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**Practical Name: Write a Program to Implement Link List Batch: B3**

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#include<iostream>

using namespace std;

class Node

{

public:

int info;

Node \*next;

};

class LinkList

{

Node \*start,\*p,\*n;

public:

LinkList()

{

start=NULL;

}

void Insert();

void Delete();

void Search();

void Display();

int count();

~LinkList();

};

void LinkList::Display()

{

if(start==NULL)

cout<<"\n List is Empty";

else

{

cout<<"\n List is : ";

p=start;

while(p!=NULL)

{

cout<<p->info<<" ";

p=p->next;

}

}

}

int LinkList::count()

{

int c=0;

p=start;

while(p!=NULL)

{

c++;

p=p->next;

}

return c;

}

void LinkList::Insert()

{

int pos;

cout<<"\n Enter the position";

cin>>pos;

if(pos>0 && pos<=count()+1)

{

n=new Node();

cout<<"\n Enter the Item : ";

cin>>n->info;

n->next=NULL;

if(pos==1)

{

n->next=start;

start=n;

}

else

{

p=start;

for(int i=1;i<pos-1;i++)

p=p->next;

n->next=p->next;

p->next=n;

}

}

else

cout<<"\n Plz enter valid Position";

}

void LinkList::Delete()

{

if(start==NULL)

cout<<"\nList is Underflow";

else

{

int pos,i;

cout<<"\n Enter the position : ";

cin>>pos;

if(pos > 0 && pos <= count())

{

if(pos==1)

{

n=start;

start=start->next;

cout<<"\n Deleted no is : "<<n->info;

delete n;

}

else

{

p=start;

for(i=1;i<pos-1;i++)

p=p->next;

n=p->next;

p->next=n->next;

cout<<"\n Deleted no is: "<<n->info;

delete n;

}

}

else

cout<<"\nPlz enter valid position";

}

}

void LinkList::Search()

{

if(start==NULL)

cout<<"\n List is Underflow";

else

{

int item,pos=0;

cout<<"\n Enter the no to be search : ";

cin>>item;

p=start;

while(p!=NULL && p->info!=item)

{

p=p->next;

pos++;

}

if(p->info==item)

{

cout<<"\n The item "<<item<<" is found in the list at location "<<pos;

return;

}

else

cout<<"\n Element is not found in the list";

}

}

LinkList::~LinkList()

{

p=start;

while(p!=NULL)

{

start=start->next;

delete p;

p=start;

}

}

int main()

{

LinkList obj;

int ch;

do

{

cout<<"\n\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*";

cout<<"\n\t MENU";

cout<<"\n\t 1.Insert";

cout<<"\n\t 2.Delete";

cout<<"\n\t 3.Search";

cout<<"\n\t 4.Display.";

cout<<"\n\t 5.Exit.";

cout<<"\n\n Enter Choice : " ;

cin>>ch;

switch(ch)

{

case 1:obj.Insert();

break;

case 2:obj.Delete();

break;

case 3:obj.Search();

break;

case 4:obj.Display();

break;

case 5: break;

default:cout<<"\nSorry.... Invalid choice.";

}

}while(ch!=5);

return 0;

}

**OUTPUT**:

**\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***

**MENU**

**1.Insert**

**2.Delete**

**3.Search**

**4.Display.**

**5.Exit.**

**Enter Choice : 1**

**Enter the position1**

**Enter the Item : 45**

**\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***

**MENU**

**1.Insert**

**2.Delete**

**3.Search**

**4.Display.**

**5.Exit.**

**Enter Choice : 1**

**Enter the position2**

**Enter the Item : 30**

**\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***

**MENU**

**1.Insert**

**2.Delete**

**3.Search**

**4.Display.**

**5.Exit.**

**Enter Choice : 3**

**Enter the no to be search : 45**

**The item 45 is found in the list at location 0**

**\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***

**MENU**

**1.Insert**

**2.Delete**

**3.Search**

**4.Display.**

**5.Exit.**

**Enter Choice : 4**

**List is : 45 30**

**\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***

**MENU**

**1.Insert**

**2.Delete**

**3.Search**

**4.Display.**

**5.Exit.**

**Enter Choice : 2**

**Enter the position : 2**

**Deleted no is: 30**

**\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***

**MENU**

**1.Insert**

**2.Delete**

**3.Search**

**4.Display.**

**5.Exit.**

**Enter Choice : 4**

**List is : 45**

**\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***

**MENU**

**1.Insert**

**2.Delete**

**3.Search**

**4.Display.**

**5.Exit.**

**Enter Choice : 5**

**--------------------------------**

**Process exited after 187.2 seconds with return value 0**

**Press any key to continue . . .**