COMP 182, Data Structures and Program Design

Project 2

Due March 18, 2019

(On page 308) Implement the ADT character string as the class ***LinkedString*** by using a linked list of characters. Include the following *LinkedString* constructors and methods:

LinkedString(**char[]** value)
Allocates a new character linked list so that it represents the sequence of characters currently contained in the character array argument.

LinkedString(String original)
Initializes a new character linked list so that it represents the same sequence of characters as the argument.

char charAt(**int** index)
Returns the char value at the specified index. The first character in the linked character string is in position zero.

LinkedString concat(LinkedString str)
Concatenates the specified linked character string to the end of this linked character string.

boolean isEmpty()
Returns true if, and only if, length() is 0.

int length()
Returns the length of this linked character string.

LinkedString substring(**int** beginIndex, **int** endIndex)
Returns a new linked character string that is a substring of this linked character string.

Implement ***LinkedString*** so that it mimics the Java *String* class. For example, character positions should start at zero. Also, keep track of the number of characters in the string; the length should be determined without traversing the linked list and counting, a variable should be used for this purpose. Also remember to include a test (client/driver) program which creates at least two objects from your ***LinkedString*** class and invokes all of the ***LinkedString*** methods you have written **.**