Programming Assignment #2

List ADTs

CS 3358.501, Summer I 2012
Instructor: Jill Seaman

Due: Wednesday, 6/13/2012 (upload electronic copy by 4:00pm)

Problem:

For this assignment you will implement a List ADT in two ways: (1) using arrays to simulate pointers and (2) using actual pointers. In both cases this will make the insert and delete O(1). Note that we will be using doubly linked lists for each implementation.

Use the following header files: list_3358_arrays.h and list_3358_pointers.h. Make a separate implementation file for each one.

You will have to implement each List ADT and write a good test program to make sure all the methods work properly (The methods are the same in each. The only differences are the private instance variables, so you should be able to use the same test program for both implementations.)

NOTES:

- Read the comments in the *.h files carefully. They explain what each function needs to do. Most of the directions for this assignment are in the *.h files.
- You should develop each implementation in a separate folder/directory.
- You will need to write your own makefiles, one for each implementation.
- Once you have complete one of the implementations, the other will be analogous to it (you can almost translate the statements from one implementation to the other). For this reason, if you only get one of the implementations to work, you will get more than half credit.
- The purpose of this assignment is to get experience implementing an ADT in two different ways, to practice with linked lists and pointers, and to get more familiar with the separation of interface and implementation.

Style:

See the Style Guidelines document on the course website.

Logistics:

Since there are multiple files for this assignment, you need to combine them into one file before submitting them. For this assignment you will have TWO zip files, one for each project:

```
[...]$zip assign2_arrays_xxxxxx.zip list_test.cpp
list_3358_arrays.cpp list_3358_arrays.h makefile

[...]$zip assign2_pointers_xxxxxx.zip list_test.cpp
list_3358_pointers.cpp list_3358_pointers.h makefile
```

Then you should submit both assign2_arrays_xxxxxx.zip and assign2_pointers_xxxxxx.zip

The xxxxx is your TX State NetID (your txstate.edu email id).

Submit: an electronic copy only, using the Assignments tool on the TRACS website for this class.