Week 7 Lab: Linked Lists

This Week

This week, we will be finishing the linked list backlog. Next week you will demonstrate adding, deleting and printing circular linked list and double linked list. The files are in LinkedList.zip on the web site. Instructions for downloading them are in the lab from last week.

Circular linked list are just like singly linked lists except that the last item points to the first rather than to null. This makes it harder because you need to remember where you started or you go into an infinite loop when you print the list. It makes it easier because you are less likely to dereference a null pointer.

Doubly linked lists are trickier because they have two pointers you need to keep track of. That is twice the opportunity to deference a null pointer and see the dreaded “segmentation violation” error. On the other hand. It is easier to add and delete because you can back up when you find the item you want to add or delete.

As with last week, use test driven development. The file `test.c` contains tests for you to start with, but use `printf` as you build your program. Remember to use `fflush` so you don't miss any of your test messages.

Demo

You will be demoing the singly linked list functions from the linked list. This completes the arrays backlog.

Story 1-6 (15 Marks each; 90 marks total)

Run “make clean,” “make test” and “make.” Execute “./tst” to see if the basic tests pass. Execute “./ll” to make sure that the rest of the program runs.

1. Basics (5 Marks)
    1. Formatting is correct (2 Marks)
    2. Compiles without errors or warnings (3 Marks)
2. Correctness (10 Marks)
    1. Execute ./tst. The program must use linked lists appropriately to gain the marks.
    2. No other errors (5 Marks)