



Faculty of Engineering and Technology

Computer Science Department

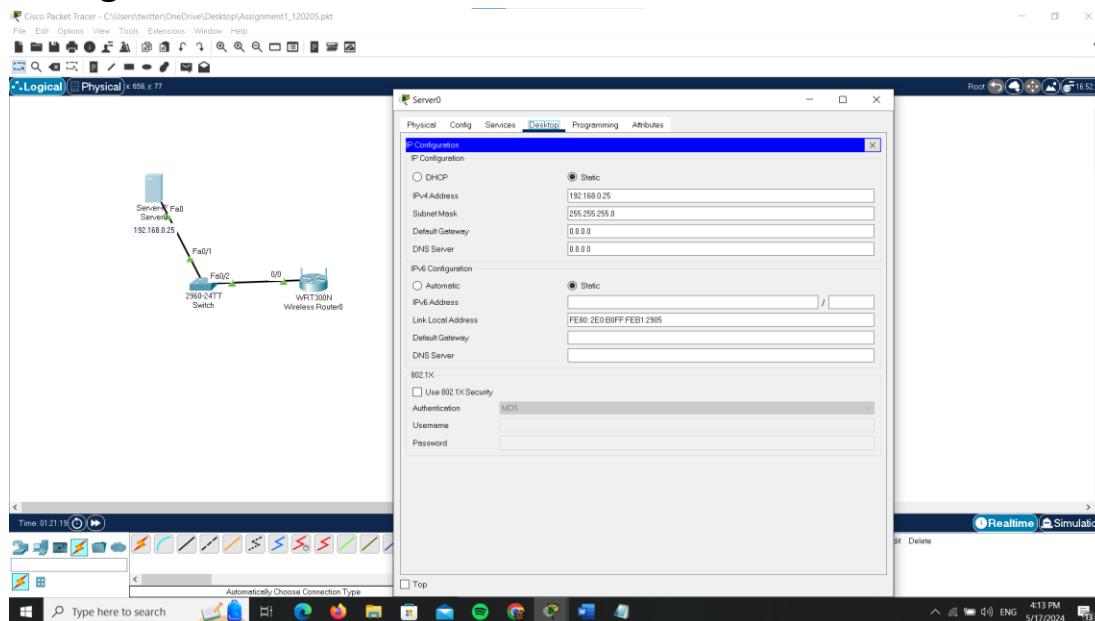
COMP438-INTERNET OF THINGS SECURITY

Assignment (1) Report

