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Subject: DAA (01CT0512)	LHC	
LHC	Date: 02-08-2025	Enrolment No: 92301733046

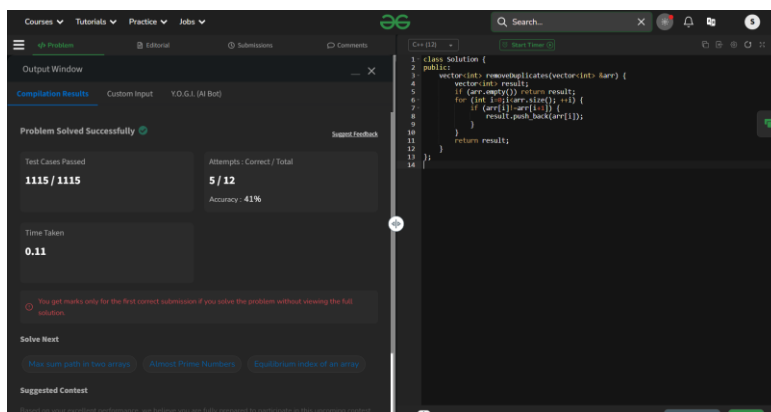
Company Name: Google


Problem-1: Remove Duplicate element from sorted array

Code:

```
class Solution {
public:
    vector<int> removeDuplicates(vector<int> &arr) {
        vector<int> result;
        if (arr.empty()) return result;
        for (int i=0;i<arr.size(); ++i) {
            if (arr[i]!=arr[i+1]) {
                result.push_back(arr[i]);
            }
        }
        return result;
    }
};
```

Output:




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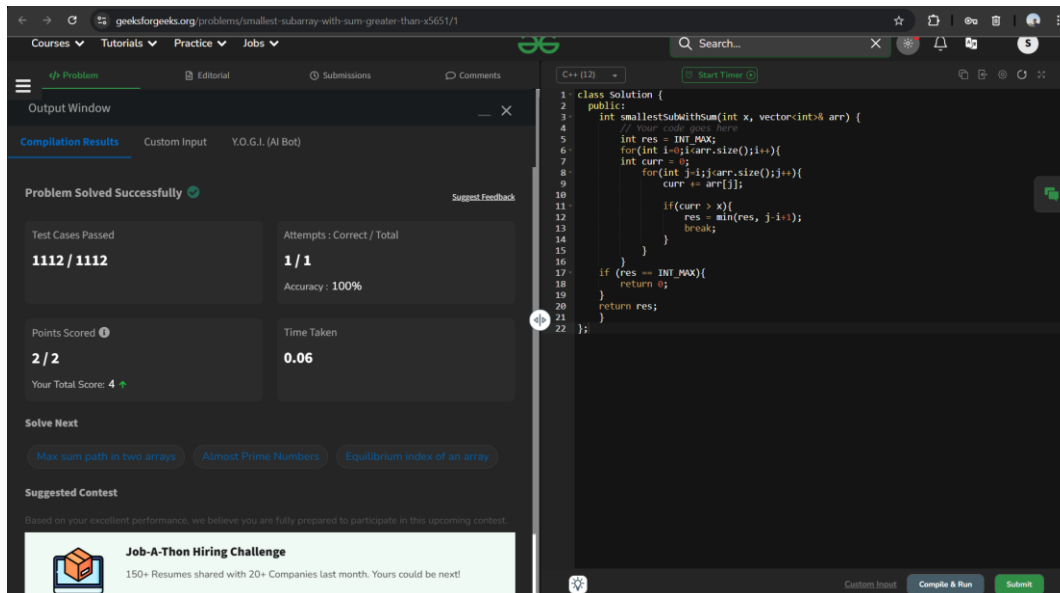
Problem-2:

Code:

```
class Solution {
public:
    int smallestSubWithSum(int x, vector<int>& arr) {
        // Your code goes here
        int res = INT_MAX;
        for(int i=0;i<arr.size();i++){
            int curr = 0;
            for(int j=i;j<arr.size();j++){
                curr += arr[j];

                if(curr > x){
                    res = min(res, j-i+1);
                    break;
                }
            }
        }
        if (res == INT_MAX){
            return 0;
        }
        return res;
    }
};
```

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Problem-3: Left most and right most index



