Programming Assignment 4

Linked List

Due Date : Monday March 7th – 2016 @

3:30 pm for section 2 & 5:00 pm for section 3

For this assignment you will implement linked List ADT using actual pointers The program then displays a menu on the screen allowing the user to :

A. Build a **sorted** main list of 20 random integer numbers that are less than or equal to 10 .
B. Insert new number in the main list at specific location.
C. Search the main list for a given item or number. Display a message if it not found.
D. Remove an existing number from the list. Display a message if it does not exist.
E. Display a message to determine whether or not the main list is empty.
F. Rotate the list two positions .
G. Display the main list backward.
H. Split the list into 2 sub lists . The first sub list contains the first 10 numbers of the main list , and the second sub list contain the rest of the numbers. Display the original list and the two sub list. Finally , Display the union and the intersection of the two sub lists. Display a message if is unable to split the list.
I. Delete duplicate numbers from the main list.
J. Delete the entire list. Display a message if the list is empty.
X. Exit the program.

The entire list must be displayed After completion of selecting A, Or B , D , F , I . The program must continue running until the letter X is entered. Your program should accept upper or lower case characters only.

Style Guidelines:

At the beginning of your program (and **before** the #include statement), include the following :

Header comments (file documentation block) should be at the top of each file and should contain: Author / s, Due Date, Assignment Number, Course number and section, Instructor, and a brief description of the purpose of the code in the file. For example :

```
//      Roster Number / s :      xxxxxxxxx
//
//      Author / s : (Your name here!!)
//      Due Date :
//      Programming Assignment Number 4
//
//      Spring 2016 - CS 3358 - Your Section Number
//
//      Instructor:  Husain Gholoom.
//
//       <Brief description of the purpose of the program>
```

Variable names :

- Must be meaningful.
- The initial letter should be lowercase, following words should be capitalized, no other caps or punctuation (i.e. `weightInPounds`).
- Each variable must be declared on a separate line with a descriptive comment.

Named constants :

- Use for most numeric literals.
- All capitals with underscores (i.e. TX_STATE_SALES_TAX)
- Should occur at top of function, or global (only if necessary)

Line length of source code should be no longer than 80 characters (no wrapping of lines).

Indentation :

- Use 2-4 spaces (but be consistent throughout your program).
- Indent blocks, within blocks, etc.
- Use blank lines to separate sections.

Comments for variables :

All variable definitions should be commented as follows:

```
int  gender;    // integer value for the gender,
                // 1 = Male , 2 = Female ,
```

Rules :

1. Your program **must compile** and run.
2. The entire program must be **documented according the style above . See the website for the sample programming style program.**
3. You must use the appropriate libraries in writing this program.
4. You must name your program as :
   - **LastName_FirstName_PG4_LL.cpp**
5. Every one must upload the electronic version of the program no later than the starting of class time on the due date. **No late assignments will be accepted.** **DO NOT** send your assignment solution via email. **Group members must upload identical copy of the assignment.**

   To upload your program , go to the CS department's website, click on resources , then select homework upload.

6. You must **also** turn in hard copy of your source code no later than the starting of class time on the due date . should the hard copy consist of more than one page , then , the hard copy must be **stapled**. if you are unable to turn in a printout during class, you can take the program to the computer science department and hand it to the front desk personal (Comal 211) before the deadline. Make sure that the front office stamps the program. Make sure that include the date and time. Finally ,make sure that they place the program in my mailbox. **Only one copy per group.**

   DO NOT slide your program under my office door – It will **NOT** be accepted

7. **Violating any item from the above rules will result in Grade ZERO for the entire assignment. NO EXCEPTIONS.**