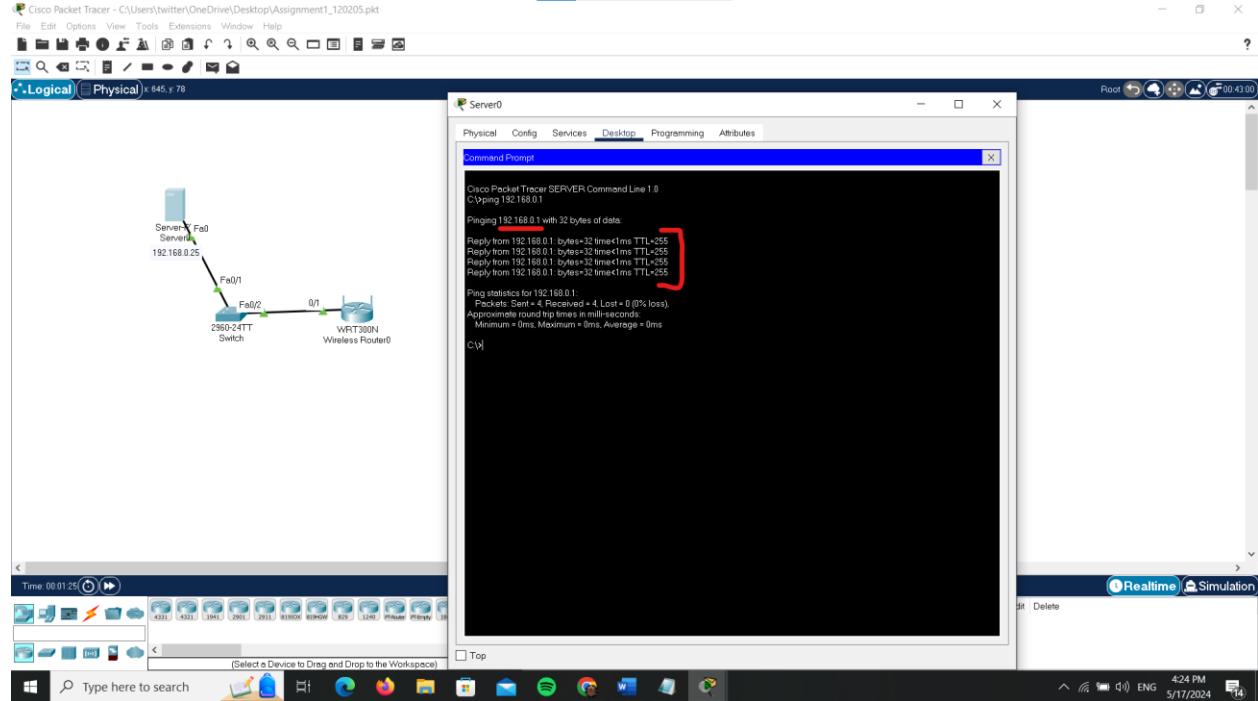
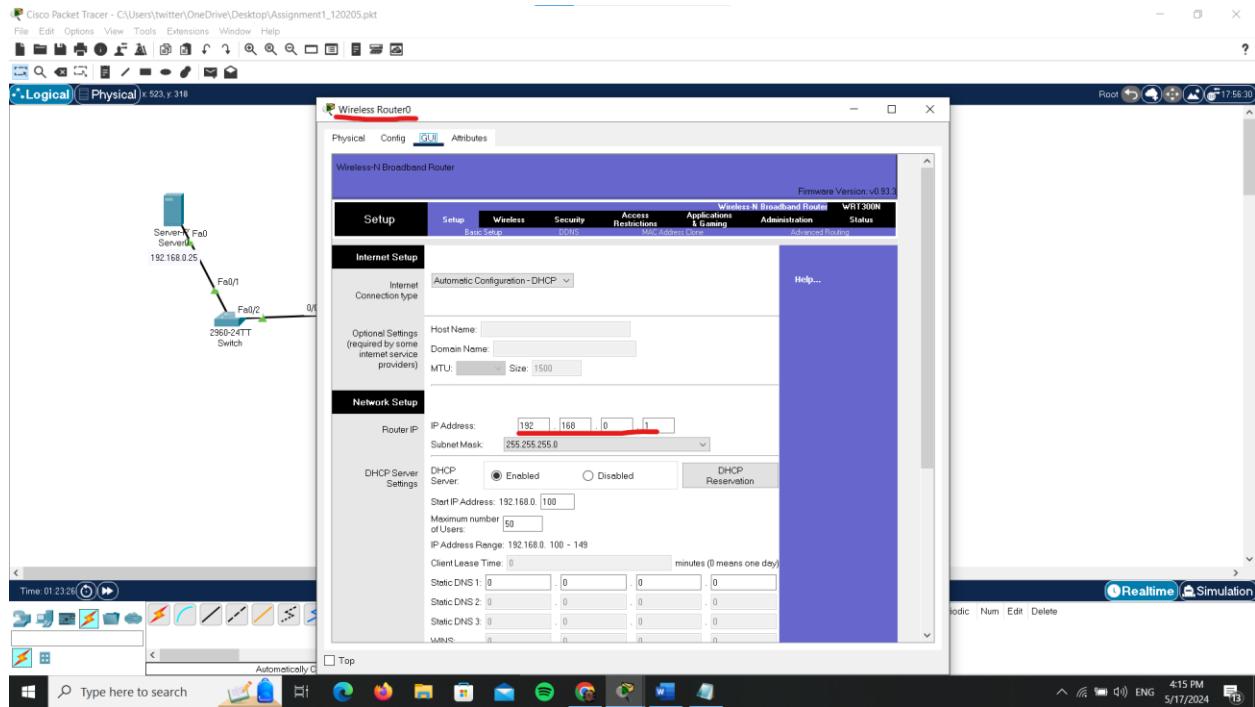
Students Name	Students Number
Yousef Sharbi	1202057

The system designed for **Smart Home Temperature and Lighting Control**, The system use (Server-PT ,switch2950-24 and Wireless Router300N) to make secure network (AAA) and control remotely the end-device(Temperature Monitor, Thermostat, MCU ,Motion Detector, Light and alarm)

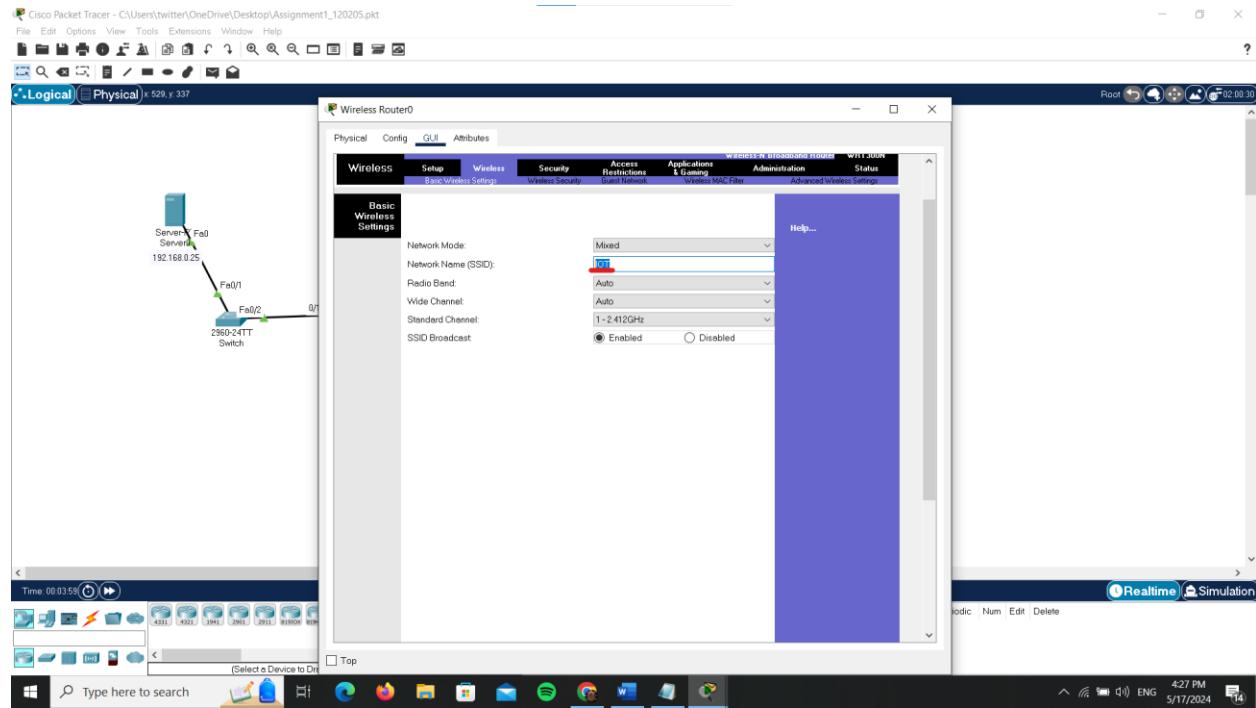
1) Configure server and Wireless Router:



