Department : Computer Engineering
Class : SE
Subject : Data Structure Lab
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Batch: H4

Assignment No : 11

- **Problem Statement:**

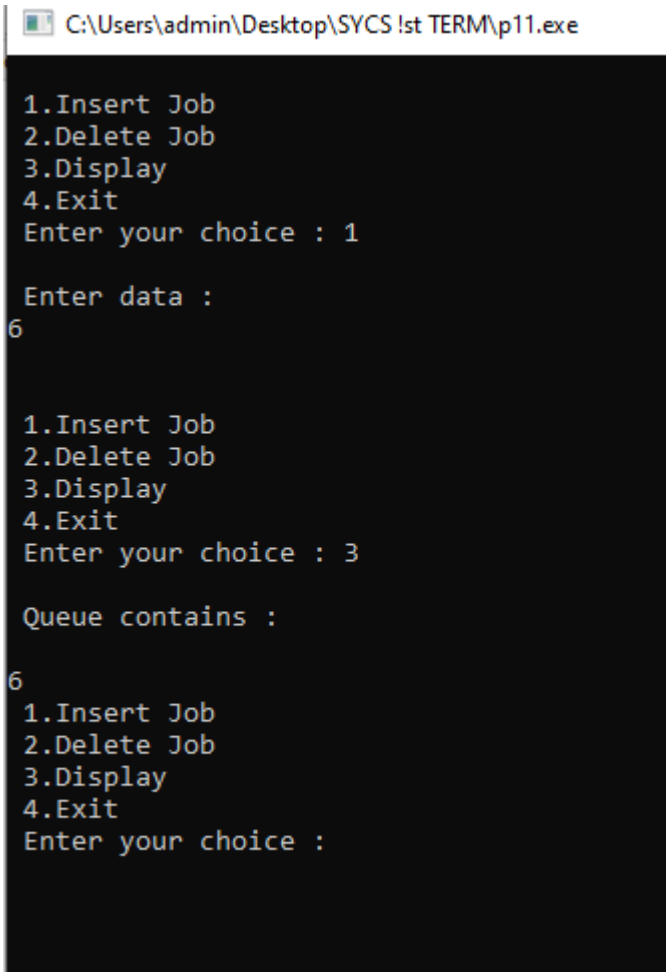
Queues are frequently used in computer programming, and a typical example is the creation of a job queue by an operating system. If the operating system does not use priorities, then the jobs are processed in the order they enter the system. Write C++ program for simulating job queue. Write functions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

- **Code:**

```
#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:


C:\Users\admin\Desktop\SYCS !st TERM\p11.exe
1.Insert Job
2.Delete Job
3.Display
4.Exit
Enter your choice : 1
Enter data :
6
1.Insert Job
2.Delete Job
3.Display
4.Exit
Enter your choice : 3
Queue contains :
6
1.Insert Job
2.Delete Job
3.Display
4.Exit
Enter your choice :