We modified the ProcessBuilderHandler class provided by the teacher.

* The constructor of the class now takes a Sensor object
* Instead of printing the output from the python executions, it updates the output of the Sensor object every time the python file is executed by calling the setter method of the output field contained within the Sensor object.

We created an abstract class Sensor that will be extended by 3 classes, one for each sensor (Humidity, Motion and Buzzer).

* The constructor of the class takes a string that is filePath to execute the python file, a MqttRun object to send data to the HiveMQ cloud, a Mqtt5BlockingClient object that enables the client connection when sending data, and a string defining the topic user to know where to send the data.
* The method sendSensorData() encodes signs relevant information and publishes sensor information and signatures to the MQTT hive cloud.
* There is an abstract method called sensorLoop(PrivateKey key) which will be overridden by each Sensor children classes. This method is run on a separate thread and listens to output given by the python file on an infinite loop and updates the data to the cloud by calling the sendSensorData() method from the Sensor class.

We created a LogicHandler class that deals with the Keystore and certificate.

We have DataHandler class that deals with the data received from the HiveMQ cloud.

We have a console app that sends data signed by given keystore’s private key and to specified topic.

We have a GUI app that represents the data sent from console app.

The console app and GUI app can run separately from each other. Console app is meant to run on the pi while the GUI app can be run from anywhere.

# Unfinished

## Image sending and retrieval.

Unable to figure out how to send the image without completely breaking either the ConsoleApp or App components.

# Known Bugs

## Wipe Keystore

Sometimes the keystore file will be wiped, reason unknown.

May happen when saving new certificates to the keystore and trying to save the updated keystore file

## Humidity Verification

Although setup just as temperature, the humidity refuses to verify, removed verification check so it will output “Signature is not valid”. Reason unknown.