ECE 370 **Fall 2017**

Assigned 11/20/2017

Due 12/08/2017 (the program submission is closed at the end of 12/08/2017)

Programming Assignment 5

This program is to implement a number of functions on a linked list.

1. Insertion of a node to a linked list, by given criteria
2. Deletion of a node on a linked list, by given criteria
3. Search a node on a linked list, by given criteria
4. Sorting a linked list, by given criteria
4. Visit: print out information (name and score) in each and every node on the linked list, from the first node to the last

Node structure:

Info Field: Name (only one string, for simplicity)
Score (an integer)

Link: a pointer

1. ***Insertion*** criteria:
   a. The linked list insertion is based on **alphabetical order** of the given **names**.
   b. If a node on the list has the same name as the one that is to be inserted, then the existing one is deleted and the new one is inserted.
2. ***Deletion*** criterion
   For a given name, delete that name associated node from the linked list, if it exists.
3. ***Search*** criteria:
   a. For a given name, search on the linked list if there is a node that has this name.
   b. If found, print out the node info: Name and Score. One single line for each searched node.
   c. If not found, print out "not found".
   d. The search process cannot change any info or node on the list.
4. Given a criterion, sort the linked in either ascending or descending order.

Requirement:

(1) The program reads command from **a5.txt** for actions (insertion, deletion, or search), and each command starts with %
%SEARCH, %INSERT, %DELETE, %VISIT,
%SORTASC, %SORTDES, %END

(2) Before each command starting with %, the program must halt till the user enters a key. The key can be anyone on the keyboard.

The "VISIT" command directs the program to print out information (name and score) in each and every node on the linked list, from the first node to the last.
The "SORTASC" is to sort the list **according to the scores, in ascending order.**
The "SORTDES" is to sort the list **according to the scores, in descending order.**
The "END" command ends the program running, but **not closing the window**.