

Program:

```
#include <iostream>
#define MAX 10
using namespace std;
struct queue
{
    int data[MAX];
    int front, rear;
};
class Queue
{
    struct queue q;

public:
    Queue() { q.front = q.rear = -1; }
    int IsEmpty();
    int IsFull();
    void Enqueue(int);
    int Delqueue();
    void Display();
};
int Queue::IsEmpty()
{
    return (q.front == q.rear) ? 1 : 0;
}
int Queue::IsFull()
{
    return (q.rear == MAX - 1) ? 1 : 0;
}
void Queue::Enqueue(int x)
{
    q.data[++q.rear] = x;
}
int Queue::Delqueue()
{
    return q.data[++q.front];
}
void Queue::Display()
{
    int i;
    cout << "\n";
    for (i = q.front + 1; i <= q.rear; i++)
        cout << q.data[i] << ", ";
}
int main()
{
    Queue obj;
    int ch, x;
    do
    {
        cout << "\n* * * * *";
        cout << "\n* 1.Insert Job  *";
        cout << "\n* 2.Delete Job  *";
```

```

cout << "\n* 3.Display      *";
cout << "\n* 4.Exit        *";
cout << "\n* * * * * * * * *";
cout << "\nEnter your choice: ";
cin >> ch;
switch (ch)
{
case 1:
    if (!obj.IsFull())
    {
        cout << "\n Enter Data: ";
        cin >> x;
        obj.Enqueue(x);
    }
    else
        cout << "Queue is overflow";
    break;
case 2:
    if (!obj.IsEmpty())
        cout << "\n Deleted Element= " << obj.Delqueue();
    else
    {
        cout << "\n Queue is underflow";
    }
    cout << "\nRemaining jobs :";
    obj.Display();
    break;
case 3:
    if (!obj.IsEmpty())
    {
        cout << "\n Queue contains:";
        obj.Display();
    }
    else
        cout << "\n Queue is empty";
    break;
case 4:
    cout << "\n Exit";
}
} while (ch != 4);
return 0;
}

```

Output :

```
Assignment4.cpp > Queue
9 class Queue

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL
orion@OMEN-15:/mnt/d/College/2 Second year/SY SEM 3/Data Structures and Algorithms (DSA)/Lab manual/assign 4$ ./Assignment4

*****
* 1.Insert Job *
* 2.Delete Job *
* 3.Display   *
* 4.Exit      *
*****
Enter your choice: 1

Enter Data: 2

*****
* 1.Insert Job *
* 2.Delete Job *
* 3.Display   *
* 4.Exit      *
*****
Enter your choice: 1

Enter Data: 10

*****
* 1.Insert Job *
* 2.Delete Job *
* 3.Display   *
* 4.Exit      *
*****
Enter your choice: 3

Queue contains:
2, 5, 10,
*****
* 1.Insert Job *
* 2.Delete Job *
*****
Ln 9, Col 12 Spaces: 4 UTF-8 CRLF C++ Win32
```

```
Assignment4.cpp > Queue
9 class Queue

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL
orion@OMEN-15:/mnt/d/College/2 Second year/SY SEM 3/Data Structures and Algorithms (DSA)/Lab manual/assign 4$ ./Assignment4

*****
* 1.Insert Job *
* 2.Delete Job *
* 3.Display   *
* 4.Exit      *
*****
Enter your choice: 1

Enter Data: 10

*****
* 1.Insert Job *
* 2.Delete Job *
* 3.Display   *
* 4.Exit      *
*****
Enter your choice: 3

Queue contains:
2, 5, 10,
*****
* 1.Insert Job *
* 2.Delete Job *
* 3.Display   *
* 4.Exit      *
*****
Enter your choice: 2

Deleted Element= 2
Remaining jobs :
5, 10,
*****
* 1.Insert Job *
* 2.Delete Job *
* 3.Display   *
* 4.Exit      *
*****
Enter your choice: 4

orion@OMEN-15:/mnt/d/College/2 Second year/SY SEM 3/Data Structures and Algorithms (DSA)/Lab manual/assign 4$
Ln 9, Col 12 Spaces: 4 UTF-8 CRLF C++ Win32
```