CS 350 Milestone 3 Lab Questions

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1. **Why does the loop that processes the LED blinking need to run in a separate thread?**

If the loop that processes the LED blinking were to run in the main thread, then the button wouldn’t respond until the message was completed. Using transmit() lets the LED blink continuously while the rest of the functions handle the button presses, interrupts and timers.

1. **What is the purpose of returning to the off state after each completed state action?**

The off state differentiates each action from one another while also acting as a reset to prevent a light from being left on like keeping the red dot light on while the blue dash light is running.

1. **How could you integrate serial communications to facilitate changing the messages available to the program?**

A serial port could be utilized to listen to incoming text from an external device like a laptop or a mobile device. When the port receives an input, the input could be parsed and validated and then set as self.activateMessage which would then be transmitted to the device without having to press the button.

1. **How could you use the 16x2 display to provide debugging information to the user when they don’t have access to the application console?**

Rather than outputting what is being transmitted on the display, what is being executed as well as specific debug events could be output on the display. For example, the first row could output the current transmission (dot, dash, pause) while the second line could output “\* Changing state to red – dot” to see what the system is doing in real time.