Assignment No-3

Name- PRAFUL SHEWALE
Roll no=SI- 48   Class=SE-IT

Aim- Circular Queue

```
#include<iostream>
#define max 5
using namespace std;
class queue
{
 int a[max];
 int front, rear;
public :
 queue()
 {
 front=-1;
 rear=-1;
 }
int isempty()
 {
 if(rear==-1 || front==-1)
 return 1;
 else
 return 0;
 }
int isfull()
 {
 if((rear+1)%max==front) //changed.....
 return 1;
 else
 return 0;
 }
void enqueue(int value); //function declare
void dequeue();
void display();
};
int main()
{
 int value, choice;
 queue q;
 do
 {
 cout<<"Select any one operation: 1. Enqueue 2. Dequeue 3. Display 4. Exit\n";
 cin>>choice;
 switch(choice)
 {
 case 1: cout<<"Enter value to be inserted into queue\n" ;
 cin>>value;
 q.enqueue(value); //function call
break;
 case 2:q.dequeue();
 break;
 case 3:q.display();
 break;
 case 4:cout<<"Exit\n";
 break;
 default: cout<<"Wrong choice\n";
 break;
}
 }while(choice !=4);
}
void queue :: enqueue(int value)
{
 int x;
 x=isfull();
 if(x==1)
 cout<<"Queue is already full..cannot insert more elements\n";
 else
 if(front==-1 && rear==-1)
 {
 front=0;
 rear=0;
 }
else
```

```
 if(rear==max-1 && front!=0)
 rear=0;
 else
 {
 rear=(rear+1)%max; //changed....
 }
 a[rear]=value;
}
void queue :: dequeue()
{
int x;
x=isempty(); //calling isempty() function
if(x==1)
cout<<"Queue is empty...Cannot delete element\n";
else
if(front==rear)
{
cout<<"Deleted element is="<<a[front]<<"\n";
front=-1;
rear=-1;
}
else
if(front == max -1)
{
 cout<<"Deleted element is="<<a[front]<<"\n";
 front = 0;
 }
else
{
cout<<"Deleted element is="<<a[front]<<"\n";
front++; //changed...
}
}
void queue :: display()
{
int i;
if(front==-1)
cout<<"Queue is empty\n";

else
```

```
{
i=front;
while(i!=rear)
{
cout<<a[i]<<"\t";
i=(i+1)%max;
}
}
}
```

OUTPUT

```
Select any one operation: 1. Enqueue 2. Dequeue 3. Display 4. Exit
1
Enter value to be inserted into queue
10
Select any one operation: 1. Enqueue 2. Dequeue 3. Display 4. Exit
1
Enter value to be inserted into queue
40
Select any one operation: 1. Enqueue 2. Dequeue 3. Display 4. Exit
1
Enter value to be inserted into queue
50
Select any one operation: 1. Enqueue 2. Dequeue 3. Display 4. Exit
2
Deleted element is=10
Select any one operation: 1. Enqueue 2. Dequeue 3. Display 4. Exit
3
40      Select any one operation: 1. Enqueue 2. Dequeue 3. Display 4. Exit
```