# Assignment 6 for CPTN278

**Name:** List Implementation with Dynamically Linked Pointers

**References:**

* The text book
* In class notes
* Any other resource you can find other than people

### Assignment Description:

You are to create an application in C++ that uses a List Data Structure. You will also be required to provide a detailed description of the program along with conclusions.

The application will maintain a sorted List of unique integers. You will be using dynamically linked list implementation for the List structure. You will randomly add integers to the list and as items are added, the list will automatically insert them into the correct position. The random order of entry must ensure that some integers are added at the beginning, end and in the middle of a populated list. Then try to add integers that are already in the list. The application will then display the list demonstrating the list is sorted and does not contain any duplicates. Then try removing integers that are not in the list and redisplay the list. You will then remove the items from the list in the reverse order they were added. The application will then attempt to display the empty list showing it is empty.

Details on program requirements, format and construction are provided in class.

### Assignment Deliverables:

1. A C++ class header file containing your list class data members and member function definitions. The base name of this file must be **CPTN278\_A6\_List\_*lastname*.h** where *lastname* is your actual last name.
2. A C++ class body source file containing your list class source code. The base name of this file must be **CPTN278\_A6\_List\_*lastname*.cpp** where *lastname* is your actual last name.
3. A C++ class header file containing your node class data members and member function definitions. The base name of this file must be **CPTN278\_A6\_Node\_*lastname*.h** where *lastname* is your actual last name.
4. A C++ class body source file containing your node class source code. The base name of this file must be **CPTN278\_A6\_Node\_*lastname*.cpp** where *lastname* is your actual last name.
5. A C++ application program source file containing your application source code. The base name of this file must be **CPTN278\_A6\_Application\_*lastname*.cpp** where *lastname* is your actual last name.
6. A Microsoft Word 2010 document with the following contents and sections. Each major bullet needs to be a new section. The name of this file must be **CPTN278\_A6\_Description\_*lastname*.docx** where *lastname* is your actual last name.

* Title page
  + Document name
  + Author
  + Creation Date
  + Course Number
* Table of Contents
* Introduction
* A one paragraph description of what the application does
* A description of the program variables and objects
* A description of the class and application source code including
  + The list and correct sequence of steps used to accomplish the task
  + A description of what occurs in a section of code
  + A description of how the variables and objects “change” as a result of executing each section of code
* Captured Program Output
* Conclusions about the application
* Conclusion
* References documented using APA style
* Appendix (if needed)

### Strenuously Recommended Approach:

See Previous Assignments for details.

Post the deliverables to Blackboard via the “Assignment 6” link.

You will be submitting six files. They are:

* CPTN278\_A6\_List\_lastname.h – The list class header file
* CPTN278\_A6\_List\_lastname.cpp – The list class body file
* CPTN278\_A6\_Node\_lastname.h – The node class header file
* CPTN278\_A6\_Node\_lastname.cpp – The node class body file
* CPTN278\_A6\_Application\_lastname.cpp – The application source file
* CPTN278\_A6\_Description\_lastname.docx – Your design document

Use the above link for assignment submissions. Do not submit assignments via the Blackboard Digital Drop Box or forums. Do not use e-mail attachments. Do not hand in hard copies of documents. Please zip them into a single file that has the .zip extension. That is, do not use any other zip utilities other than the default from Microsoft Windows. They should not have extensions like .tar, .gz7, .gzip, .rar or anything else, requiring me to use any other zip utilities. The zipped file should only contain these files. Do not include any files other than theses files like .sln or .vcproj files.