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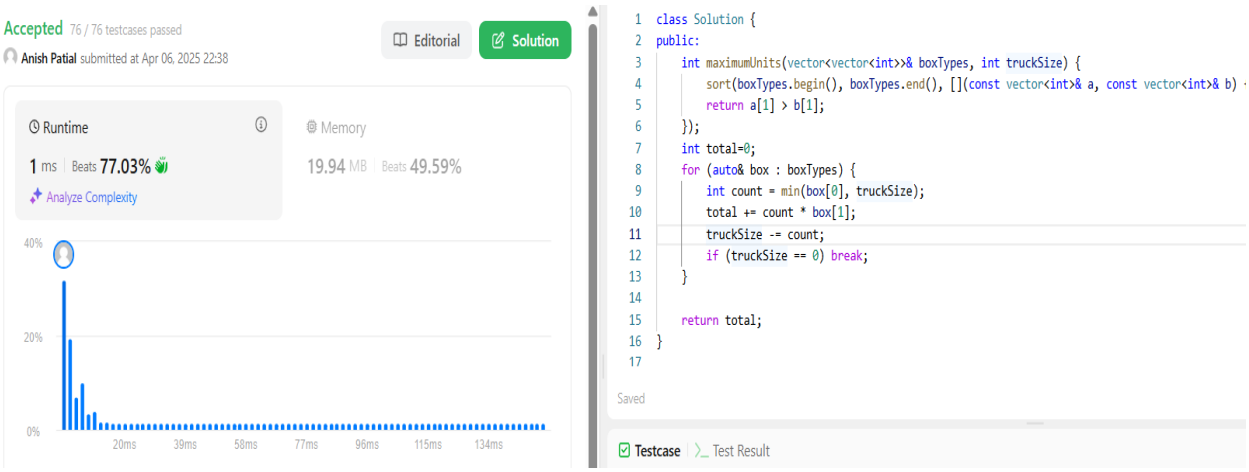
Section: FL_Iot 601 ‘A’

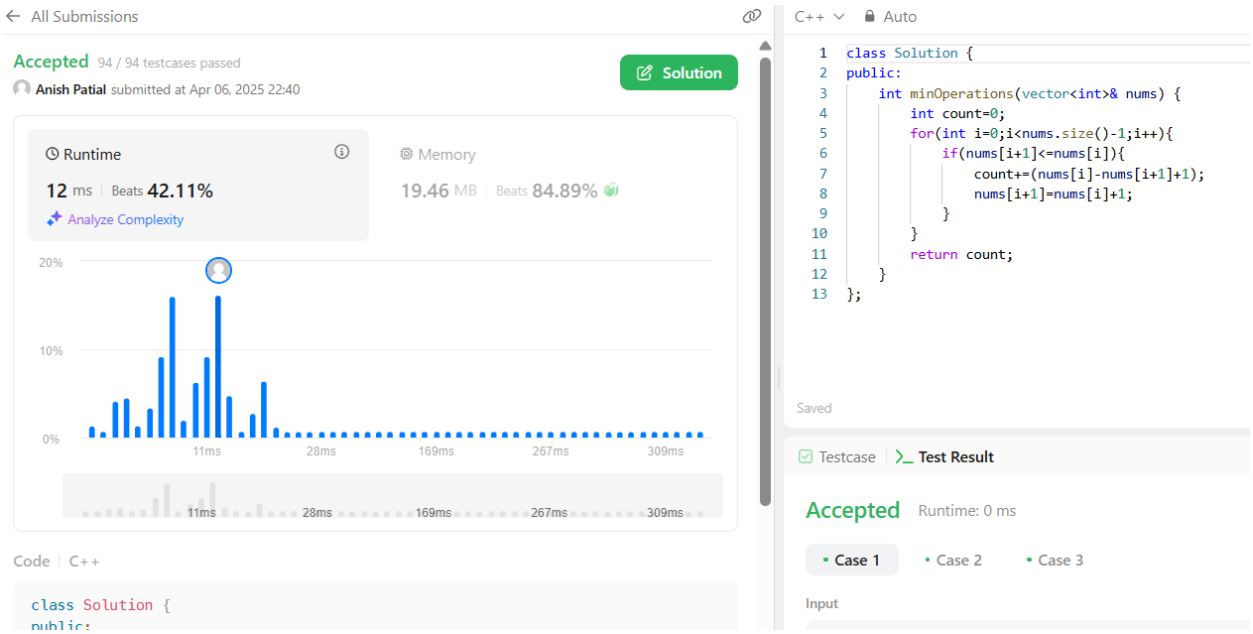
1. **Max Units on a Truck**

```
class Solution {
public:
    int maximumUnits(vector<vector<int>>& boxTypes, int truckSize) {
        sort(boxTypes.begin(), boxTypes.end(), [](const vector<int>& a, const
vector<int>& b) {
            return a[1] > b[1];
        });

        int total = 0;

        for (auto& box : boxTypes) {
            int count = min(box[0], truckSize);
            total += count * box[1];
            truckSize -= count;

            if (truckSize == 0) break;
        }

        return total;
    }
};
```



