(int i=low; i<=mid; i++){
```

```
    while(j<=high && nums[i] > 2*(long long)nums[j]){
        j++;
    }
    reversePairsCount += j-(mid+1);
}
int size = high-low+1;
vector<int> temp(size, 0);
int left = low, right = mid+1, k=0;
while(left<=mid && right<=high){
    if(nums[left] < nums[right]){
        temp[k++] = nums[left++];
    }
    else{
        temp[k++] = nums[right++];
    }
}
while(left<=mid){
    temp[k++] = nums[left++];
}
while(right<=high){
    temp[k++] = nums[right++];
}
int m=0;
for(int i=low; i<=high; i++){
    nums[i] = temp[m++];
```

```
        }
    }

    void mergeSort(vector<int>& nums, int low, int high, int&
reversePairsCount){
        if(low >= high){
            return;
        }
        int mid = (low + high) >> 1;
        mergeSort(nums, low, mid, reversePairsCount);
        mergeSort(nums, mid+1, high, reversePairsCount);
        merge(nums, low, mid, high, reversePairsCount);
    }
public:
    int reversePairs(vector<int>& nums) {
        int reversePairsCount = 0;
        mergeSort(nums, 0, nums.size()-1, reversePairsCount);
        return reversePairsCount;
    }
};
```


Problem List

Description | Accepted | Editorial | Solutions | Submissions

All Submissions

Accepted 140 / 140 testcases passed

Navnidhi Sharma submitted at Mar 17, 2025 18:02

Editorial | Solution

Runtime

230 ms | Beats 82.94%

Analyze Complexity

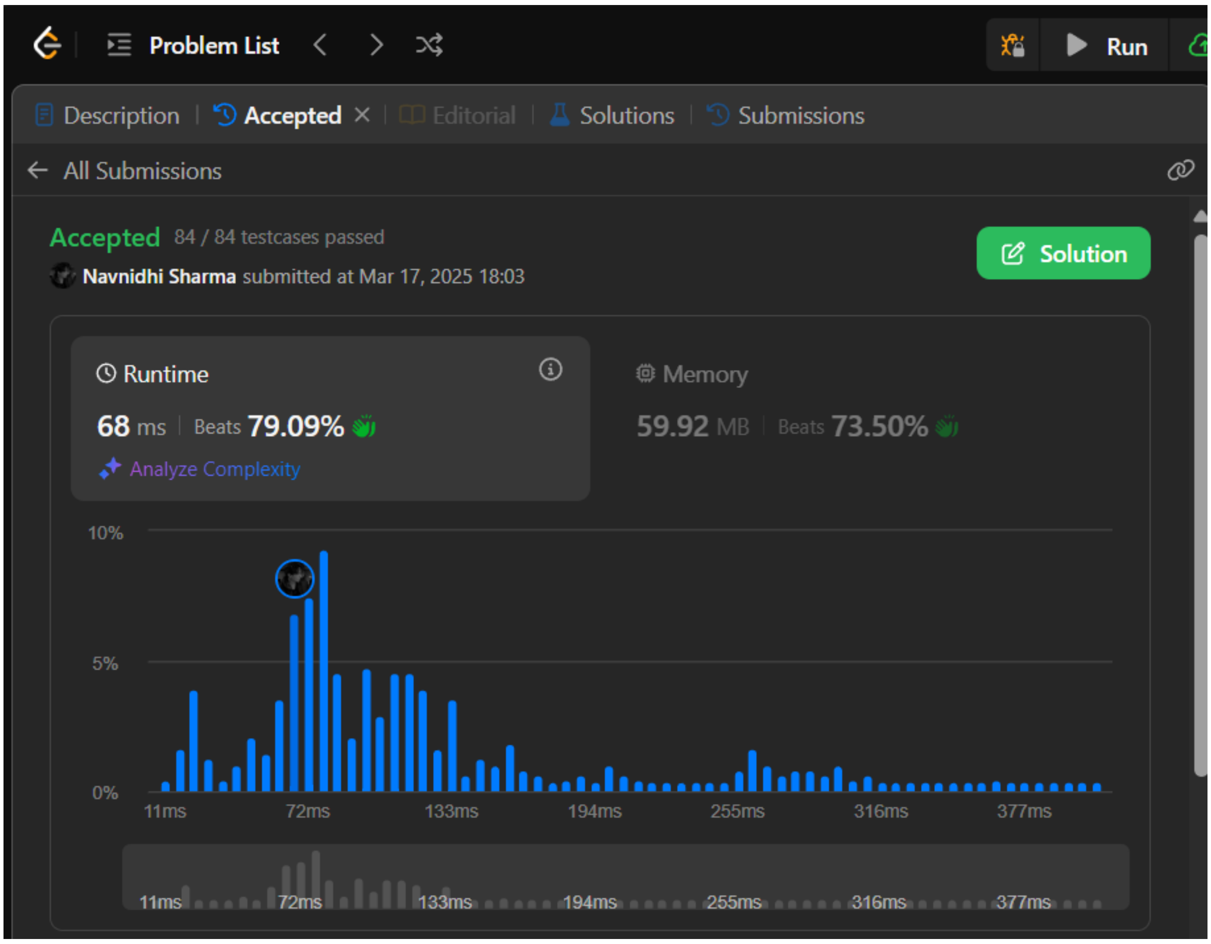
Memory

112.88 MB | Beats 84.03%

2407. Longest Increasing Subsequence II

```
class Solution {
public:
    vector<int>tree;
    void update(int node,int st,int end,int i,int val){
        if(st==end){
            tree[node]=max(tree[node],val);
            return;
        }
        int mid=(st+end)/2;
        if(i<=mid){
            update(node*2,st,mid,i,val);
        }else{
            update(node*2+1,mid+1,end,i,val);
        }
        tree[node]=max(tree[node*2],tree[node*2+1]);
    }
    int query(int node,int st,int end,int x,int y){
        if(x>end || y<st) return -1e9;
        if(st>=x && end<=y){
            return tree[node];
        }
        int mid=(st+end)/2;
        int left=query(2*node,st,mid,x,y);
        int right=query(2*node+1,mid+1,end,x,y);
        return max(left,right);
    }
    int lengthOfLIS(vector<int>& nums, int k) {
        int n=nums.size();
        if(n==1) return 1;
        int m=*max_element(nums.begin(),nums.end());
        tree.clear();
        tree.resize(4*m+10);
        for(int i=n-1;i>=0;i--){
            int l=nums[i]+1,r=min(nums[i]+k,m);
            int x=query(1,0,m,l,r);
            if(x==-1e9) x=0;
```

```
            update(1,0,m,nums[i],x+1);
        }
        return tree[1];
    }
};
```



Accepted 84 / 84 testcases passed

Navnidhi Sharma submitted at Mar 17, 2025 18:03

Runtime

68 ms | Beats 79.09%

Memory

59.92 MB | Beats 73.50%