**ECE 1111: Engineering Computation I**

**Homework No. 13: Lists and Trees**

**Goal:** The design of a data structure can be crucial to the efficiency with which you can manipulate data. In this assignment, you will compare the efficiency of two search algorithms.

**Description:** Create a text file with random data that is 100,000 lines long. For example, use the command:

**cat /usr/include/\*.h > temp.text**

Write a program that sorts this data, line by line, in lexical order using the Unix binary tree utility (‘man tsearch’). Compare the execution time of this code to the Unix sort command. Make sure that the two programs produce identical output.

To submit this assignment, send me a compressed tar file (\*.tar.gz) that contains all the code necessary to compile, link and run your main program. This will presumably include a Makefile, a header file, an implementation file and a main program. The comments in your main program should include information on timing your program.

The filename your submission must have is lastname\_firstname\_hw13.tar.gz. It must be an attachment in your email. No other input format, such as zip or rar, will be accepted.