Name:- Ahmed Ali Asif

SAP ID:- 55346

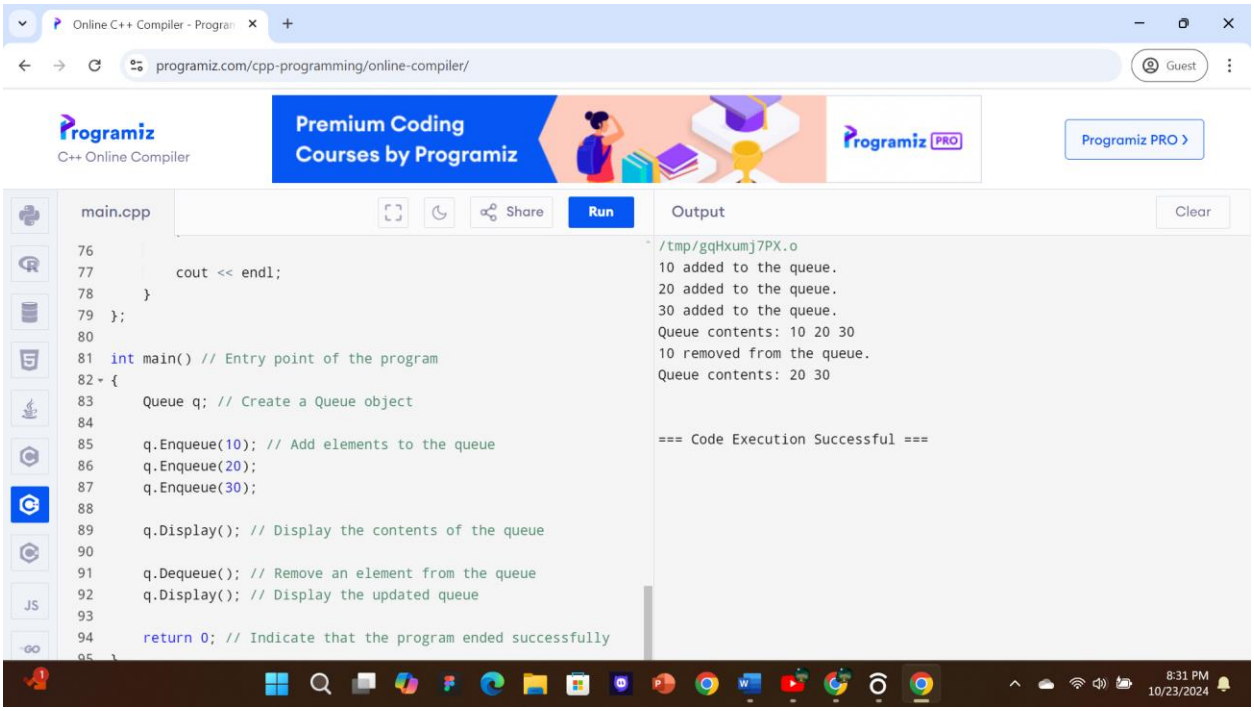
Class:- DSA

```
#include <iostream>
using namespace std;

struct Node
{
    int data;
    Node* next;
};

class Queue
{
    Node* front;
    Node* rear;

public:
    Queue()
    {
        front = rear = NULL;
    }
```

```
void Enqueue(int data)
{
    Node* newNode = new Node;
    newNode->data = data;
    newNode->next = NULL;

    if (rear == NULL)
    {
        front = rear = newNode;
    }
    else // Otherwise, add the new node at the end
    {
        rear->next = newNode;
        rear = newNode;
    }

    cout << data << " added to the queue." << endl;
}

void Dequeue()
{
    if (front == NULL)
    {
        cout << "Queue is empty. Cannot dequeue." << endl;
        return;
```

```
    }

    Node* temp = front;
    front = front->next;

    if (front == NULL) // If the queue is empty after dequeue
    {
        rear = NULL;
    }

    cout << temp->data << " removed from the queue." << endl;
    delete temp;
}

void Display()
{
    if (front == NULL)
    {
        cout << "Queue is empty." << endl;
        return;
    }

    Node* temp = front;
    cout << "Queue contents: ";
```

```
        while (temp != NULL)
        {
            cout << temp->data << " ";
            temp = temp->next;
        }

        cout << endl;
    }
};

int main()
{
    Queue q;

    q.Enqueue(10);
    q.Enqueue(20);
    q.Enqueue(30);

    q.Display();

    q.Dequeue();
    q.Display();

    return 0;
}
```


Online C++ Compiler - Progra
programiz.com/cpp-programming/online-compiler/
Guest
Programiz
C++ Online Compiler
Premium Coding
Courses by Programiz
Programiz PRO
Programiz PRO ›
main.cpp
Share
Run
Output
Clear
76
77 cout << endl;
78 }
79 };
80
81 int main() // Entry point of the program
82 {
83 Queue q; // Create a Queue object
84
85 q.Enqueue(10); // Add elements to the queue
86 q.Enqueue(20);
87 q.Enqueue(30);
88
89 q.Display(); // Display the contents of the queue
90
91 q.Dequeue(); // Remove an element from the queue
92 q.Display(); // Display the updated queue
93
94 return 0; // Indicate that the program ended successfully
/tmp/gqHxumj7PX.o
10 added to the queue.
20 added to the queue.
30 added to the queue.
Queue contents: 10 20 30
10 removed from the queue.
Queue contents: 20 30
=== Code Execution Successful ===
8:31 PM
10/23/2024