ASSIGNMENT 3 – CIRCULAR QUEUE

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

int cqueue[5];
int front = -1, rear = -1;

void insert(int x)
{

    if (rear == -1) // empty
    {
        rear = 0;
        front = 0;
        cqueue[rear] = x;
        cout << "\nInserted";
    }
    else // not empty
    {
        rear = (rear + 1) % 10;
        cqueue[rear] = x;
        cout << "\nInserted";
    }
}
void display()
{
    for (int i = front; i != rear; i = (i + 1) % 5)
```

```
    {
        cout << cqueue[i] << " ";
    }
    cout << cqueue[rear];
}

int deletee()
{
    int x = cqueue[front];

    if (rear == front)
    {
        rear = front = -1;
    }
    else
    {
        front = (front + 1) % 5;
    }
    return x;
}

int main()
{
    int ch;
    do
    {
        cout << "\nMENU
\n1.Insert\n2.Display\n3.Delete\n4.Exit";
        cout << "\nEnter your choice: ";
        cin >> ch;
        cout << " -------";

        switch (ch)
        {
```

```
        case 1:
            int x, n;
            if ((rear + 1) % 5 == front) // full
            {
                cout << "\nQueue is full!!";
                exit(0);
            }
            cout << "\nEnter element to be inserted:
";
            cin >> x;

            insert(x);
            break;

        case 2:
            cout << "Elements of circular queue: ";
            display();
            break;

        case 3:
            if (rear == -1)
            {
                cout << "\nQueue is empty";
                exit(0);
            }
            x = deletee();
            cout << "\nDeleted element: " << x;
            break;
        }
    } while (ch != 4);
}
```

OUTPUT:

```
MENU
1.Insert
2.Display
3.Delete
4.Exit
Enter your choice: 1
--------
Enter element to be inserted: 1

Inserted
MENU
1.Insert
2.Display
3.Delete
4.Exit
Enter your choice: 1
--------
Enter element to be inserted: 2

Inserted
MENU
1.Insert
2.Display
3.Delete
4.Exit
Enter your choice: 1
--------
Enter element to be inserted: 3

Inserted
MENU
1.Insert
```

```
2.Display
3.Delete
4.Exit
Enter your choice: 2
--------Elements of circular queue: 1 2 3
MENU
1.Insert
2.Display
3.Delete
4.Exit
Enter your choice: 3
-------------------------------------
Deleted element: 1
MENU
1.Insert
2.Display
3.Delete
4.Exit
Enter your choice: 2
--------Elements of circular queue: 2 3
```