**Module Four Assignment**

**Lab Questions:**

**1. Why do you have a sleep command in your loop?**

The sleep command is used to introduce a delay in the loop to manage the timing of the display updates and to prevent the program from overloading the CPU. It ensures that the display has enough time to show the information before the next update occurs, allowing for more readable and stable output. Without it, the display may flicker or update too quickly for the human eye to read.

**2. What is the purpose of having a text display on an embedded device?**

The purpose of having a text display on an embedded device is to provide visual feedback to the user. It allows for displaying critical information, status updates, and data in real-time. Text displays can be used in various applications, from showing sensor readings, user messages, to debugging or providing status indicators for processes running on the embedded system.

**3. How can you think of the display device as something that could relate to a state machine?**

A display device can be thought of as a state machine because it can change its output based on different inputs or conditions. The state machine concept can be applied to the display by considering each screen or message shown as a different state, with transitions occurring based on certain events or inputs. For example, pressing a button or receiving data from a sensor could trigger a change in the display, just like a state machine transitions from one state to another based on certain conditions.

**Reflection:**

The process of setting up the LED display and potentiometer went smoothly without any significant challenges. The installation of the necessary Python packages, wiring the components on the breadboard, and configuring the Raspberry Pi were all straightforward. I was able to follow the instructions in the lab guide and execute the commands without encountering any errors. The display worked as expected, and I was able to adjust the contrast using the potentiometer. Everything was fully functional, and I did not face any technical issues during the setup.