COMP280 Programming Assignment 2 (List – Linked List Implementation)

Review notes in *From Java to C++* (pages 14-22). Read notes on Lists (Part I).

Using the following definition (**List.h** file) for a list, implement the member functions (methods) for the **List** class and store the implementation in a **List.cpp** file. Use a linked list to implement the list. Write the client code (the main method and other non-class methods) and put in file **main.cpp**.
Note: *Use the **main.cpp** file from the Programming Assignment 1.*

```
//file: List.h

typedef int ElementType;

struct node{
     ElementType data;
     node * next;
};

class List
{
 public:
   List(); //Create an empty list
   bool Empty(); // return true if the list is empty, otherwise return false
   void InsertAtEnd(ElementType x); //insert a value x on the end of the list
   void Delete(ElementType x); //if value x is in the list, remove x
   void Display(); //Display the data values in the list in the order inserted
   int Sum(); // Compute and return the sum of the values in the list
   int Average(); // Compute and return the average of the values in the list

 private:
     node * first; //pointer to first node
};
```

Your client code should be menu driven using the following menu options:

1. **Insert**
2. **Delete**
3. **Display**
4. **Sum**
5. **Average**
6. **Exit**

Option 1: Insert a new value on the end of the list.
Option 2: Delete a number specified by the user from the list, if the number is in the list.
Option 3: Displayed in the list of numbers.
Option 4: Compute and return the sum of the values in the list. If the list is empty return 0.
Option 5: Compute and return the average of the values in the list. If the list is empty return 0.
Option 6: Exits the program.