**Assignment No : 1.5**

**Title : Implementation of program based on Deqeue.**

**Name : Patil Leena Arun**

**Roll No : 82**

#include<iostream.h>

#include<conio.h>

class DE\_QUEUE\_127

{

private:

int \*A,size,front,rear;

public :

DE\_QUEUE\_127(int size);

void ADD\_LHS();

void ADD\_RHS();

int DEL\_LHS();

int DEL\_RHS();

void DISPLAY();

}

DE\_QUEUE\_127 :: DE\_QUEUE\_127(int par)

{

front= 0, rear= 0;

size=par;

A= new int[size + 1];

}

void DE\_QUEUE\_127 :: ADD\_RHS()

{

int ele;

if (rear==size)

{

cout<<"Queue is Full. "<<endl;

return;

}

if(front == 0)

{

front =1;

}

rear = rear +1;

cout<<"\nEnter the element : ";

cin>>ele;

A[rear] = ele;

}

void DE\_QUEUE\_127 :: ADD\_LHS()

{

int ele;

if ((rear==size) && (front == 1))

{

cout<<"\nQueue is Full. "<<endl;

return;

}

if(front > 1)

{

front = front - 1;

}

else

{

for(int i= rear; i>1; i--)

{

A[i+1] = A[i];

}

rear = rear +1;

}

cout<<"\nEnter the element : ";

cin>>ele;

A[front] = ele;

}

int DE\_QUEUE\_127 :: DEL\_RHS()

{

int ele;

if(front== 0)

{

return NULL;

}

ele= A[rear];

if(front==rear)

{

front= rear= 0;

}

else

{

rear= rear - 1;

}

return ele;

}

int DE\_QUEUE\_127 :: DEL\_LHS()

{

int ele;

if(front== 0)

{

return NULL;

}

ele = A[front];

if (front == rear)

{

front = rear = 0;

}

else

{

front = front + 1;

}

return ele;

}

void DE\_QUEUE\_127 :: DISPLAY()

{

if(front== 0)

{

cout<<"\nQueue is Empty. "<<endl;

return;

}

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

{

cout<<A[i]<<" ";

}

}

void MENU()

{

int size, ch,ele;

cout<<"\nEnter the size of Queue : ";

cin>>size;

DE\_QUEUE\_127 obj(size);

do

{

cout<<"\n-----OPTIONS-----";

cout<<"\n1. Add at end. ";

cout<<"\n2. Add at begining . ";

cout<<"\n3. Delete from end. ";

cout<<"\n4. Delete from begining. ";

cout<<"\n5. Display elements. ";

cout<<"\n6. Exit. ";

cout<<"\n\nEnter your choice :";

cin>>ch;

switch(ch)

{

case 1:

obj.ADD\_RHS();

cout<<"\nThe Queue is : ";

obj.DISPLAY();

break;

case 2:

obj.ADD\_LHS();

cout<<"\nThe Queue is : ";

obj.DISPLAY();

break;

case 3:

ele=obj.DEL\_RHS();

if (ele == NULL)

cout<<"\nQueue is empty. "<<endl;

else

cout<<"\nDeleted element is : "<<ele<<endl;

cout<<"The Queue is : ";

obj.DISPLAY();

break;

case 4:

ele=obj.DEL\_LHS();

if (ele == NULL)

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

else

cout<<"Deleted element is : "<<ele<<endl;

cout<<"\nThe Queue is : ";

obj.DISPLAY();

break;

case 5:

cout<<"\nThe Queue is : ";

obj.DISPLAY();

break;

case 6:

return;

default :

cout<<"\n\n-----Invalid Choice.-----";

}

}while(1);

}

void main()

{

clrscr();

MENU();

getch();

}