

## COMP280 Programming Assignment 1 (List - Array Implementation)

Review pages 6-7 in *From Java to C++* notes.

Create a **List** object. Using the following definition (**List.h** file) for a list, implement the member functions (methods) for the **List** class and store the implementation in file **List.cpp**. Use an array to implement the list. Write the client code (the main method and other non-class methods) and put those methods in file **main.cpp**.

```
//file: List.h
typedef int ElementType;
const int MAX = 100;
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:
    int N; //number of values in list
    ElementType listArray[MAX]; //the array to hold the list values
};
```

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.