Code:

```

class Solution {
public:
    pair<long, long> indexes(vector<long long> v, long long x) {
        // code here
        long first=-1, last=-1;

        for (long i = 0; i < v.size(); ++i) {
            if (v[i]==x) {
                if (first==-1) first=i;
                last = i;
            }
        }
    }
}

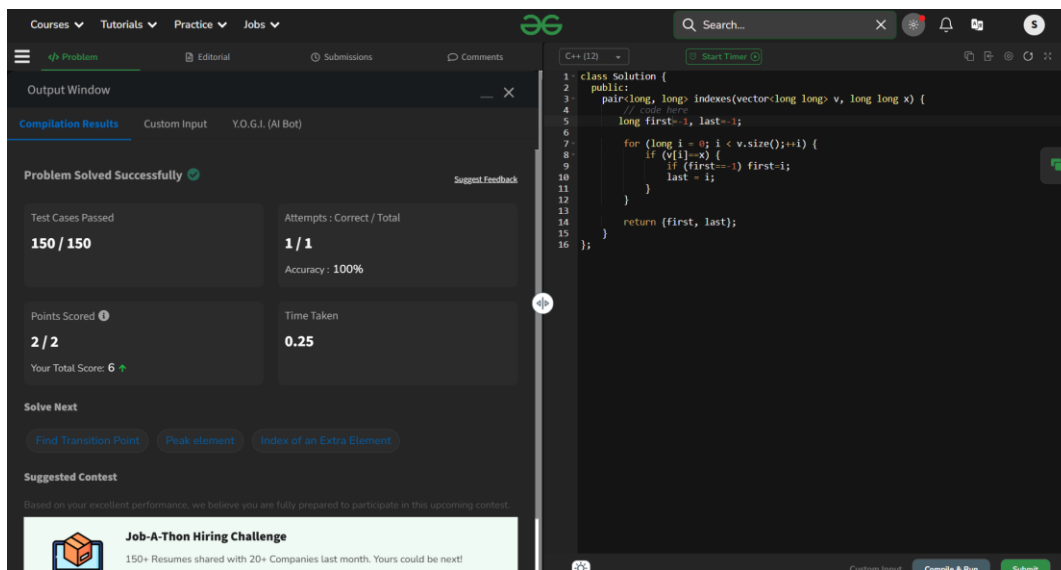
```

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```

        return {first, last};
    }
};

```



Problem-4:



Code:

```

/*
// Tree Node
class Node {
public:
    int data;
    Node* left;
    Node* right;

    // Constructor to initialize a new node
    Node(int val) {
        data = val;
        left = NULL;

```

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```

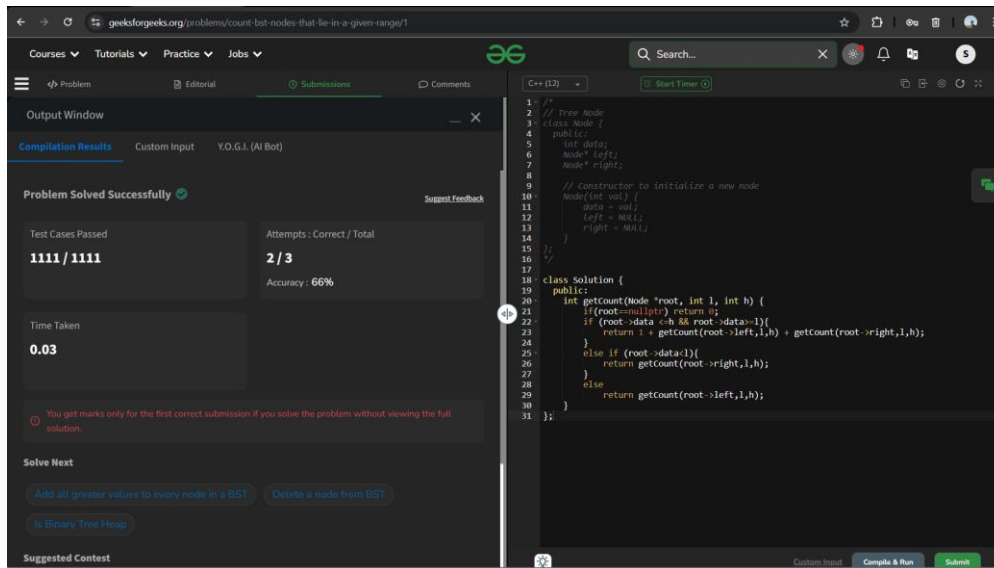
    right = NULL;
}
};
*/

class Solution {
public:
    int getCount(Node *root, int l, int h) {
        if(root==nullptr) return 0;
        if (root->data <=h && root->data>=l){
            return 1 + getCount(root->left,l,h) + getCount(root->right,l,h);
        }
        else if (root->data<l){
            return getCount(root->right,l,h);
        }
        else
            return getCount(root->left,l,h);
    }
};

