ECE2049: Homework 4

Due: Tuesday, 23 June 2020 by 2pm EDT

Submission notes:
- For full credit, please show your work and denote your answers with a circle or a box.
- Always write or draw your diagrams neatly! We cannot be expected to GUESS what you meant to write! Some problems (such as those involving code) must be typed to be graded—the others may be handwritten (neatly!) or typed.
- Please staple your work before submitting and remove any "ruffled" edges from notebook paper.
- Points for each problem are as indicated. Some portions of problems are marked as "BONUS," which count as extra credit.

1. (10 pts) **Debugging Challenge**: Download and run the "buttons challenge" CCS project listed on the course website with this document.
   This project contains an example program to demonstrate using the two buttons on the Launchpad board. The goal of the program is to turn on the green LED after the user presses Launchpad button S2 exactly 4 times, and then turn it off after the user presses Launchpad button S1.

   However, the program does not behave as expected. For this problem, your goal is to spend a little time examining the program to identify the problem and speculate on a solution.

   a. Describe the issue in the program. When is the LED turning on? What causes this to happen? Your response should mention how the pressing the button affects the variable `count`—use the debugger to examine it.

   b. Speculate on at least **two** potential methods to solve this problem. Your solutions do not need to be perfect—just provide some ideas. Do you see any potential issues with your solutions? For example, are there some inputs you might not be able to detect?
   We will discuss the problem in detail in class.

   c. **BONUS** (5 pts): Submit a version of the program that fixes the issue. Your solution does not need to be perfect, but it should function more accurately than the original version.

2. Complete the survey titled "Mid-term course survey", located in Canvas in the Quizzes section. Your response to the survey is anonymous—we will only see that you completed it.