# **Project2: Data Structures**

Due Date: 12-02-2013 11:59PM (late submission will NOT be accepted)

**Submit to:** shuai.zheng@mavs.uta.edu (at most 3 updates allowed, other updates will be discarded and will not be graded. email title CSE1320-Project2-XXX)

## **Project Descriptions and Requirements:**

#### 1) Simple Calculator:

\* Implement a simple arithmetic calculator which is capable of addition, subtraction, multiplication, and division. Parenthesis should also be supported. For example, read line from user input 2+7\*(4+5), output result 65.

(Hints: use stack)

## 2) Doubly Linked List:

\* Implement a doubly linked list using a single pointer (\*np) instead of two pointers (\*next, \*prev), implement SEARCH, INSERT, DELETE operations and PRINT function on such a list. Use test cases to test these operations. (No user input)

(Hints: set address np to be next XOR prev).

## 3) Binary Search Tree:

\* Implement binary search tree operations INSERT, DELETE, SEARCH, INORDER-TREE-WALK. Use test cases to test these operations. (No user input)

## 4) Sorting:

\* Add a function for Project1, print all student records sorted on grades.

#### **Comments and Documents:**

\* All the codes must be well documented by comments. The comments specify the functions of major data structures and functions. Code without any comments will lose 40% of total points.

\* A README file must be included on how you implement the system and how to compile and run your code. Code cannot be compiled and executed will be graded based on source code only.