2. Minimum Operations to Make the Array Increasing

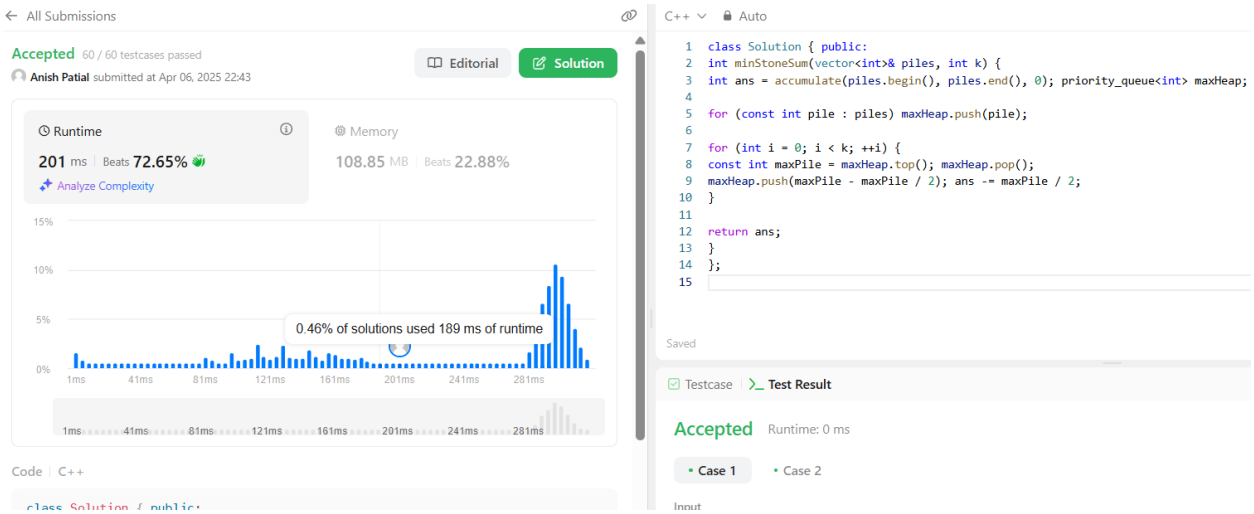
```
class Solution {
public:
    int minOperations(vector<int>& nums) {
        int count=0;
        for(int i=0;i<nums.size()-1;i++){
            if(nums[i+1]<=nums[i]){
                count+=(nums[i]-nums[i+1]+1);
                nums[i+1]=nums[i]+1;
            }
        }
        return count;
    }
};
```



3. [Remove Stones to Minimize the Total]

```
class Solution {
 public:
  int minStoneSum(vector<int>& piles, int k) {
    int ans = accumulate(piles.begin(), piles.end(), 0);
    priority_queue<int> maxHeap;

    for (const int pile : piles)
      maxHeap.push(pile);

    for (int i = 0; i < k; ++i) {
      const int maxPile = maxHeap.top();
      maxHeap.pop();
      maxHeap.push(maxPile - maxPile / 2);
      ans -= maxPile / 2;
    }
```

