AP Assignment – 6

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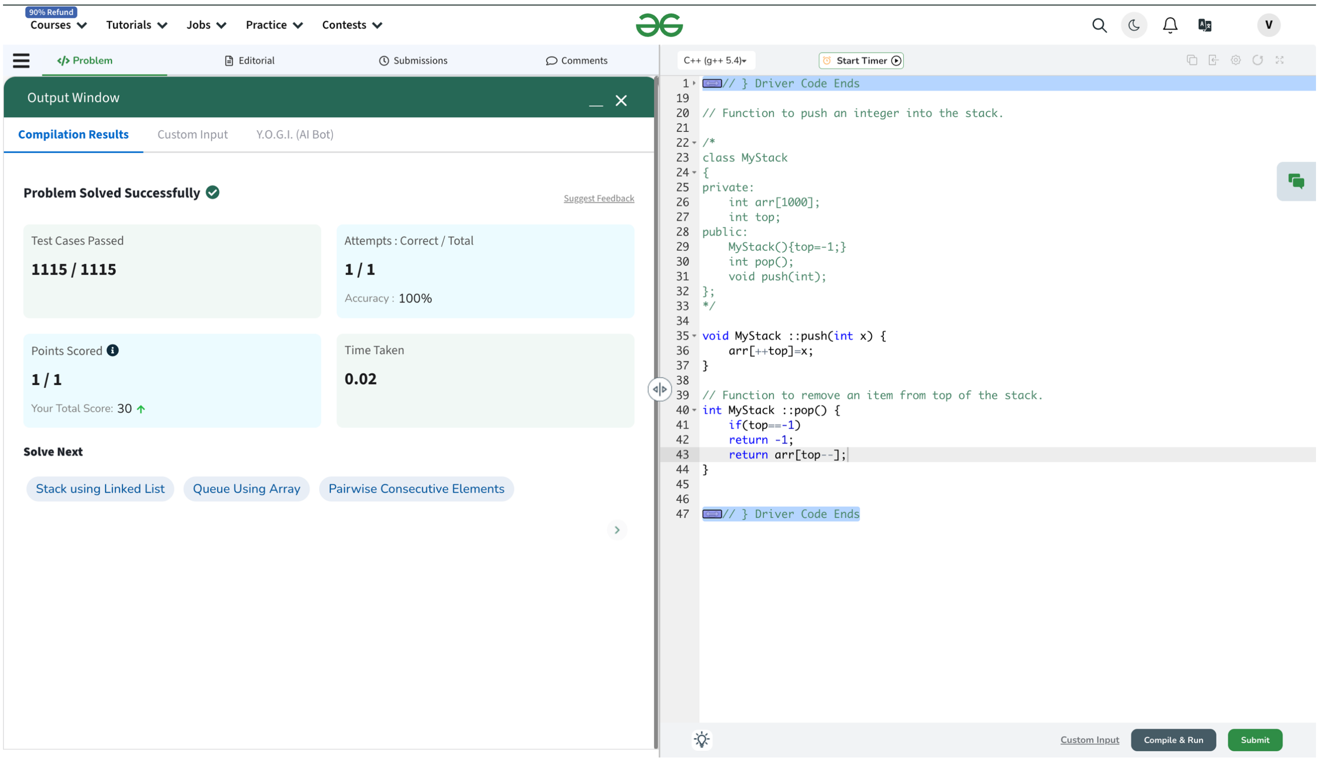
Ques . 1 Implement Stack using an Array

Problem link : https://www.geeksforgeeks.org/problems/implement-stack-using-array/1