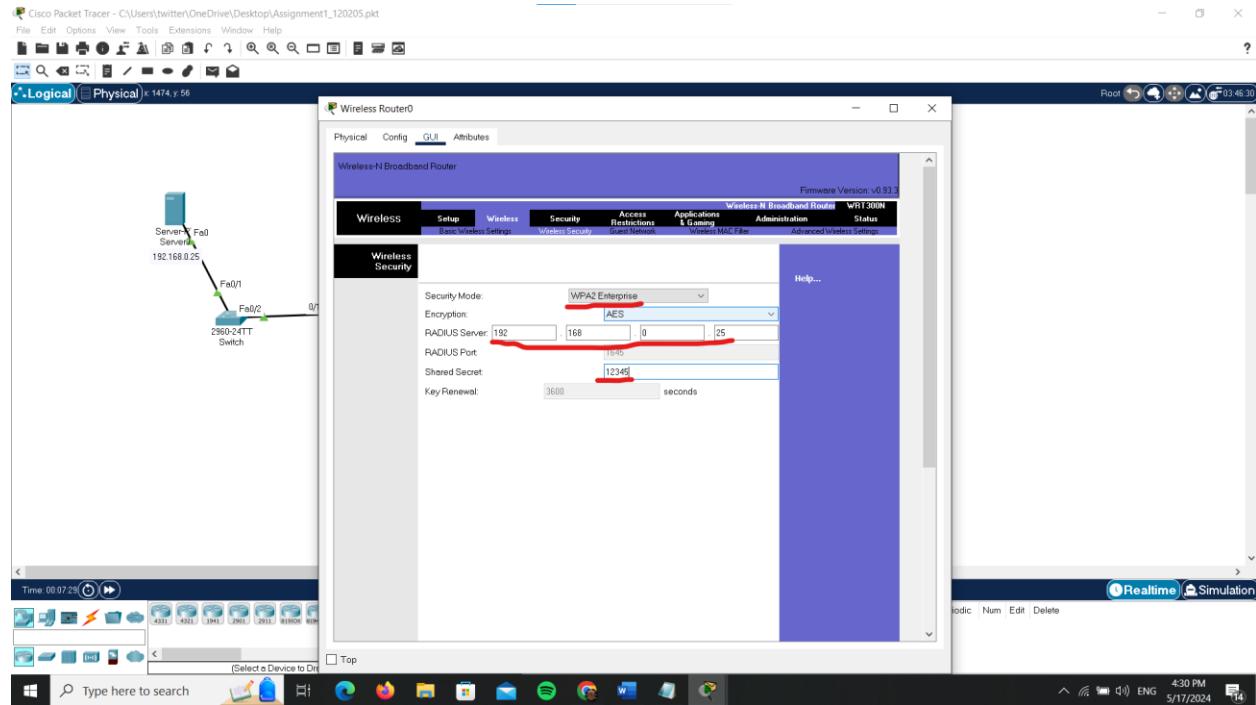
At first we set ip address for server and then try to ping between server and router:



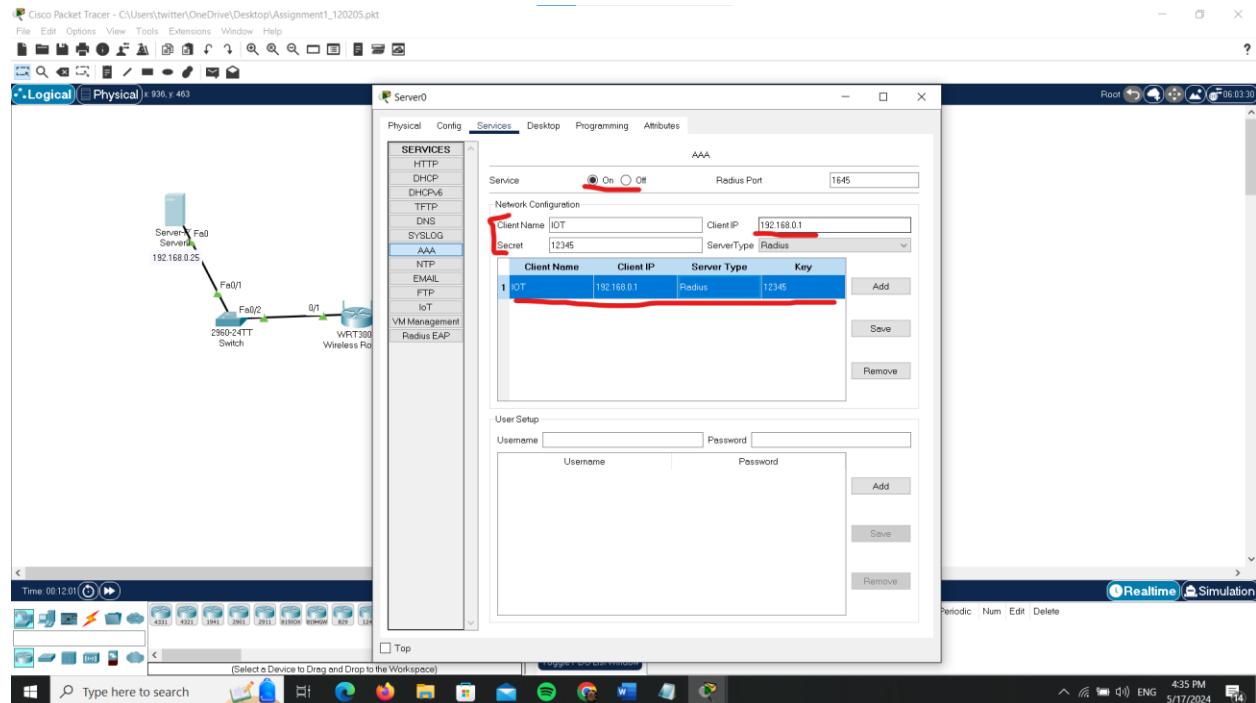
