**CMPSC 462 – In-class Assignment-7** (30 points)

**Linked Lists – Singly and Doubly**

**Due date: 11/08/2022**

**Note:** attach screenshots of your program and results under each programming exercises. Please make sure that the screenshot is readable. Don’t attach a very small screenshot image.

**Exercise-1: 15 points**

Develop a node class and a singly list class. The node class should have two state variables namely data and nextNode. The singly list class should contain the following methods:

* MiddleInsert – insert a node somewhere in the middle of the list
* StartInsert – insert a node at start of the Linked list
* EndInsert – insert a node at the end of the Linked list
* Delete – delete a node
* Traverse – prints all the node’s data
* Reverse – reverses the linked list

List out 3 real time usage of Linked List as comments in the program.

Note:

* Choose appropriate inputs for the above functions
* You can refer any source but try to follow the algorithm described in the lecture video
* Write the algorithm for each function as comments in the program
* Test the class’s function with an example.
* Attach screenshots of the program and results

**Exercise-2: 15 points**

Develop a node class and a doubly list class. The node class should have three state variables namely data, prevNode and nextNode. The doubly list class should contain the following methods:

* MiddleInsert – insert a node somewhere in the middle of the list
* StartInsert – insert a node at start of the Linked list
* EndInsert – insert a node at the end of the Linked list
* Delete – delete a node
* Traverse – prints all the node’s data
* Reverse – reverses the linked list

List out 3 real time usage of Doubly Linked List as comments in the program.

Note:

* Choose appropriate inputs for the above functions
* You can refer any source but try to follow the algorithm described in the lecture-4 video (Feb 19th class)
* Write the algorithm for each function as comments in the program
* Test the class’s function with an example.
* Attach screenshots of the program and results