Problem Solved Successfully ✓

Test Cases Passed
1115 / 1115

Attempts : Correct / Total
1 / 1
Accuracy : 100%

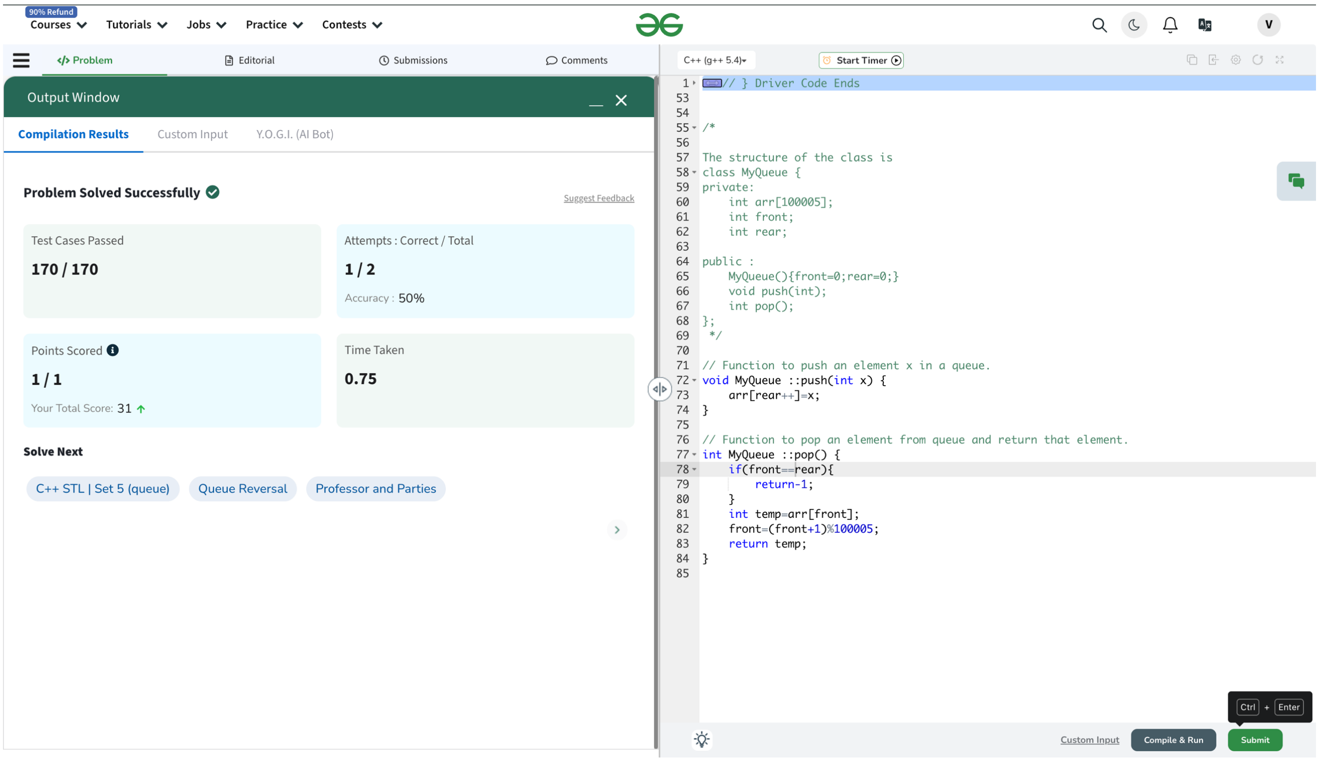
Points Scored
1 / 1
Your Total Score: 30 ↑

Time Taken
0.02

```
// } Driver Code Ends

// Function to push an integer into the stack.

/*
class MyStack
{
private:
    int arr[1000];
    int top;
public:
    MyStack(){top=-1;}
    int pop();
    void push(int);
};
*/

void MyStack ::push(int x) {
    arr[++top]=x;
}

// Function to remove an item from top of the stack.
int MyStack ::pop() {
    if(top==-1)
    return -1;
    return arr[top--];
}


// } Driver Code Ends
```

Ques . 2 Implement Queue using an Array

Problem link : https://www.geeksforgeeks.org/problems/implement-queue-using-array/1



Output Window

Compilation Results | Custom Input | Y.O.G.I. (AI Bot)

