1. Describe how your system works and clearly outline the following:
    a. the function of different hardware components in achieving the overall function:

    The ambient light intensity is measured by the **BH1750 light sensor**. Periodically, the Arduino uses this sensor to read the light intensity.
    The Arduino Board: run the code and controls sensors
    WiFi Module (WiFiNINA): With the help of this module, the Arduino may connect to a WiFi network and use the internet.

    b. the IFTTT trigger mechanism

    If This Then That, or IFTTT, is a web-based tool that enables users construct "applets," which are collections of straightforward conditional statements. These applets are activated in response to sensors.
    Webhooks: In this configuration, when specific parameters are satisfied (lux levels above or below a threshold), the Arduino sends HTTP requests to IFTTT's webhook URLs.

    IFTTT Webhooks Service: This service watches for HTTP requests made by the Arduino and responds to them in order to start pre-programmed activities.
    Event Name and Key: Using the event name and key parameters that IFTTT understands, the Arduino creates a unique URL.

    c. the notification mechanism

    HTTP Requests: The Arduino sends an HTTP GET request to IFTTT's webhook URL with particular event data when the lux level reaches a given threshold (300 in this case).
    notice Service: When an applet is triggered, it can carry out any configured action, this task required an email to be sent.

2. In less than two paragraphs, describe how you would test the system you have built?

I would first make sure that all hardware is powered on and connected correctly before testing this setup. This include configuring the WiFi connection, setting up the BH1750 light sensor with the Arduino, and making sure the Arduino can connect to the serial monitor for debugging. I would upload the supplied Arduino code to the board after the hardware configuration was verified to ensure that no errors occurred.
Next, I would purposefully change the lighting conditions to set off various lux level thresholds, testing the IFTTT trigger mechanism's functionality. To test high light levels I can shine a light such a my phone flah and see if the Arduino delivers the appropriate HTTP request to the webhook URL of IFTTT. In a similar vein, I would make sure notifications are sent out appropriately by testing in low light. Lastly, I would have my emails open to see if I am receiving the emails and ensuring the correct ones are being sent. By means of these tests, we are able to verify the system's overall performance and dependability with regard to its ability to react to variations in the surrounding light levels and initiate IFTTT notifications.

Github link: https://github.com/Greekfreaks/Task3.1IFTTT
YouTube link: https://youtube.com/shorts/unoJc-aHtGA?feature=share