New Beginnings – Summer 2018

C++ Programming - Linked List Practice

Here is a small set of practice problems which use Linked Lists. Each successive problem uses the solution from the previous(they build into a complete solution). It may be easier to do this way as opposed to trying to develop a complete Linked List from scratch. If you have already completed the Linked List from A4, this may still be of use – more practice.

1. Create a Link List with two classes:
   1. **class Node**
      1. Data members
         1. int data; // Payload
         2. Node \* next; // Pointer to next node in the linked list
      2. Member functions
         1. void display()
            1. Code:

void display()

{

cout << data << endl;

}

* 1. **class List**
     1. Data members
        1. head which is a pointer to a Node object;
           1. Node \* head;
     2. Member functions
        1. Constructor
           1. List::List();
           2. Sets the head pointer to NULL.

This identifies that the list is empty

* + - 1. Add a new node
         1. void addNode(int);
         2. Creates a new Node object and inserts it into the list

Take care of the three cases

Empty list

Insert at beginning

Insert in middle or end

* + - 1. Display the list
         1. void display()
         2. Here is the code for the display:

void display() {

node \* temp;

temp = head;

while(temp) {

cout << temp->display() << endl;

temp = temp->next;

}

}

For the main() function:

1. Create the list
2. Add 5 nodes using the addNode function. (The values can be any integer – you choose.)
3. Print the list.