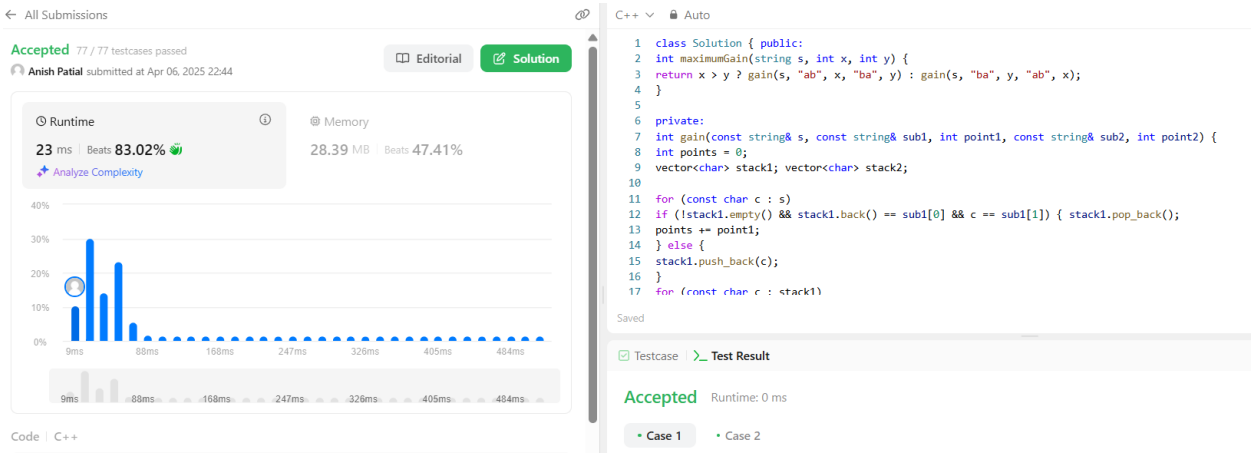
```
    return ans;
  }
};
```



4. [Maximum Score From Removing Substrings]

```
class Solution {
 public:
  int maximumGain(string s, int x, int y) {
    return x > y ? gain(s, "ab", x, "ba", y) : gain(s, "ba", y, "ab", x);
  }

 private:
  int gain(const string& s, const string& sub1, int point1, const string& sub2,
           int point2) {
    int points = 0;
    vector<char> stack1;
    vector<char> stack2;
```

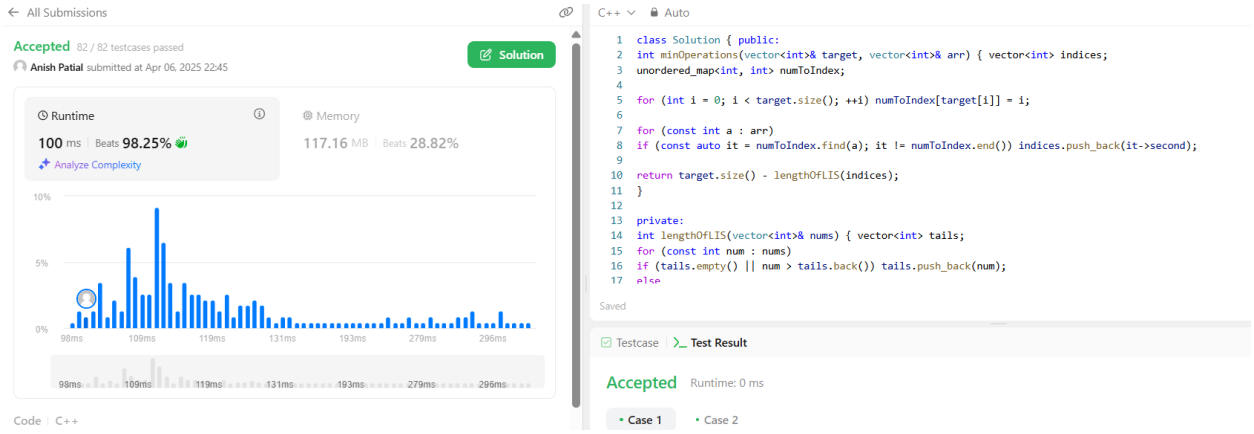
```
    for (const char c : s)
      if (!stack1.empty() && stack1.back() == sub1[0] && c == sub1[1]) {
        stack1.pop_back();
        points += point1;
      } else {
        stack1.push_back(c);
      }
    for (const char c : stack1)
      if (!stack2.empty() && stack2.back() == sub2[0] && c == sub2[1]) {
        stack2.pop_back();
        points += point2;
      } else {
        stack2.push_back(c);
      }
    return points;
  }
};
```



5. **Minimum Operations to Make a Subsequence**

```
class Solution {
 public:
  int minOperations(vector<int>& target, vector<int>& arr) {
    vector<int> indices;
    unordered_map<int, int> numToIndex;

    for (int i = 0; i < target.size(); ++i)
      numToIndex[target[i]] = i;

    for (const int a : arr)
      if (const auto it = numToIndex.find(a); it != numToIndex.end())
        indices.push_back(it->second);

    return target.size() - lengthOfLIS(indices);
  }

 private:
  int lengthOfLIS(vector<int>& nums) {
    vector<int> tails;
    for (const int num : nums)
      if (tails.empty() || num > tails.back())
        tails.push_back(num);
      else
        tails[firstGreaterEqual(tails, num)] = num;
    return tails.size();
  }

 private:
  int firstGreaterEqual(const vector<int>& arr, int target) {
    return ranges::lower_bound(arr, target) - arr.begin();
  }
```