Then rename network name on router to IOT



After that change security mode to WPA2 Enterprise and set the server ip for managing this security:

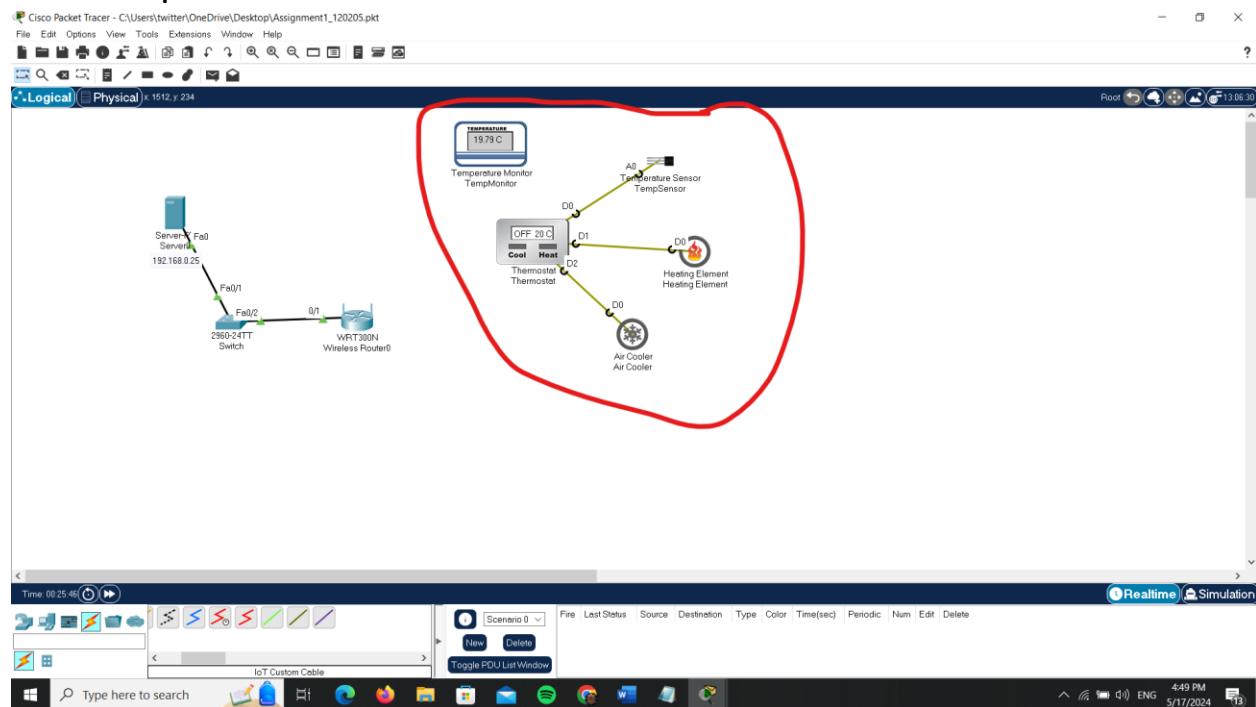


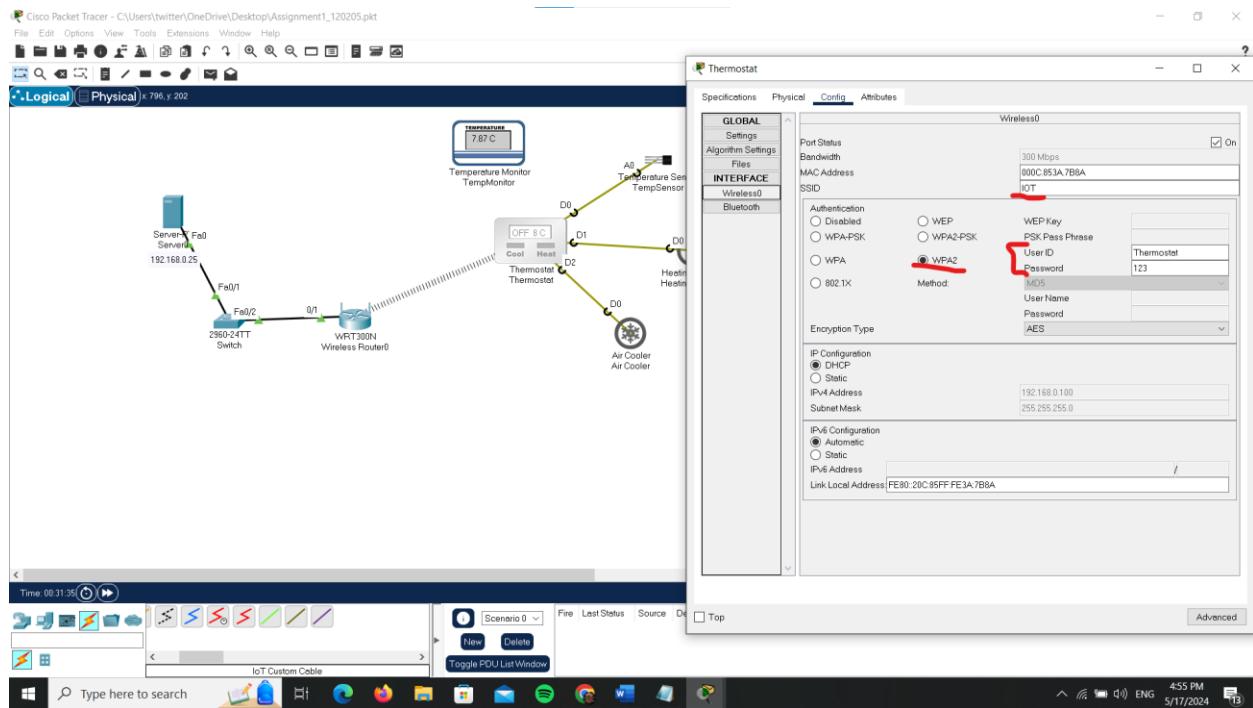
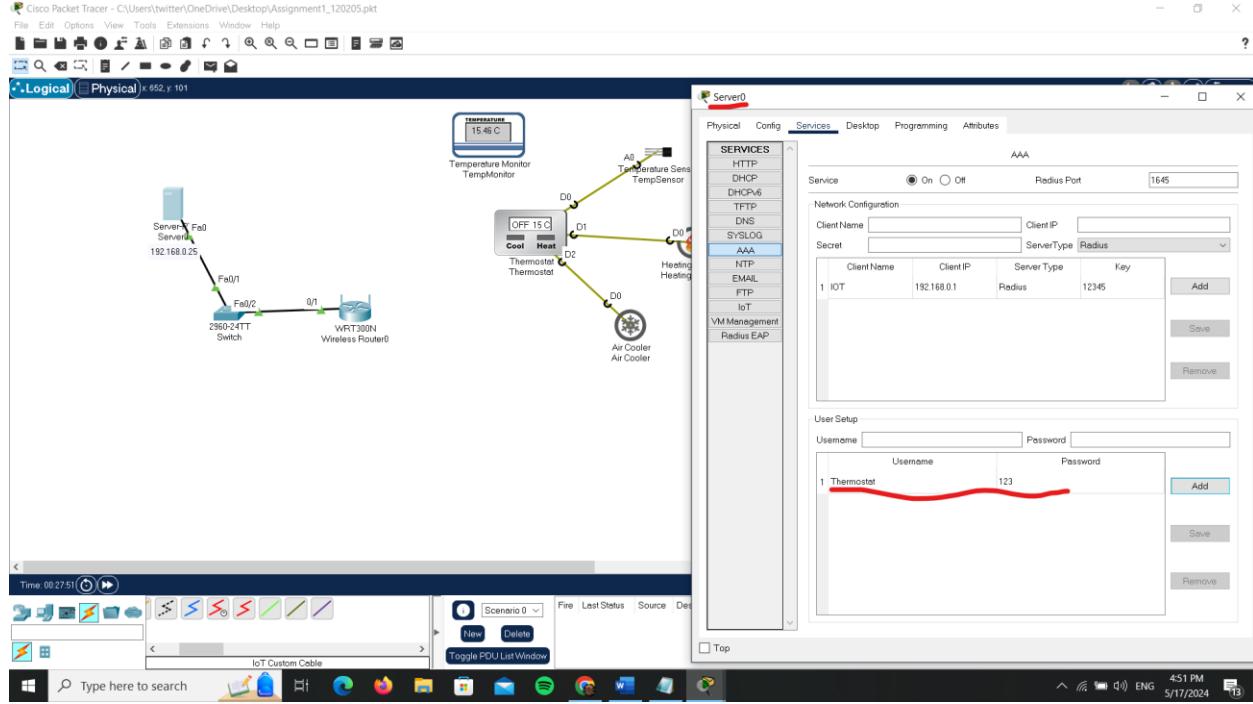
And finally enable AAA on server:

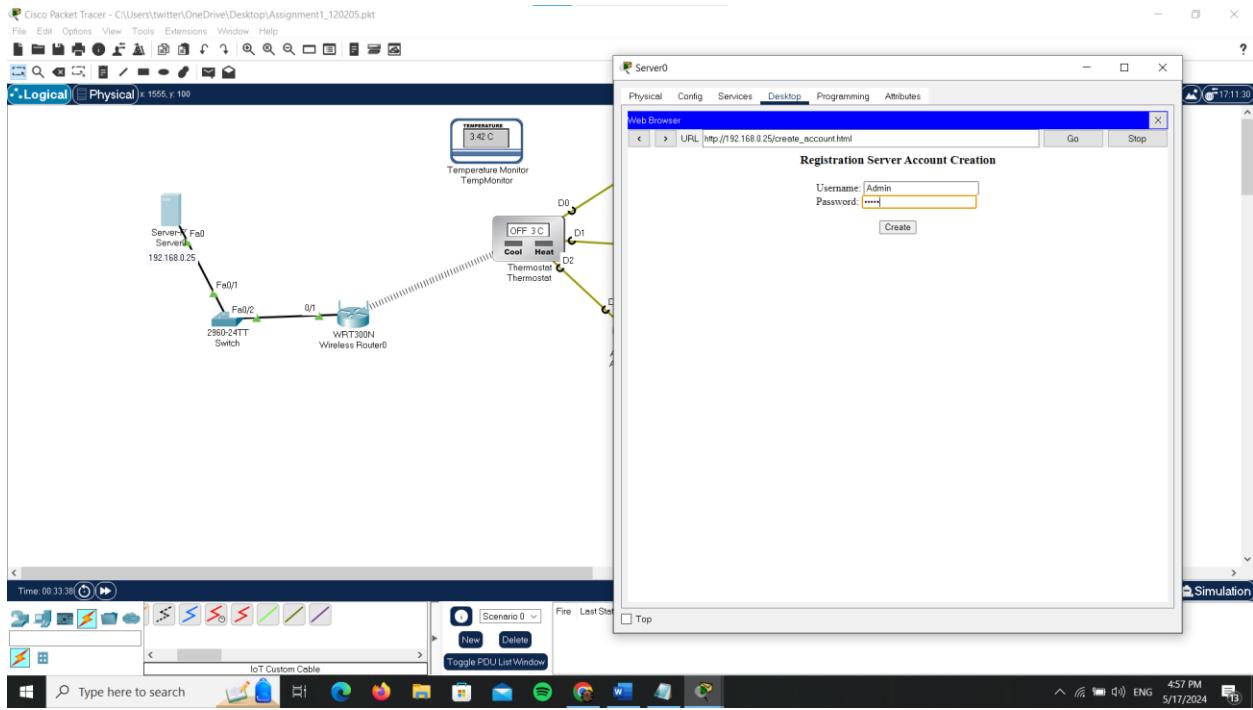