```

Output:

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Problem-5: longest common prefix



Code:

// User function template for C++

```

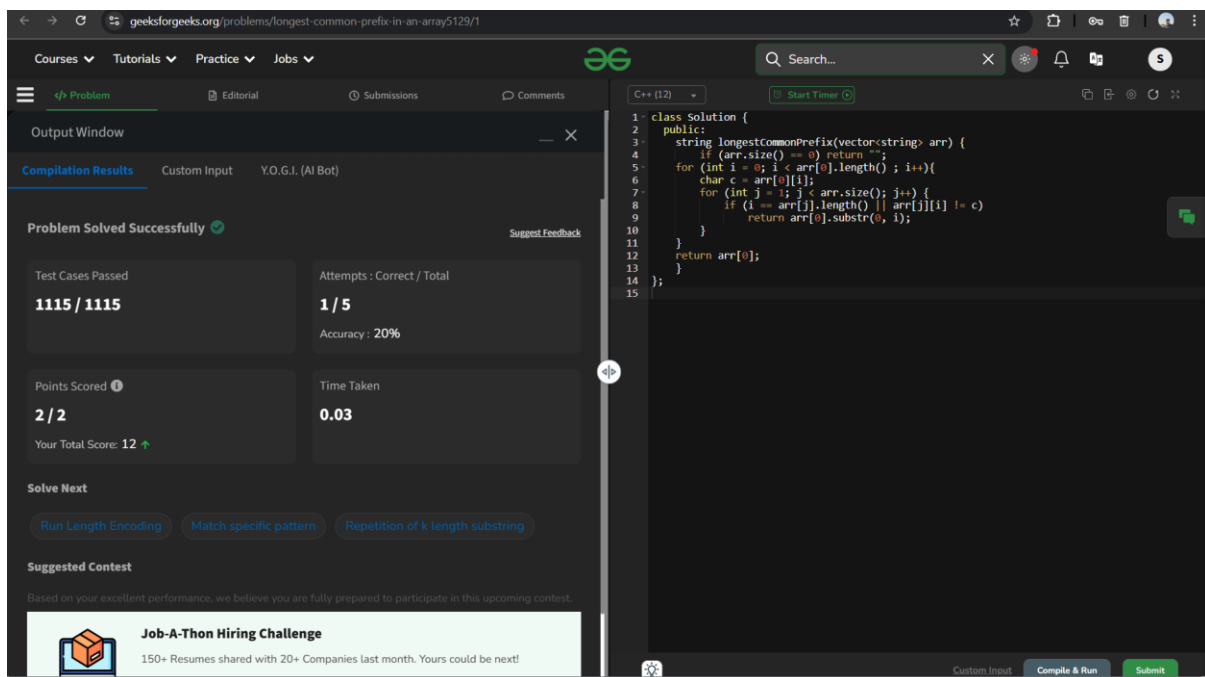
class Solution {
public:
    string longestCommonPrefix(vector<string> arr) {
        // your code here
        if(arr.size()==0) return 0;
        for(int i=0;i<arr.size();i++){
            char c=arr[0][i];
            for(int j=0;j<arr.size();j++){
                if(i==arr[j].length() || arr[j][i]!=c){
                    return arr[0].substr(0,i);
                }
            }
        }
    }
}

```

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};

Output:





Problem-6:

Code:

```
class Solution {
public:
    bool areKAnagrams(string &s1, string &s2, int k) {
        // code here
        {
            if (s1.length() != s2.length()) {
                return false;
            }

            unordered_map<char, int> map;
            for (int i = 0; i < s1.length(); i++) {
```

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```

    char ch = s1[i];
    map[ch]++;
}

for (int i = 0; i < s2.length(); i++) {
    char ch = s2[i];
    if (map[ch] > 0) {
        map[ch]--;
    }
}



int count = 0;
for (auto it = map.begin(); it != map.end(); it++) {
    count += it->second;
}