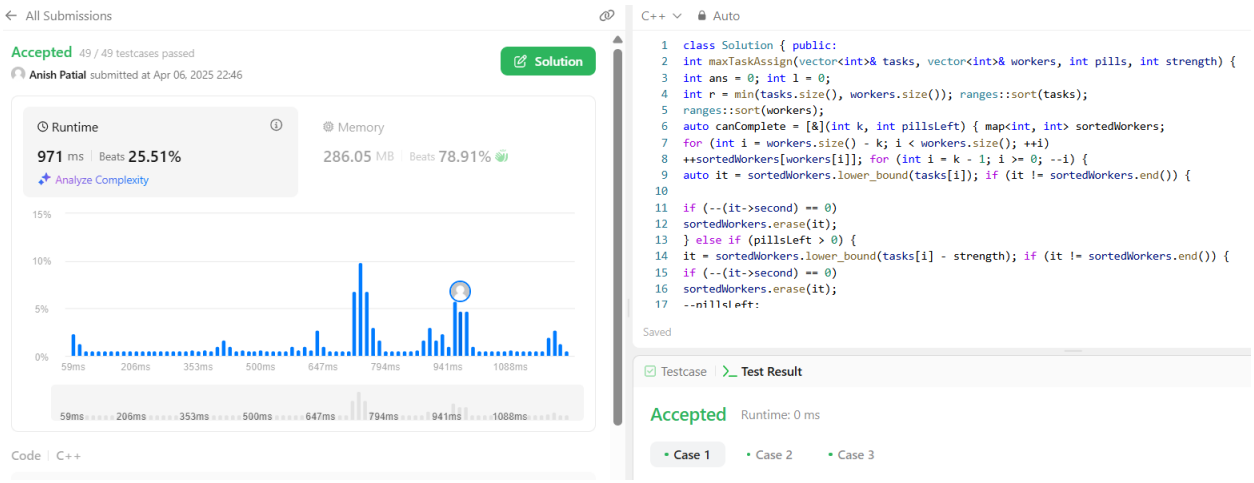
};



6. [Maximum Number of Tasks You Can Assign]

```
class Solution {
 public:
  int maxTaskAssign(vector<int>& tasks, vector<int>& workers, int pills,
                    int strength) {
    int ans = 0;
    int l = 0;
    int r = min(tasks.size(), workers.size());
    ranges::sort(tasks);
    ranges::sort(workers);
    auto canComplete = [&](int k, int pillsLeft) {
      map<int, int> sortedWorkers;
      for (int i = workers.size() - k; i < workers.size(); ++i)
        ++sortedWorkers[workers[i]];
      for (int i = k - 1; i >= 0; --i) {
        auto it = sortedWorkers.lower_bound(tasks[i]);
        if (it != sortedWorkers.end()) {
```

```
        if (--(it->second) == 0)
          sortedWorkers.erase(it);
        } else if (pillsLeft > 0) {
          it = sortedWorkers.lower_bound(tasks[i] - strength);
          if (it != sortedWorkers.end()) {
            if (--(it->second) == 0)
              sortedWorkers.erase(it);
            --pillsLeft;
          } else {
            return false;
          }
        } else {
          return false;
        }
      }

      return true;
    };

    while (l <= r) {
      const int m = (l + r) / 2;
      if (canComplete(m, pills)) {
        ans = m;
        l = m + 1;
      } else {
        r = m - 1;
      }
    }

    return ans;
  }
};
```


All Submissions
Accepted 49 / 49 testcases passed
Anish Patial submitted at Apr 06, 2025 22:46
Solution
Runtime
971 ms | Beats 25.51%
Analyze Complexity
Memory
286.05 MB | Beats 78.91%
15%
10%
5%
0%
59ms 206ms 353ms 500ms 647ms 794ms 941ms 1088ms
Code | C++
C++ Auto
1 class Solution { public:
2 int maxTaskAssign(vector<int>& tasks, vector<int>& workers, int pills, int strength) {
3 int ans = 0; int l = 0;
4 int r = min(tasks.size(), workers.size()); ranges::sort(tasks);
5 ranges::sort(workers);
6 auto canComplete = [&](int k, int pillsLeft) { map<int, int> sortedWorkers;
7 for (int i = workers.size() - k; i < workers.size(); ++i)
8 ++sortedWorkers[workers[i]]; for (int i = k - 1; i >= 0; --i) {
9 auto it = sortedWorkers.lower_bound(tasks[i]); if (it != sortedWorkers.end()) {
10
11 if (--(it->second) == 0)
12 sortedWorkers.erase(it);
13 } else if (pillsLeft > 0) {
14 it = sortedWorkers.lower_bound(tasks[i] - strength); if (it != sortedWorkers.end()) {
15 if (--(it->second) == 0)
16 sortedWorkers.erase(it);
17 --pillsLeft;
Saved
Testcase | Test Result
Accepted Runtime: 0 ms
Case 1
Case 2
Case 3