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**ROLL NO.:14**

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**1)implementation of operation based on dequeue**

#include<iostream>

using namespace std;

#define SIZE 10

class dequeue {

int a[20],f,r;

public:

dequeue();

void insert\_at\_beg(int);

void insert\_at\_end(int);

void delete\_fr\_front();

void delete\_fr\_rear();

void show();

};

dequeue::dequeue() {

f=-1;

r=-1;

}

void dequeue::insert\_at\_end(int i) {

if(r>=SIZE-1) {

cout<<"\n insertion is not possible, overflow!!!!";

} else {

if(f==-1) {

f++;

r++;

} else {

r=r+1;

}

a[r]=i;

cout<<"\nInserted item is"<<a[r];

}

}

void dequeue::insert\_at\_beg(int i) {

if(f==-1) {

f=0;

a[++r]=i;

cout<<"\n inserted element is:"<<i;

} else if(f!=0) {

a[--f]=i;

cout<<"\n inserted element is:"<<i;

} else {

cout<<"\n insertion is not possible, overflow!!!";

}

}

void dequeue::delete\_fr\_front() {

if(f==-1) {

cout<<"deletion is not possible::dequeue is empty";

return;

}

else {

cout<<"the deleted element is:"<<a[f];

if(f==r) {

f=r=-1;

return;

} else

f=f+1;

}

}

void dequeue::delete\_fr\_rear() {

if(f==-1) {

cout<<"deletion is not possible::dequeue is empty";

return;

}

else {

cout<<"the deleted element is:"<<a[r];

if(f==r) {

f=r=-1;

} else

r=r-1;

}

}

void dequeue::show() {

if(f==-1) {

cout<<"Dequeue is empty";

} else {

for(int i=f;i<=r;i++) {

cout<<a[i]<<" ";

}

}

}

int main() {

int c,i;

dequeue d;

Do//perform switch opeartion {

cout<<"\n 1.insert at beginning";

cout<<"\n 2.insert at end";

cout<<"\n 3.show";

cout<<"\n 4.deletion from front";

cout<<"\n 5.deletion from rear";

cout<<"\n 6.exit";

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

cin>>c;

switch(c) {

case 1:

cout<<"enter the element to be inserted";

cin>>i;

d.insert\_at\_beg(i);

break;

case 2:

cout<<"enter the element to be inserted";

cin>>i;

d.insert\_at\_end(i);

break;

case 3:

d.show();

break;

case 4:

d.delete\_fr\_front();

break;

case 5:

d.delete\_fr\_rear();

break;

case 6:

exit(1);

break;

default:

cout<<"invalid choice";

break;

}

} while(c!=7);

}