Problem Solved Successfully

Test Cases Passed
170 / 170

Attempts : Correct / Total
1 / 2
Accuracy : 50%

Points Scored
1 / 1
Your Total Score: 31

Time Taken
0.75

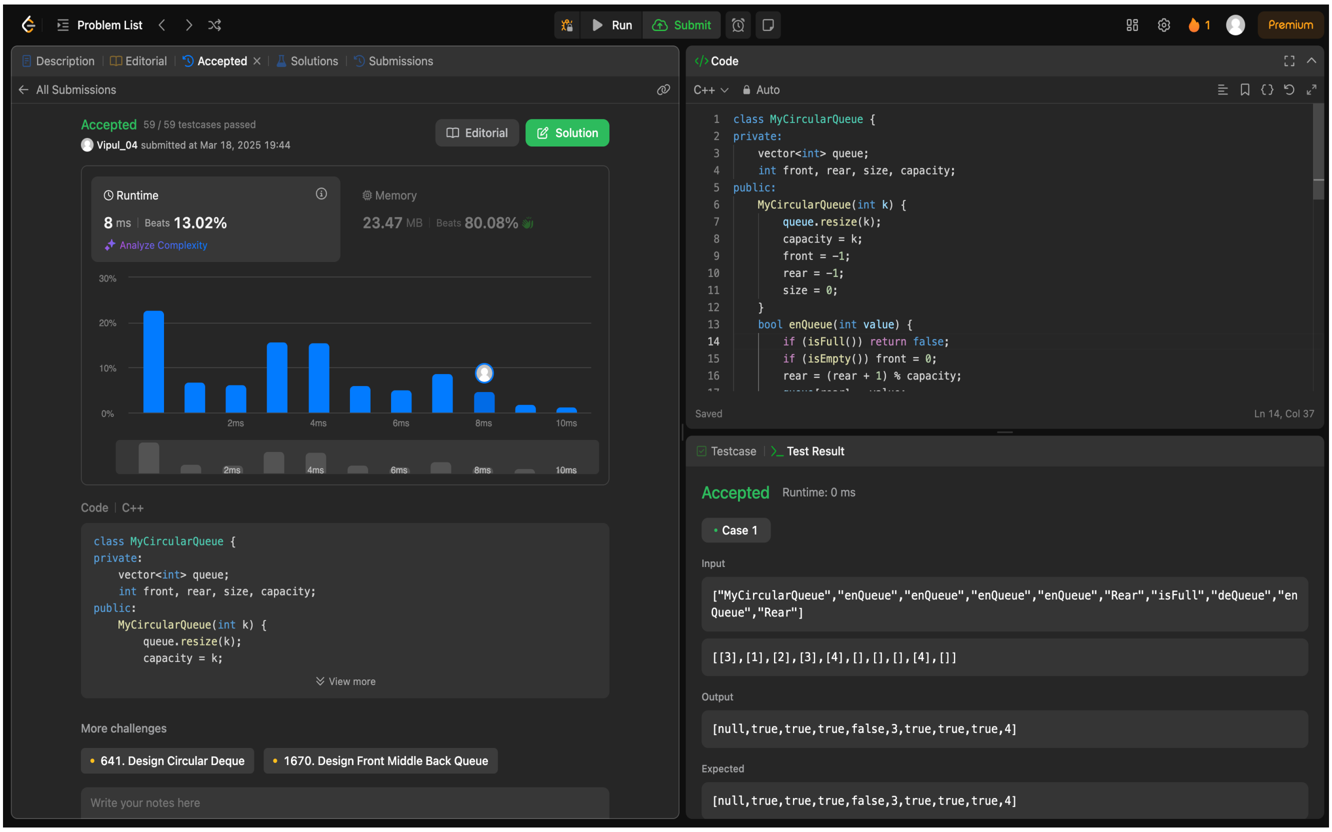
Solve Next

C++ STL | Set 5 (queue) | Queue Reversal | Professor and Parties

```
// } Driver Code Ends


/*

The structure of the class is
class MyQueue {
private:
    int arr[100005];
    int front;
    int rear;

public :
    MyQueue(){front=0;rear=0;}
    void push(int);
    int pop();
};
 */

// Function to push an element x in a queue.
void MyQueue ::push(int x) {
    arr[rear++]=x;
}

// Function to pop an element from queue and return that element.
int MyQueue ::pop() {
    if(front==rear){
        return-1;
    }
    int temp=arr[front];
    front=(front+1)%100005;
    return temp;
}
```

Ques 3 . Implement Circular Queue using an Array

Problem link:https://leetcode.com/problems/design-circular-queue/submissions/1577854408/



Accepted 59 / 59 testcases passed
Vipul_04 submitted at Mar 18, 2025 19:44

Runtime
8 ms | Beats 13.02%

Memory
23.47 MB | Beats 80.08%

Code | C++

```
class MyCircularQueue {
private:
    vector<int> queue;
    int front, rear, size, capacity;
public:
    MyCircularQueue(int k) {
        queue.resize(k);
        capacity = k;
```

More challenges

- 641. Design Circular Deque
- 1670. Design Front Middle Back Queue

Write your notes here

```
class MyCircularQueue {
private:
    vector<int> queue;
    int front, rear, size, capacity;
public:
    MyCircularQueue(int k) {
        queue.resize(k);
        capacity = k;
        front = -1;
        rear = -1;
        size = 0;
    }
    bool enQueue(int value) {
        if (isFull()) return false;
        if (isEmpty()) front = 0;
        rear = (rear + 1) % capacity;
```

Saved | Ln 14, Col 37

Accepted Runtime: 0 ms

Input

```
["MyCircularQueue","enQueue","enQueue","enQueue","enQueue","Rear","isFull","deQueue","enQueue","Rear"]
```

```
[[3],[1],[2],[3],[4],[],[],[],[4],[]]
```

