#include <iostream>

using namespace std;

class Node

{

public:

int data;

Node \*next;

Node()

{

data = 0;

next = NULL;

}

};

class Linkedlist

{

public:

Node \*head;

Linkedlist()

{

head = NULL;

}

bool isempty()

{

return (head == NULL);

}

void InsertFirst(int newvalue)

{

Node \*newnode = new Node();

newnode->data = newvalue;

if (isempty())

{

newnode->next = NULL;

head = newnode;

}

else

{

newnode->next = head;

head = newnode;

}

}

void append(int newvalue)

{

if (isempty())

InsertFirst(newvalue);

else

{

}

Node \*temp = head;

while (temp->next != NULL)

{

temp = temp->next;

}

Node \*newnode = new Node();

newnode->data = newvalue;

temp->next = newnode;

newnode->next = NULL;

}

double average()

{

if (head == NULL)

{

return 0.0;

}

int sum = 0;

int length = 0;

Node \*temp = head;

while (temp != NULL)

{

sum += temp->data;

length++;

temp = temp->next;

}

return sum / length;

}

bool isfound(int key)

{

bool found = false;

Node \*temp = head;

while (temp != NULL)

{

if (temp->data == key)

found = true;

temp = temp->next;

}

return found;

}

void display()

{

Node \*temp = head;

while (temp != NULL)

{

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

temp = temp->next;

}

cout << endl;

}

};

int main()

{

Linkedlist list;

list.InsertFirst(30);

list.InsertFirst(20);

list.InsertFirst(10);

list.display();

cout << "---------------------------" << endl;

int item;

cout << "Enter Item to insert in the list : ";

cin >> item;

list.append(item);

cout << "\nthe list after the insert " << endl;

list.display();

double avg = list.average();

cout << "\nAverage: " << avg << endl;

cout << "\nEnter Item to search for : ";

cin >> item;

if (list.isfound(item))

cout << "Item Found \n";

else

cout << "Item not Found \n";

return 0;

}

