Lab 6 (10 points)
February 21-22, 2017

CS-2303, System Programming Concepts, A-term 2017

Laboratory Assignment #6 — Review of Development and Debugging in C/C++

Due: at 11:59 pm on the day of your lab session

Objective

To prepare for the Lab Quiz next week.

The Lab Quiz

Next week, on February 28 and March 1, there will be a Lab Quiz to test your ability to work with *C* and *C++* in *Eclipse* and to debug non-trivial programs using the *Eclipse* debugger.

In the Lab Quiz, you will be given of a set of files representing one or more programs in *C* and *C++*. You will have to demonstrate to the TAs your skill and ability to develop and debug them. In particular, you need to demonstrate the following tasks:–

- Create an *Eclipse* project from the files — specifically a "makefile project from existing code."
- Edit the **`makefile`** for the project to build the target, and build the target for debugging.
- Show the class hierarchy of a *C++* application.
- Set one or more breakpoints in the code (the quiz will tell you where).
- Display the variables of the program when it stops at a breakpoint.
- Display the call stack, and for each function in the call stack, display the values of the variable of that function.
- Display global variables and/or expressions of variables.
- Follow a linked list (or other linked data structure) in the debugger to show the values of the members of various nodes, not just the one at the top of the list.
- Set a *conditional breakpoint*. Run the program so that it passes that breakpoint multiple times before pausing at the breakpoint (i.e., when the condition is **`true`**).
- Run to a specific line of code without actually putting a breakpoint there.
- Track down a segmentation fault.
- Show the output from the program in the *Eclipse* console window.
- (Optionally) change the value of a variable while paused at a breakpoint.

Spend this lab session working through each of these bullets with a non-trivial program of your own.

If you do not have a suitable one, you may practice using the *C* files for *Lab 4* of several years ago at the URL below. However, please recognize that this is a *C* program, not a *C++* program:–

http://web.cs.wpi.edu/~cs2303/a12/Common/Lab4Files.zip

Stop in the function **`enqueue`** (in **`Simulation.c`**) when the variable **`queueLength`** reaches five. Examine the linked list pointed to by head and note the arrival time of each customer.

Please note:– The TAs will not help you through the quiz. Their job that day is to assess your skills. They will check off one point for each of the skills on the quiz that you can demonstrate.

Note also:– The Lab Quiz will use a *C++* program.

Getting Credit for this Lab

To get credit for this lab assignment, simply sign the attendance sheet. There is nothing to turn in.