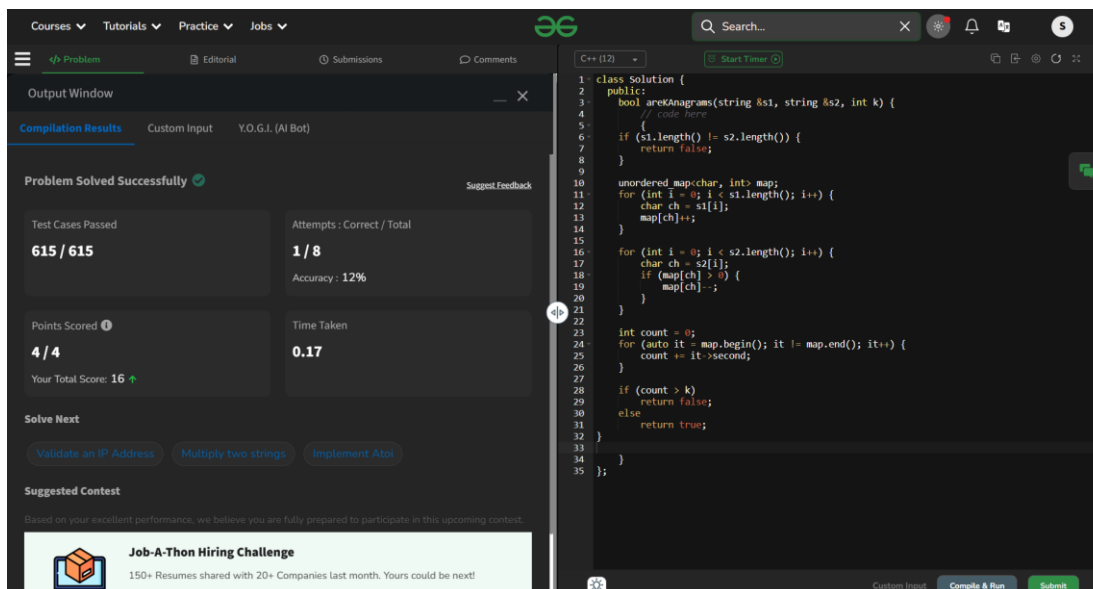
if (count > k)
    return false;
else
    return true;
}

}

};

```


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Problem-7: generate binary string



Code:

```

class Solution {
public:
    void helper(string s, int index, vector<string>& result) {
        if (index == s.length()) {
            result.push_back(s);
            return;
        }

        if (s[index] == '?') {
            s[index] = '0';
            helper(s, index + 1, result);
            s[index] = '1';
            helper(s, index + 1, result);
            s[index] = '?'; // backtrack
        } else {

```

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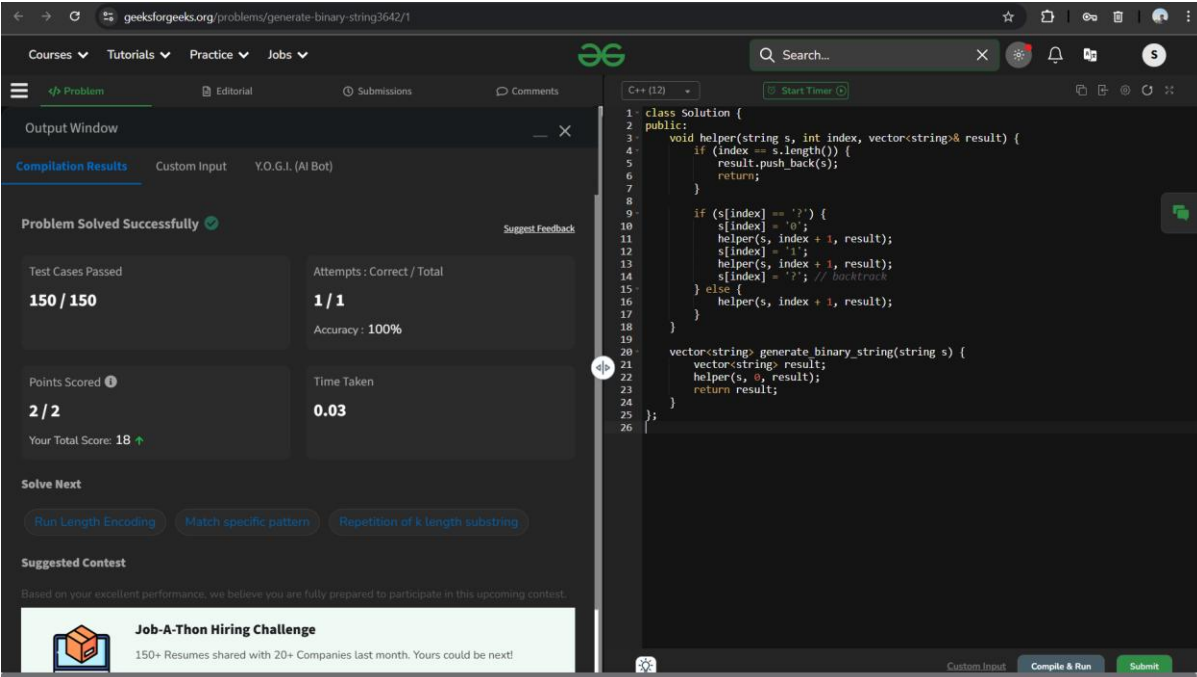
```

