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Milestone 2

**Q. 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?**

The reason both the SerialTest-Write.py and SerialLightControl-Client.py scripts use the encode() method is because serial ports don’t send regular strings they only handle raw byte data. So, before sending any command over the serial port, the string needs to be converted into bytes using encode(). Without doing that, the data wouldn’t get transmitted properly.

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

The decode() method is used in the SerialTest-Read.py script to turn the received byte data back into a readable string. Since the serial port brings in information as raw bytes, decode() is needed to make the data something we can read and work with in Python.

**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 in both the client and server scripts is there to make sure the program can handle things like errors or when you press Ctrl+C to stop it. Instead of crashing, it gives the program a chance to shut down cleanly, like turning off the LED or closing the serial connection the right way.

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

It’s important to return GPIO pins to their original state at the end of a program to avoid leaving them in a state that might keep something powered or interfere with other devices. Calling GPIO.cleanup() resets everything and helps avoid problems with other scripts or hardware down the line. It’s just good practice.