**Practical- 12**

**Problem Statement:** Queues are frequently used in computer programming, and a typical example is the creation of a job queue by an operating system. If the operating system does not use priorities, then the jobs are processed in the order they enter the system. Write C++ program for simulating job queue. Write functions to add job and delete job from queue.

**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 1.Insert Job\n 2.Delete Job\n 3.Display\n 4.Exit\n Enter your choice : ";

           cin>>ch;

    switch(ch)

    {  case 1: if (!obj.isfull())

           {   cout<<"\n Enter data : \n";

            cin>>x;

            obj.enqueue(x);

            cout<<endl;

           }

              else

              cout<< "Queue is overflow!!!\n\n";

               break;

       case 2: if(!obj.isempty())

                cout<<"\n Deleted Element = "<<obj.delqueue()<<endl;

            else

            {   cout<<"\n Queue is underflow!!!\n\n";  }

            cout<<"\nRemaining Jobs : \n";

            obj.display();

               break;

      case 3: if (!obj.isempty())

            {  cout<<"\n Queue contains : \n";

               obj.display();

            }

            else

                 cout<<"\n Queue is empty!!!\n\n";

           break;

      case 4: cout<<"\n Exiting Program.....";

        }

      }while(ch!=4);

return 0;

}

**Output:**

1.Insert Job

2.Delete Job

3.Display

4.Exit

Enter your choice : 1

Enter data :

123

1.Insert Job

2.Delete Job

3.Display

4.Exit

Enter your choice : 1

Enter data :

234

1.Insert Job

2.Delete Job

3.Display

4.Exit

Enter your choice : 3

Queue contains :

234 3 123 234

1.Insert Job

2.Delete Job

3.Display

4.Exit

Enter your choice : 2

Deleted Element = 123

Remaining Jobs :

2 123 234

1.Insert Job

2.Delete Job

3.Display

4.Exit

Enter your choice : 2

Deleted Element = 234

Remaining Jobs :

123 234

1.Insert Job

2.Delete Job

3.Display

4.Exit

Enter your choice : 4

Exiting Program.....