        helper(s, index + 1, result);
    }
}

vector<string> generate_binary_string(string s) {
    vector<string> result;
    helper(s, 0, result);
    return result;
}
};

```

Output:





The screenshot displays the GeeksforGeeks interface for the problem 'generate-binary-string'. The left sidebar indicates a successful solution with 150/150 test cases passed, 1/1 attempts, 100% accuracy, 2/2 points scored, and a time taken of 0.03 seconds. The right pane shows the C++ code for the solution, which uses a recursive helper function to generate all possible binary strings of length n.

Problem -8:

```

class Solution {
public:

```

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```
vector<long long> numOfSubsets(int Arr[], int N) {
```

```
    // code
```

```
    int max=Arr[0],min=INT_MAX,count_min=0,count_max=0;
```

```
    for(int i=0;i<N;i++){
```

```
        if(Arr[i]>max){
```

```
            max=Arr[i];
```

```
        }
```

```
        if(Arr[i]<min){
```

```
            min=Arr[i];
```

```
        }
```

```
    }
```

```
    for(int i=0;i<N;i++){
```

```
        if(Arr[i]==min){
```

```
            count_min++;
```

```
        }
```

```
        if(Arr[i]==max){
```

```
            count_max++;
```

```
        }
```

```
    }
```

```
    long long subset1=pow(2, count_min) - 1;
```


```
    long long subset2=pow(2,count_max)-1;
```

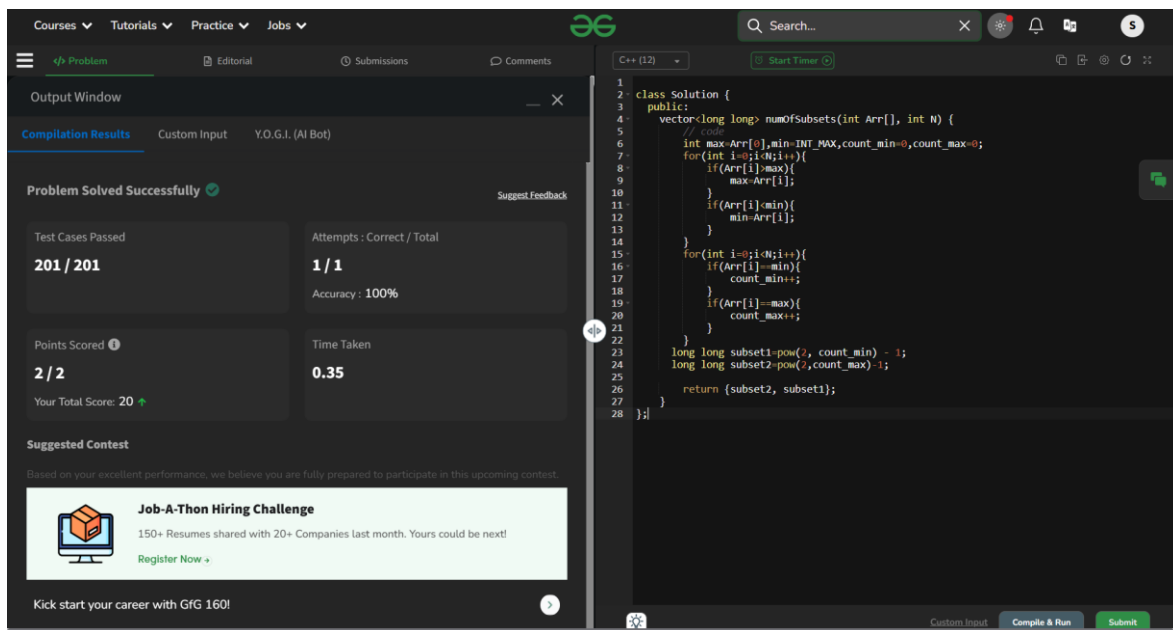
```
    return {subset2, subset1};
```

```
}
```

```
};
```

