//============================================================================

// Name : cll1.cpp

// Author : saurabh

// Version :

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// Description : Hello World in C++, Ansi-style

//============================================================================

**#include** <iostream>

**using** **namespace** std;

**class** cll;

**class** node

{

**int** data;

node \*next,\*pre;

**friend** **class** cll;

**node**(**int** x)

{

data=x;

next=NULL;

pre=NULL;

}

};

**class** cll

{

node \*start;

**public**:

**void** **display**();

**void** **insert**();

**void** **insert\_at**();

**void** **delete\_s**();

**void** **delete\_at**();

**void** **insert\_bef**();

**void** **delete\_bef**();

**cll**()

{

start=NULL;

}

};

**void** **cll::insert**(){

node \*p;

**int** no;

cout<<"enter no";

cin>>no;

p=**new** node(no);

**if**(start==NULL)

{

p->next=p;

p->pre=p;

start=p;

}

**else**

{

p->next=start;

p->pre=start->pre;

start->pre->next=p;

start->pre=p;

start=p;

}

}

**void** **cll::display**(){

node \*temp,\*p;

temp=start;

**if**(start==NULL){

cout<<"EMPTY lIST\n";

}

**else**{

**while**(temp!=NULL)

{

p=temp->next;

cout<<temp->data<<"\t";

**if**(p==start)

{

**break**;

}

temp=temp->next;

}

cout<<"\n";

}

}

**void** **cll::delete\_s**()

{

node \*p;

**if**(start==NULL){

cout<<"EMPTY lIST\n";

}

**else** {

p=start;

start=p->next;

start->pre=p->pre;

p->pre->next=start;

**delete**(p);

}

}

**void** **cll::insert\_at**()

{

**int** a,b,f=0; node \*p,\*temp;

**if**(start==NULL){

cout<<"EMPTY lIST\n";

}

**else** {

cout<<"the data after which and data";

cin>>a>>b;

p=start;

**while**(p!=NULL)

{

**if**(p->data==a)

{

f=1; **break**;

}

**else**

{

p=p->next;

}

}

**if**(f==1)

{

temp=**new** node(b);

temp->next=p->next;

p->next->pre=temp;

p->next=temp;

temp->pre=p;

}

**else**

{

cout<<"no not found\n";

}

}

}

**void** **cll::delete\_at**()

{

node \*p,\*temp;

p=start; **int** c;

**if**(start==NULL){

cout<<"EMPTY lIST\n";

}

**else**{

cout<<"wat?";

cin>>c;

**while**(p->next!=start)

{

temp=p->next;

**if**(temp->data==c)

{

p->next=temp->next;

temp->next->pre=p;

**delete**(temp);

}

**else**

{

p=p->next;

}

}

}

}

**void** **cll::insert\_bef**()

{

node \*p,\*temp;

temp=start;

**int** n,n1,f=0;

**if**(start==NULL){

cout<<"EMPTY lIST\n";

}

**else**{

cout<<"before what and wat";

cin>>n>>n1;

p=**new** node(n1);

**while**(temp!=NULL)

{

**if**(temp->data==n)

{

f=1; **break**;

}

**else**

{

temp=temp->next;

}

}

**if**(f==0)

{

cout<<"no not found\n";

}

**else**

{

p->next=temp;

p->pre=temp->pre;

temp->pre->next=p;

temp->pre=p;

}

}

}

**void** **cll::delete\_bef**()

{

**int** n;

**if**(start==NULL){

cout<<"EMPTY lIST\n";

}

**else**

{

cout<<"before wat";

cin>>n;

node \*p,\*q;

p=start;

**while**(p!=NULL)

{

q=p->pre;

**if**(p->data==n)

{

**if**(q->pre==NULL)

{

p->pre=q->pre;

p=start;

**delete**(q);

**break**;

}

**else**

{

p->pre=q->pre;

q->next=NULL;

q->pre->next=p;

**delete**(q);

**break**;

}

}

**else**

{

p=p->next;

}

}

}

}

**int** **main**(){

cll s1;

**int** ch;

**while**(1)

{

cout<<"enter choice 1>insert\n 2>display\n 3>insert aft\n 4>insert before\n 5>delete start\n 6>delete at\n 7>delete before\n ";

cin>>ch;

**switch**(ch)

{

**case** 1:s1.insert();

**break**;

**case** 2:s1.display();

**break**;

**case** 3:s1.insert\_at();

**break**;

**case** 4: s1.insert\_bef();

**break**;

**case** 5: s1.delete\_s();

**break**;

**case** 6: s1.delete\_at();

**break**;

**case** 7: s1.delete\_bef();

**break**;

**default**:cout<<"wrong choice\n";

}

}

**return** 0;

}