Output

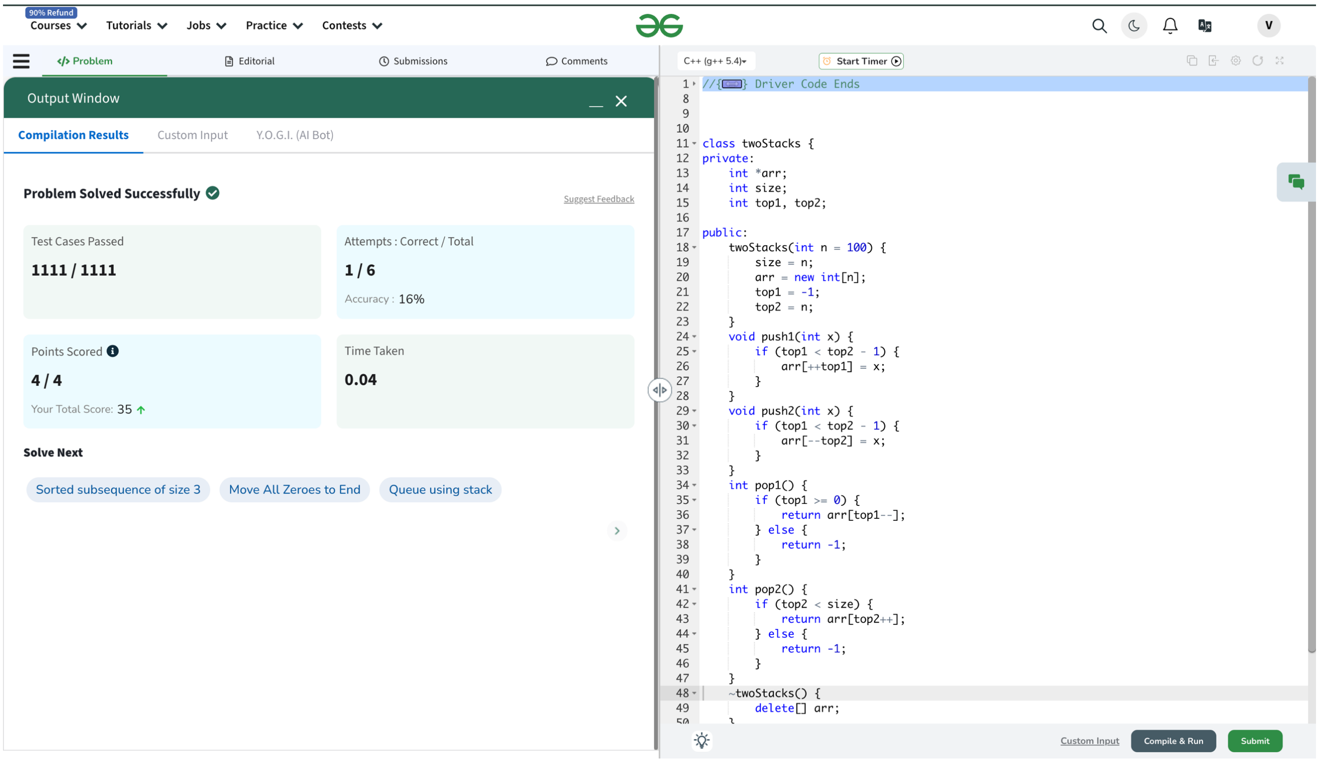
```
[null,true,true,true,false,3,true,true,true,4]
```

Expected

```
[null,true,true,true,false,3,true,true,true,4]
```

Ques 4 : Implement Two Stacks in One Array

Problem link : https://www.geeksforgeeks.org/problems/implement-two-stacks-in-an-array/1



