

CSc 21200 – 2019 Spring
Homework 3
Due March 14th, 2019

Name your implementation file as LastName(3 to 5 letters)_FirstNameInitial_HW3.cpp
Note: You can only use iostream, cassert, ctype, cmath, cstdio, and cstdlib.

1. Create a singly linked list. Create class/functions that:
 - a. Insert a Node at the head
 - b. Insert a Node at the tail
 - c. Insert a Node at position i
 - d. Insert data at the head
 - e. Insert data at the tail
 - f. Insert data at position i
 - g. Check if there is a cycle
 - h. Check if the list is empty
 - i. Check if a position is valid
 - j. Get the length of the list
 - k. Get the Node at position i, i.e. locate
 - l. Get the Node with target data, i.e. search
 - m. Remove the Node at the head
 - n. Remove the Node at the tail
 - o. Remove the Node at position i
 - p. Remove all the Node
 - q. Remove all the Node from position i to position j
 - r. Remove all the Node from the head to position j
 - s. Remove all the Node from position i to the tail
 - t. Reverse the whole list without making another list
 - u. Print the whole list
 - v. Swap two Node at position i and i+1, change the link and not the data
 - w. Swap two Node at position i and j, change the link and not the data