**Assignment No.10(Implementation of dequeue and operations).**

#include <iostream>

using namespace std;

class Queue{

int size=10;

int arr[10];

int front,rear;

public:

void initialize(){

rear=-1;

front=-1;}

int Qfull(){

if(rear>size-1){

return 1;}

else{

return 0;}

}

void display(){

cout<<endl<<"Queue elements:";

for(int i=front;i<rear;i++){

cout<<"\t"<<arr[i];}

}

int Qempty(){

if(rear==-1||front==rear){

return 1;}

else{

return 0;}

}

void insert\_rear(){

Qfull();

int data=0;

cout<<endl<<"Enter data:";

cin>>data;

if(rear==-1){

front=0;

rear=0;

arr[rear]=data;

rear=rear+1;

cout<<endl<<"Data inserted successfully!!!";}

else{

arr[rear]=data;

rear=rear+1;

cout<<endl<<"Data inserted successfully!!!";}

}

void delete\_front(){

int loc=front;

front=front+1;

cout<<endl<<"Deleted element:"<<arr[loc];

}

void delete\_rear(){

int loc=rear;

rear=rear-1;

cout<<endl<<"Deleted element:"<<loc;

}

void insert\_front(){

int data;

for(int i=rear;i>=front;i--){

arr[i+1]=arr[i];}

cout<<endl<<"Enter data:";

cin>>data;

arr[front]=data;

rear=rear+1;

}

};

int main() {

Queue access;

int ch;

access.initialize();

do{

cout<<endl<<"\*\*\*\*\*\*\*\*\*\*\*\*\*\*DEQUEUE OPERATIIONS\*\*\*\*\*\*\*\*\*";

cout<<endl<<"1.Insert at the End\n2.Delete at the start\n4.Delete from rear\n3.Display queue elements\n5.insert at start";

cout<<endl<<"Enter your choice:";

cin>>ch;

switch(ch){

case 1:

access.insert\_rear();

break;

case 2:

if(access.Qempty()==1){

cout<<endl<<"Queue is empty!!";

}else{

access.delete\_front();}

break;

case 3:

access.display();

break;

case 4:

access.delete\_rear();

break;

case 5:

access.insert\_front();

break;

default:

cout<<endl<<"Wrong choice entered....";

}

}while(ch!=7);

return 0;

}

**Output:**

\*\*\*\*\*\*\*\*\*\*\*\*\*\*DEQUEUE OPERATIIONS\*\*\*\*\*\*\*\*\*

1.Insert at the End

2.Delete at the start

4.Delete from rear

3.Display queue elements

5.insert at start

Enter your choice:1

Enter data:23

Data inserted successfully!!!

\*\*\*\*\*\*\*\*\*\*\*\*\*\*DEQUEUE OPERATIIONS\*\*\*\*\*\*\*\*\*

1.Insert at the End

2.Delete at the start

4.Delete from rear

3.Display queue elements

5.insert at start

Enter your choice:1

Enter data:45

Data inserted successfully!!!

\*\*\*\*\*\*\*\*\*\*\*\*\*\*DEQUEUE OPERATIIONS\*\*\*\*\*\*\*\*\*

1.Insert at the End

2.Delete at the start

4.Delete from rear

3.Display queue elements

5.insert at start

Enter your choice:1

Enter data:67

Data inserted successfully!!!

\*\*\*\*\*\*\*\*\*\*\*\*\*\*DEQUEUE OPERATIIONS\*\*\*\*\*\*\*\*\*

1.Insert at the End

2.Delete at the start

4.Delete from rear

3.Display queue elements

5.insert at start

Enter your choice:1

Enter data:89

Data inserted successfully!!!

\*\*\*\*\*\*\*\*\*\*\*\*\*\*DEQUEUE OPERATIIONS\*\*\*\*\*\*\*\*\*

1.Insert at the End

2.Delete at the start

4.Delete from rear

3.Display queue elements

5.insert at start

Ener your choice:3

Queue elements: 23 45 67 89

\*\*\*\*\*\*\*\*\*\*\*\*\*\*DEQUEUE OPERATIIONS\*\*\*\*\*\*\*\*\*

1.Insert at the End

2.Delete at the start

4.Delete from rear

3.Display queue elements

5.insert at start

Enter your choice:2

Deleted element:23

\*\*\*\*\*\*\*\*\*\*\*\*\*\*DEQUEUE OPERATIIONS\*\*\*\*\*\*\*\*\*

1.Insert at the End

2.Delete at the start

4.Delete from rear

3.Display queue elements

5.insert at start

Enter your choice:3

Queue elements: 45 67 89

\*\*\*\*\*\*\*\*\*\*\*\*\*\*DEQUEUE OPERATIIONS\*\*\*\*\*\*\*\*\*

1.Insert at the End

2.Delete at the start

4.Delete from rear

3.Display queue elements

5.insert at start

Enter your choice:5

Enter data:77

\*\*\*\*\*\*\*\*\*\*\*\*\*\*DEQUEUE OPERATIIONS\*\*\*\*\*\*\*\*\*

1.Insert at the End

2.Delete at the start

4.Delete from rear

3.Display queue elements

5.insert at start

Enter your choice:3

Queue elements: 77 45 67 89

\*\*\*\*\*\*\*\*\*\*\*\*\*\*DEQUEUE OPERATIIONS\*\*\*\*\*\*\*\*\*

1.Insert at the End

2.Delete at the start

4.Delete from rear

3.Display queue elements

5.insert at start

Enter your choice:4

Deleted element:5

\*\*\*\*\*\*\*\*\*\*\*\*\*\*DEQUEUE OPERATIIONS\*\*\*\*\*\*\*\*\*

1.Insert at the End

2.Delete at the start

4.Delete from rear

3.Display queue elements

5.insert at start

Enter your choice:3

Queue elements: 77 45 67