Problem Solved Successfully

Test Cases Passed
1111 / 1111

Attempts : Correct / Total
1 / 6
Accuracy : 16%

Points Scored
4 / 4
Your Total Score: 35

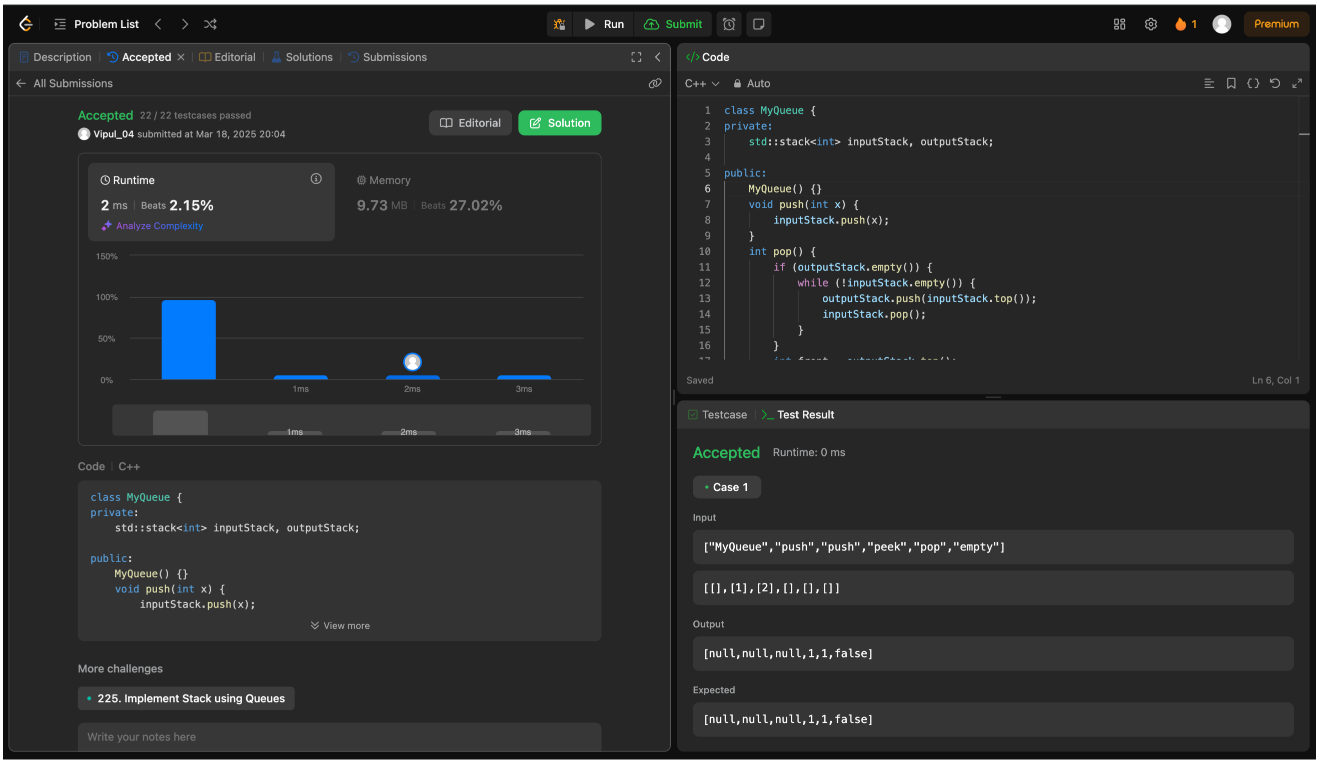
Time Taken
0.04

Solve Next

Sorted subsequence of size 3 | Move All Zeroes to End | Queue using stack

```
//{ } Driver Code Ends



class twoStacks {
private:
    int *arr;
    int size;
    int top1, top2;

public:
    twoStacks(int n = 100) {
        size = n;
        arr = new int[n];
        top1 = -1;
        top2 = n;
    }
    void push1(int x) {
        if (top1 < top2 - 1) {
            arr[++top1] = x;
        }
    }
    void push2(int x) {
        if (top1 < top2 - 1) {
            arr[--top2] = x;
        }
    }
    int pop1() {
        if (top1 >= 0) {
            return arr[top1--];
        } else {
            return -1;
        }
    }
    int pop2() {
        if (top2 < size) {
            return arr[top2++];
        } else {
            return -1;
        }
    }
    ~twoStacks() {
        delete[] arr;
    }
```

Ques5 : Implement queue using stack



Accepted 22 / 22 testcases passed

Vipul_04 submitted at Mar 18, 2025 20:04

Runtime: 2 ms | Beats 2.15%

Memory: 9.73 MB | Beats 27.02%

Code | C++

```cpp
class MyQueue {
private:
    std::stack<int> inputStack, outputStack;

public:
    MyQueue() {}
    void push(int x) {
        inputStack.push(x);
```

225. Implement Stack using Queues

Code: C++

```cpp
class MyQueue {
private:
    std::stack<int> inputStack, outputStack;

public:
    MyQueue() {}
    void push(int x) {
        inputStack.push(x);
    }
    int pop() {
        if (outputStack.empty()) {
            while (!inputStack.empty()) {
                outputStack.push(inputStack.top());
                inputStack.pop();
            }
        }
```

Accepted Runtime: 0 ms

Case 1

Input

```
["MyQueue","push","push","peek","pop","empty"]
```

```
[[],[1],[2],[],[],[]]
```

Output

```
[null,null,null,1,1,false]
```

Expected

```
[null,null,null,1,1,false]
```