CS5343 Assignment 1

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Assignment 1 Description

Make a single linked list of integers. There should be at least 15 nodes. The list should not be sorted. Traverse the list. Now sort the list. The list should be sorted such that your program unlinks the nodes and relinks them so that they are sorted. (DO NOT SWAP THE VALUES IN THE NODES). Use selection sort. Traverse the list again. Submit the complete code. A readme file with instructions to compile. Screen shot of your program execution.

Description of the program.

The program contains the declaration for a struct data type node to build a linked list along with the global variable node head. There are 6 methods included in the program:

- append – appends a new node to the linked list.
- display – prints the linked list from head to final node
- createList – creates a linked list using the append function and a for loop using random integer values, in this case it creates 15 nodes.
- sortList – selection sort we discussed in class and in the slides (this is not the sort the program uses).
- selectSort – the method required by the assignment.
- destroyList – deletes the list after execution of the program.

The program creates a list and displays the list as is pointing out the head node. Next, it uses selection sort to sort the list and displays the sorted list and the new head node. The list is then deleted and the user is prompted for input to continue running or not.

Compiling instructions.

This program was created using Microsoft Visual Studio. To compile open Visual Studio and create a new empty C++ project. Right click the source files folder under the solution explore window and click Add then Existing item. Browse to the file Source.cpp and double click. Save the project, click build, then “Local Windows Debugger.” The program should run.