Lab Questions

Milestone Two:

**1. Why do both the SerialTest-Write.py and SerialLightControl-Client.py scripts use the encode() method of the string datatype when writing data to the serial port?**

Both scripts use encode() because the serial port doesn't understand regular text the way we do. Encode() converts the string into bytes for the UART to send through serial connection. Without encoding, the serial library would throw an error because it cannot write a string directly to the serial device.

**2. Why does the SerialTest-Read.py script use the decode() method of the string datatype when reading the data from the serial port?**

Because the serial port sends the data in bytes not string. Decode() converts the bytes back into string so it can be read as a string rather than raw bytes.

**3. What is the purpose of the try/except block in both the SerialLightControl-Client.py script and the SerialLightControl-Server.py script?**

The try.except block handles exceptions, in the client server scripts they are used to handle the exception that a user presses ctrl-c to exit. It allows the program to exit cleanly without leaving GPIO pins in an unsafe state or the serial port open, ensuring resources are properly released.

**4. Why is it necessary to make sure that the GPIO pins are always returned to their original state at the end of program run?**

When the program end gpio pins will remain in their state, this can damage the components and possibly make them unusable in the future. We use gpio.cleanup() to reset the pins for future usage.