LAB 3 Demonstration Questions & Items

1. You will show the TA your program operation on the actual TM4C123 board.

2. The TA may look at your data and expect you to understand how the data was collected and how the switch and LEDs work.

3. Also be prepared to explain how your software works and to discuss other ways the problem could have been solved.

4. What is the purpose of the 10k resistor on the switch interface?
The 10K resistor is the pull down resistor

5. Why was the ULN2003 not used to interface the LED? i.e., why did we connect the LED directly to the TM4C123?
Because the LED would not need a current greater than 8mA. If it did, we would need a driver circuit.

6. What would the flashing LED "look" like if the frequency were 1kHz (period=1ms)?
The flashing wouldn't exactly look like a flashing LED, but more of a flickering LED, and even to the point where the LED is flickering so fast, it is basically seeing a constant LED

7. Why did your calculations change between the simulator and the real board?
One possible factor: internal resistance within the microcontroller and the wires on the breadboard

8. What operating point (voltage, current) exists when the LED is on? Sketch the approximate current versus voltage curve of the LED.

9. Explain how you use the 470 ohm resistor value to select the operating point of the LED.
The 470 Ohm resistor is the pull up resistor of the LED.

10. What is the difference between a positive logic and negative logic interface for the switch or the LED?

Positive Logic vs. Negative Logic -

11. We may test to see if you can measure voltage, current and/or resistance with your meter (so bring your meter to the demonstration).