**ROLL NO:-45**

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**PRACTICAL NO:-**

**PRACTICAL NAME :- IMPLEMENTATION OF DEQUEUE**

#include "iostream.h"

#include "conio.h"

class QUEUE

{

int \*A,size,rear,front;

public:

QUEUE(int);

void ADD\_REAR(int);

int DEL\_FRONT();

void ADD\_FRONT(int);

int DEL\_REAR();

void LIST\_QUE();

};

QUEUE::QUEUE(int par)

{

size= par;

A =new int[size+1];

rear = front = 0;

}

void QUEUE::ADD\_REAR(int ele)

{

if(rear==size)

cout<<endl<<"Que is full";

else

{

if(front==0)

front=1;

rear = rear + 1;

A[rear] = ele;

}

}

void QUEUE::ADD\_FRONT(int ele)

{

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

cout<<endl<<"Que is full";

else if((rear==0) && front==0)

{

front=rear=1;

}

else if(front == 1)

{

front=size;

}

else

{

front--;

}

A[front] = ele ;

}

int QUEUE::DEL\_FRONT()

{

if(front==0)

{

cout<<endl<<"Que is empty";

return NULL;

}

else

{

int ele = A[front];

if(front == rear)

rear =front = 0;

else

front = front + 1;

return ele;

}

}

int QUEUE::DEL\_REAR()

{

if(front==0)

{

cout<<endl<<"Que is empty";

return NULL;

}

else

{

int ele=A[rear];

if(rear == front)

front =rear = 0;

else

rear = rear -1;

return ele;

}

}

void QUEUE::LIST\_QUE()

{

if(front==0)

cout<<endl<<"Que is empty";

else

{

cout<<endl<<"Que elements are : ";

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

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

}

}

void MENU()

{

int n,opt,ele;

cout<<endl<<"Enter the size of Queue : ";

cin>>n;

QUEUE obj(n);

do

{

cout<<endl<<"1 ADD @ REAR";

cout<<endl<<"2 ADD @ FRONT";

cout<<endl<<"3 DEL from FRONT";

cout<<endl<<"4 DEL from REAR";

cout<<endl<<"5 EXIT";

cout<<endl<<"================\n";

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

cin>>opt;

switch(opt)

{

case 1:

cout<<endl<<"Enter ele";

cin>>ele;

obj.ADD\_REAR(ele);

obj.LIST\_QUE();

break;

case 2:

cout<<endl<<"Enter ele";

cin>>ele;

obj.ADD\_FRONT(ele);

obj.LIST\_QUE();

break;

case 3:

ele = obj.DEL\_FRONT();

if(ele)

cout<<endl<<"Delted ele = "<<ele;

obj.LIST\_QUE();

break;

case 4:

ele = obj.DEL\_REAR();

if(ele)

cout<<endl<<"Delted ele = "<<ele;

obj.LIST\_QUE();

break;

case 5:

return;

default:

cout<<endl<<"invalid input";

}

}while(1);

}

void main()

{

clrscr();

MENU();

getch();

}