Output:

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Problem-9: subarray with given sum

Code:

```
class Solution {
public:
    vector<int> subarraySum(vector<int> &arr, int target) {
        int n=arr.size();

        int j=0,sum=0;
        for (int i=0;i<n;i++){
            sum+=arr[i];
            while(sum>target){
                sum-=arr[j++];
            }
            if(sum==target){
                return {j+1,i+1};
            }
        }
    }
};
```

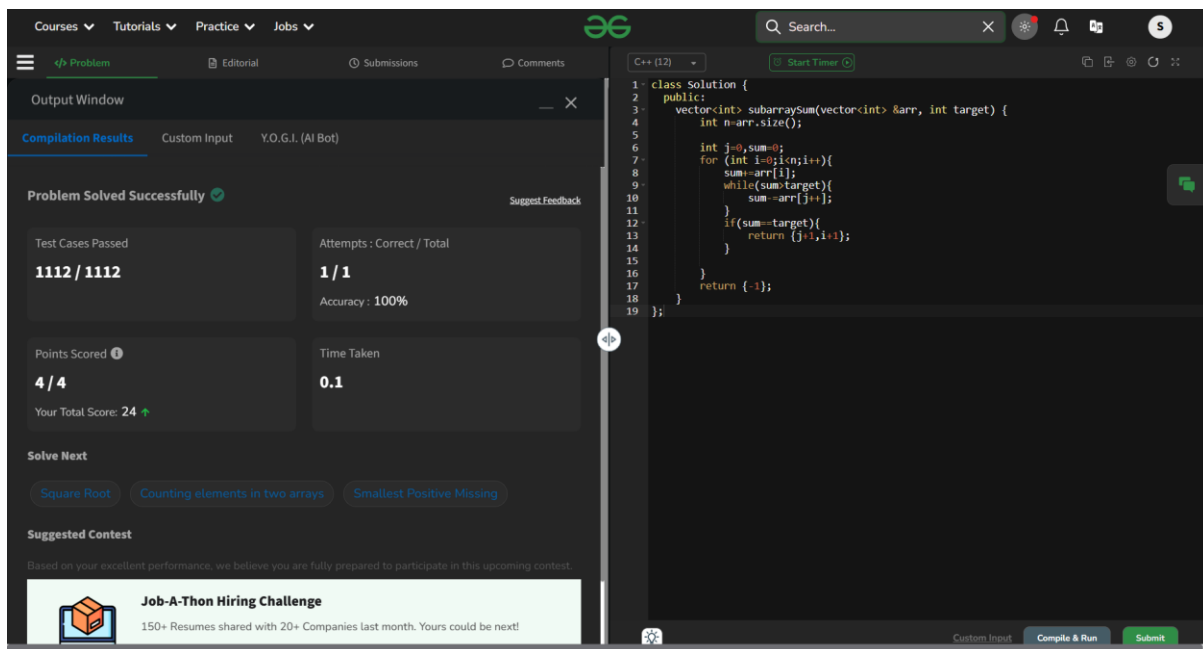
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```

    }
    return {-1};
}
};

```

Output:



Problem-10: Maximum index



Code:

```

class Solution {
public:
    int maxIndexDiff(vector<int>& arr) {
        int n=arr.size();
        vector<int> LMin(n), RMax(n);

