**Lab 4 C++**

Unless otherwise stated, all your programs should be created as C++ *console application*.

A deadline for demonstration and upload of code to blackboard will be announced in class

Write the implementation for the following linkedlist code.

To display text in SFML in debug mode you must use the debug version of the libraries .Including the below at the top of the program solves this issue.

#ifdef \_DEBUG

#pragma comment(lib,"sfml-graphics-d.lib")

#pragma comment(lib,"sfml-audio-d.lib")

#pragma comment(lib,"sfml-system-d.lib")

#pragma comment(lib,"sfml-window-d.lib")

#pragma comment(lib,"sfml-network-d.lib")

#else

#pragma comment(lib,"sfml-graphics.lib")

#pragma comment(lib,"sfml-audio.lib")

#pragma comment(lib,"sfml-system.lib")

#pragma comment(lib,"sfml-window.lib")

#pragma comment(lib,"sfml-network.lib")

#endif

class SimpleString

{

public:

int numofCharacters;

char \*characters;

//create memory for characters and copy the str array

SimpleString(int t\_numofCharacters,char str[]);

SimpleString();

~SimpleString();

bool isEqual(SimpleString &d);

};

class Node

{

public:

SimpleString \*data;

Node \*next;

Node(SimpleString \*d, Node \*n = 0) ;

~Node();

};

class List

{

Node \*head;

public:

List() ;

~List();

// insert a copy of d

void insertBefore(Node \*loc, SimpleString d);

void insertAfter(Node \*loc, SimpleString d);

//push a copy of d

void push\_back(SimpleString d);

void push\_front(SimpleString d);

//retrurns true if pop\_back/pop\_front successful and delete from memory. d now has a copy of the contents of the popped element.

bool pop\_back(SimpleString &d);

bool pop\_front(SimpleString &d);

// erase the node and delete it from memory

void erase(Node \*loc);

//diaplay the text in SFMl. if the text is longer than the window it will continue on to the next line

void display(const sf::RenderWindow &win);

//return a pointer the searched node. If nullptr is returned then the node is not found

Node \*search(SimpleString d);

};