**Assignment No :- 1.5**

**Title :- Implementation of programe base on Deque using array**

#include<iostream.h>

#include<conio.h>

class DEQUEUE

{

private:

int A[89],front,rear,size;

public:

void INSERT\_BEG(int);

void INSERT\_END(int);

int DELETE\_BEG();

int DELETE\_END();

void LIST\_ALL();

DEQUEUE(int);

};

DEQUEUE::DEQUEUE(int par)

{

size=par;

front=-1;

rear=-1;

}

void DEQUEUE::INSERT\_BEG(int ele)

{

if(front==-1)

{

front=0;

A[++rear]=ele;

cout<<"\n Inserted element is=>"<<ele;

}

else if(front!=0)

{

A[--front]=ele;

cout<<"\n Inserted element is=>"<<ele;

}

else

{

cout<<"\n Overflow";

}

}

void DEQUEUE::INSERT\_END(int ele)

{

if(rear>=size-1)

{

cout<<"\n Dequeue is Overflow";

}

else

{

if(front==-1)

{

front++;

rear++;

}

else

{

rear=rear+1;

}

A[rear]=ele;

cout<<"\n Inserted item is=>"<<A[rear];

}

}

int DEQUEUE::DELETE\_BEG()

{

if(front==-1)

{

cout<<"\n Dequeue is empty";

return NULL;

}

else

{

cout<<A[front]<<" is deleted";

if(front==rear)

{

front=rear=-1;

return NULL;

}

else

{

front=front+1;

}

}

}

int DEQUEUE::DELETE\_END()

{

if(front==-1)

{

cout<<"\n Dequeue is Empty";

return NULL;

}

else

{

cout<<A[rear]<<"is deleted";

if(front==rear)

{

front=rear=-1;

}

else

rear=rear-1;

}

}

void DEQUEUE::LIST\_ALL()

{

if(front==-1)

{

cout<<"\n Dequeue is Empty";

}

else

{

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

{

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

}

}

}

void MENU()

{

int opt,ele,size;

cout<<"Enter size of Dequeue=>";

cin>>size;

DEQUEUE obj(size);

do

{

cout<<"\n 1. INSERT\_BEG";

cout<<"\n 2. INSERT\_END";

cout<<"\n 3. DELETE\_BEG";

cout<<"\n 4. DELETE\_END";

cout<<"\n 5. LIST\_ALL";

cout<<"\n 6. EXIT";

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

cout<<"\n Enter your Choice=> ";

cin>>opt;

switch(opt)

{

case 1:

cout<<"\n Eneter the element to be inserted =>";

cin>>ele;

obj.INSERT\_BEG(ele);

break;

case 2:

cout<<"\n Eneter the element to be inserted =>";

cin>>ele;

obj.INSERT\_END(ele);

break;

case 3:

obj.DELETE\_BEG();

break;

case 4:

obj.DELETE\_END();

break;

case 5:

obj.LIST\_ALL();

break;

case 6:

return;

default:

cout<<"\n Invalid Choice ";

break;

}

}while(1);

}

void main()

{

clrscr();

MENU();

getch();

}