        LMin[0]=arr[0];
        for (int i=1;i<n;i++)

```

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```
LMin[i]=min(arr[i], LMin[i-1]);
```

```
RMax[n-1]=arr[n-1];
```

```
for (int j=n-2;j>=0;j--)
```

```
    RMax[j]=max(arr[j],RMax[j+1]);
```

```
int i= 0,j=0,maxDiff=-1;
```

```
while (i<n && j<n) {
```

```
    if (LMin[i]<=RMax[j]) {
```

```
        maxDiff=max(maxDiff,j-i);
```

```
        j++;
```

```
    } else {
```

```
        i++;
```

```
    }
```



```
}
```

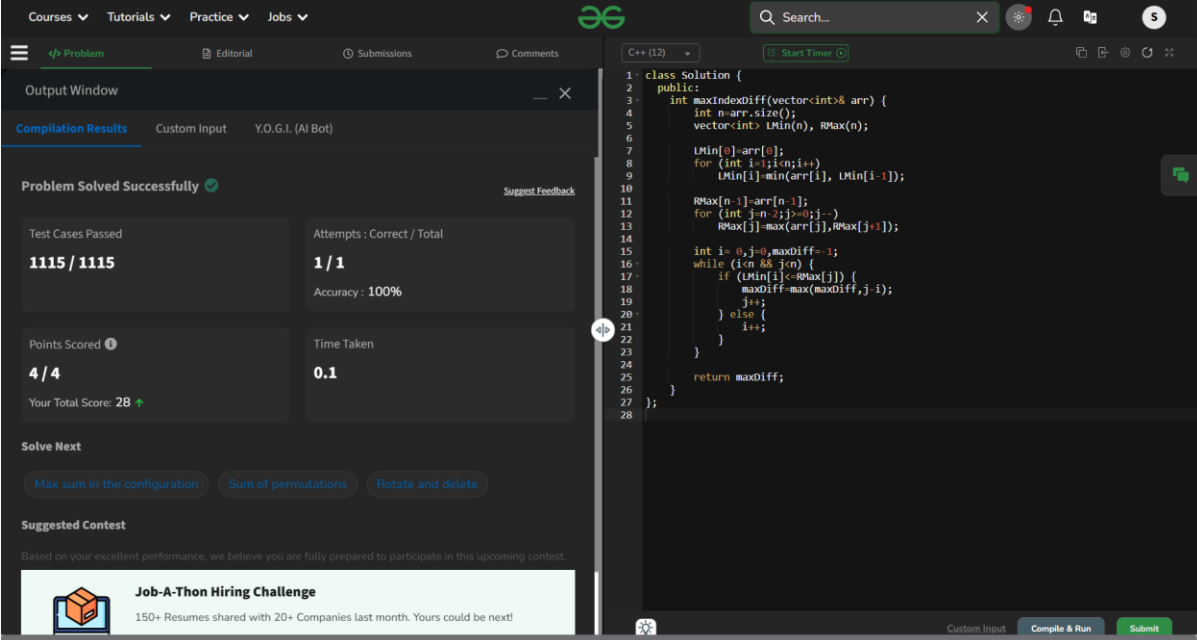
```
return maxDiff;
```

```
}
```

```
};
```

Output:

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The screenshot displays a coding platform interface with the following details:

- Problem Status:** Problem Solved Successfully (green checkmark).
- Test Cases Passed:** 1115 / 1115.
- Attempts:** 1 / 1.
- Accuracy:** 100%.
- Points Scored:** 4 / 4.
- Your Total Score:** 28.
- Time Taken:** 0.1.
- Suggested Contest:** Job-A-Thon Hiring Challenge (150+ Resumes shared with 20+ Companies last month. Yours could be next!).
- Code Language:** C++ (12).
- Code Snippet:**

```

1 class Solution {
2 public:
3     int maxIndexDiff(vector<int>& arr) {
4         int n=arr.size();
5         vector<int> lMin(n), rMax(n);
6
7         lMin[0]=arr[0];
8         for (int i=1;i<n;i++)
9             lMin[i]=min(arr[i], lMin[i-1]);
10
11         rMax[n-1]=arr[n-1];
12         for (int j=n-2;j>=0;j--)
13             rMax[j]=max(arr[j], rMax[j+1]);
14
15         int i=0, j=n-1, maxDiff=0;
16         while (i<j) {
17             if (lMin[i]<=rMax[j]) {
18                 maxDiff=max(maxDiff, j-i);
19                 j--;
20             } else {
21                 i++;
22             }
23         }
24         return maxDiff;
25     }
26 };

```
- Buttons:** Compile & Run, Submit.