

ECGR 3183 - Fall 2004: Lab 1

Familiarizing Yourself with the LC-3 Simulator – Due 9/20/2004

Learning Objectives

This lab will introduce you to the LC-3 simulator and the environment you will use to write programs for the remaining labs of the semester. This lab will only introduce you to the LC-3 simulator used in the Windows® environment. Information about the UNIX version of the LC-3 simulator can be found at <http://www.mhhe.com/patt2>. Lab 1 is a simple “hello world” program. This program is design to teach the students the fundamentals of the LC-3 program.

Prerequisites

You should be familiar with the following concepts:

- With basic programming skills and also be familiar with assembly language.
- Performing basic logical operations on numbers (x AND y, x OR y, NOT z, etc.)

Prelab Assignment

There is no prelab assignment for this lab.

Laboratory Assignment

This lab describes the LC-3 simulator and how to create a program, and run it using the simulator. In this lab the student will be responsible for writing a program that will display on the console the word “Hello, world.”.

Steps

1. Build your program slowly, testing along the way. Solve each requirement one at a time. Make sure comments are written as you progress.
2. Continue to build and test the program until all of the requirements have been met. Did we mention you should write your comments as you progress, not at the end?
3. If you run into problems, use the break point functionality of LC-3 to step through the code until you find the problem. Once all the requirements have been met ensure that everything works.
4. Demonstrate the working program to your TA or professor.
5. Finish lab write-up and turn in your report as a print out.

Requirements

Req. 1 – The code generated is to be written LC-3 assembly language

Req. 2 – The code is well commented and easy to follow

Req. 3 – Your lab report should include the final code listing

Req. 4 – The program should display “Hello, world.” message on the screen when the program is run for the first time.

Req. 5 – The program should ask if the user would like to run it again.

Req. 6 – The program should allow the user to type any character. If “Y” is pressed (and not “y”) then display “Hello, world.” If “N” is pressed (and not “n”), then halt. If any other character is pressed, ignore it and wait for another character to be pressed.

Req. 7 – Continue displaying “Hello, world.” Each time “Y” is pressed.