CSC 212 – Data Structures

Assignment 6

**Linked Lists**

Consider the implementation of the Linked list class, implement the following functions as part of the class:

* index(item) returns the position of item in the list. It needs the item and returns the index. Assume the item is in the list.
* pop() removes and returns the last item in the list. It needs nothing and returns an item. Assume the list has at least one item.
* pop(pos) removes and returns the item at position pos. It needs the position and returns the item. Assume the item is in the list.
* a function that counts the number of times an item occurs in the linked list
* a function that would delete the replicate items in the linked list (i.e. leave one occurrence only of each item in the linked list)

Your main function should do the following:

* Generate 15 random integer numbers in the range from 1 to 5.
* Insert each number (Item in a node) in the appropriate position in a linked list, so you will have a sorted linked list in ascending order.
* Display the generated linked list items.
* Call the index(item), pop() and pop(pos) functions to test them.
* Display the linked list items
* Display the number of occurrences of each item.
* Delete the replicate items in the linked list (i.e. leave one occurrence only of each item in the linked list)
* Display the final linked list items that should be unique and sorted.

Make sure your code is readable and well-documented. It must begin with a title block includes problem definition. Each function must also begin with a title block that describes the task of the function, input parameters and return value.