Written Homework #2
CS 163 Data Structures

Submit your assignment to the D2L Dropbox (sign on via d2l.pdx.edu)

Written homework must be turned in on time!

For each of these questions, write one paragraph

1. **Recursion.** In our textbook on recursion it talks about using the box trace to systematically trace the actions of a recursive function. Box tracing can be used to help understand recursion and to assist in debugging such recursive functions.

   Take one of the recursive functions written for Lab #1 and use the box trace method to illustrate the function. Start with a piece of paper with your code printed on it. Label each recursive call. Draw an arrow from the statement that initiates the recursive process to the first box. Then, when you create a new box after a recursive call, draw an arrow from the box that makes the call to the newly created box. Label each. On exiting the function, cross off the current box and follow its arrow back to the box that called the function. Turn in a .pdf or .jpg of the page.

2. **Ethics.** Your best friend was being interviewed by a local start-up company and they needed a reference. They encouraged you to talk about their great grades and income. Although they are a great friend, you never actually have seen a grade report or a pay stub. When talking with the perspective employer, what is your ethical responsibility?

3. **Algorithm.** Write an algorithm to make a copy of a circular linked list of integers.

4. **Experiencing Linux.** As we write programs with more complicated data structures, using gdb is going to become more important. Research and learn how to do the following tasks; write one sentence about each:
   a. Locate a seg fault
   b. Display the contents of a data member
   c. Backtrace