CS 350 – Module Four Lab Questions and Reflection

# Lab Questions

**1. Why do you have a sleep command in your loop?**The sleep command in the loop basically slows things down so the display has time to show stuff before changing again. Without it, the screen would update way too fast, and we wouldn’t even be able to read anything. It also gives the Pi a second to breathe instead of constantly hammering the LCD with data.

**2. What is the purpose of having a text display on an embedded device?**Having a display on an embedded system lets you know what’s going on without needing to connect it to another computer. It’s super helpful for showing stuff like real-time status, error messages, or even sensor data. Basically, it gives you live feedback, which makes testing and using the device way easier.

**3. How can you think of the display device as something that could relate to a state machine?**I think the display works like a state machine because the message on it depends on what the system is doing at the time. For example, if it’s waiting, it might show 'Idle', and if it’s processing, it could show 'Working...'. Each of those messages represents a state, and the system changes the display based on its current state.

# Reflection

Setting up the LED display was honestly pretty fun, even though it took a little trial and error. It felt good finally seeing the screen light up and show a message—that's when I knew it was actually working. Getting the connections right and understanding the GPIO pin mapping took some patience. Once it ran, I started playing with the messages to get a better feel for how the code and hardware work together.  
  
For the potentiometer part, I can see how useful that will be in future labs. I didn’t get deep into it yet, but I’m starting to understand how it can be used to control things like brightness or values on the screen. This lab helped me feel more comfortable with wiring up basic circuits and using Python to control hardware.