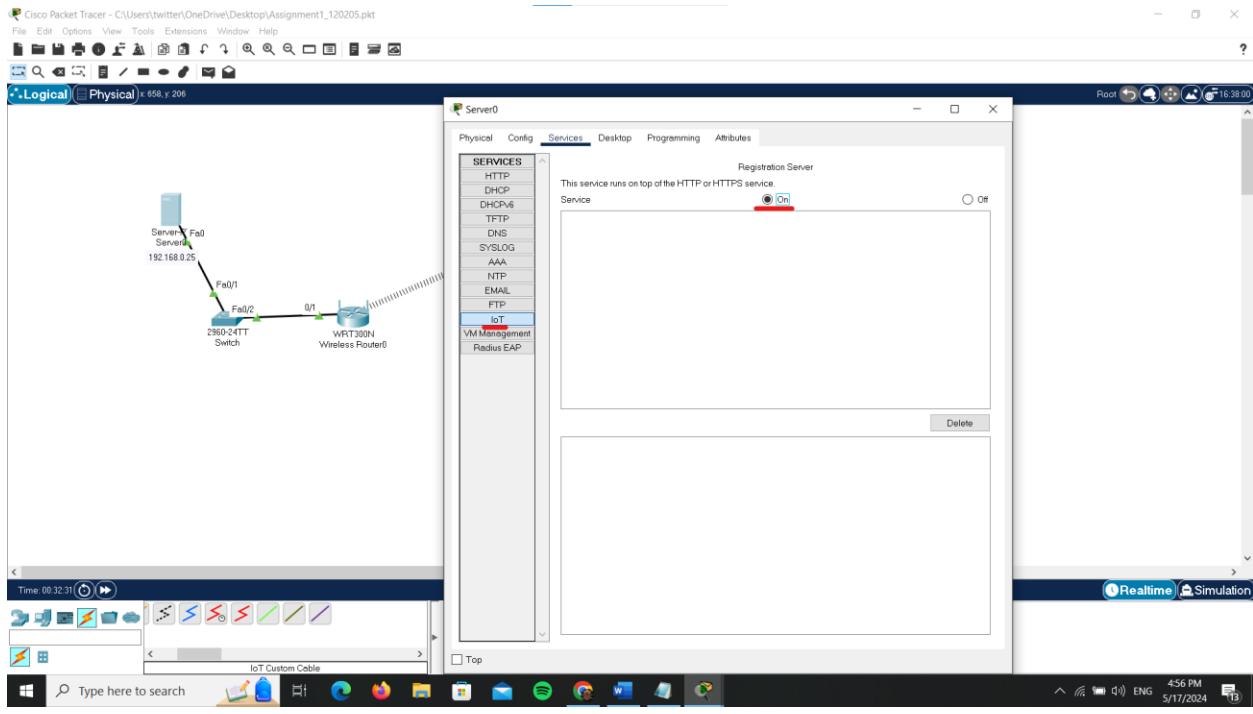


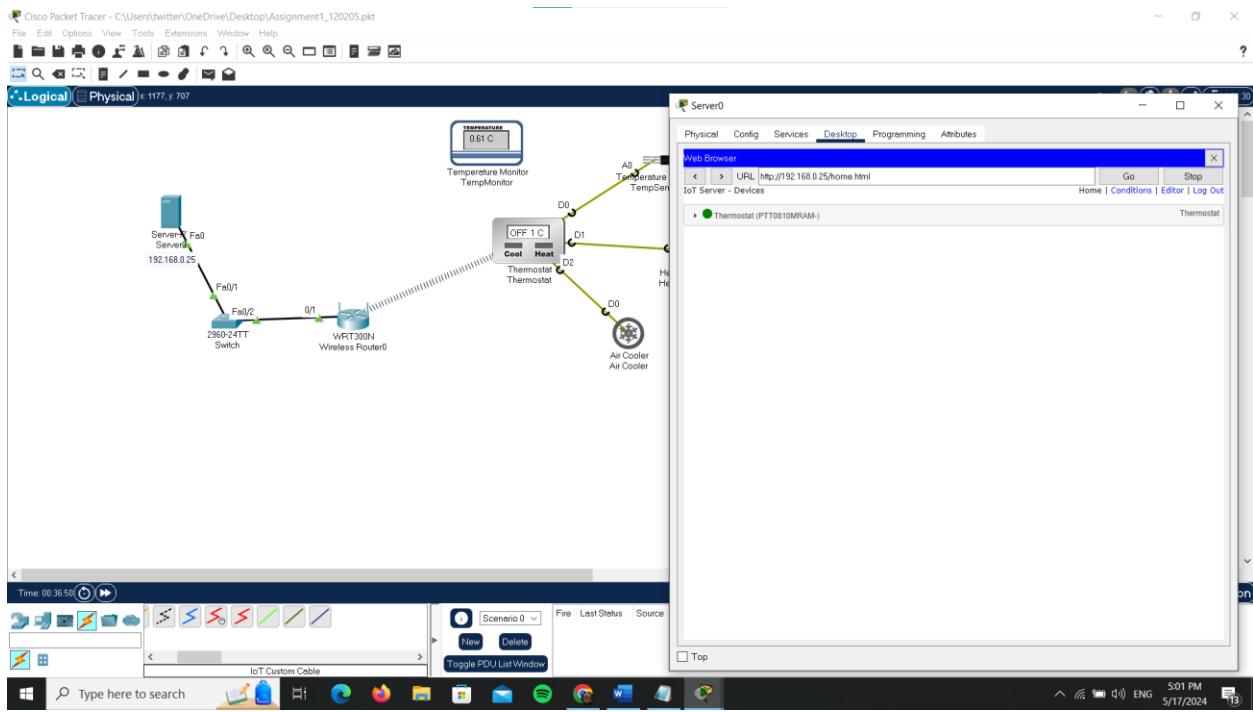
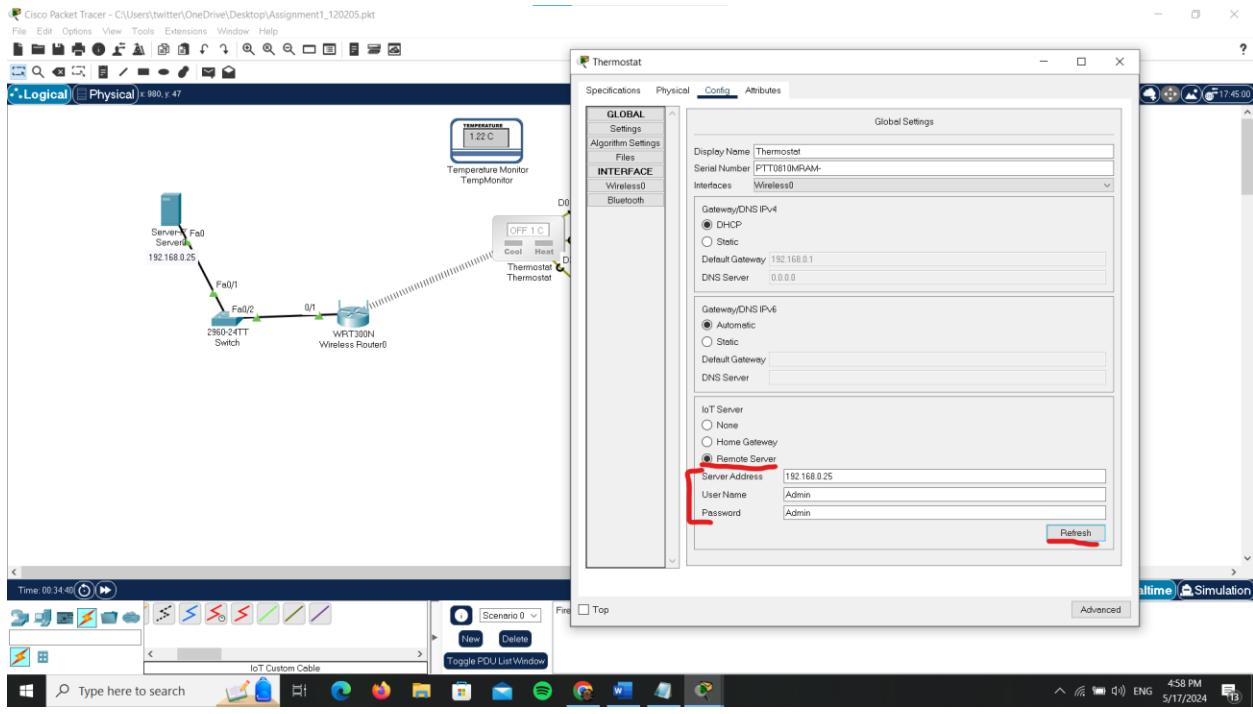
2) Configure End-device:

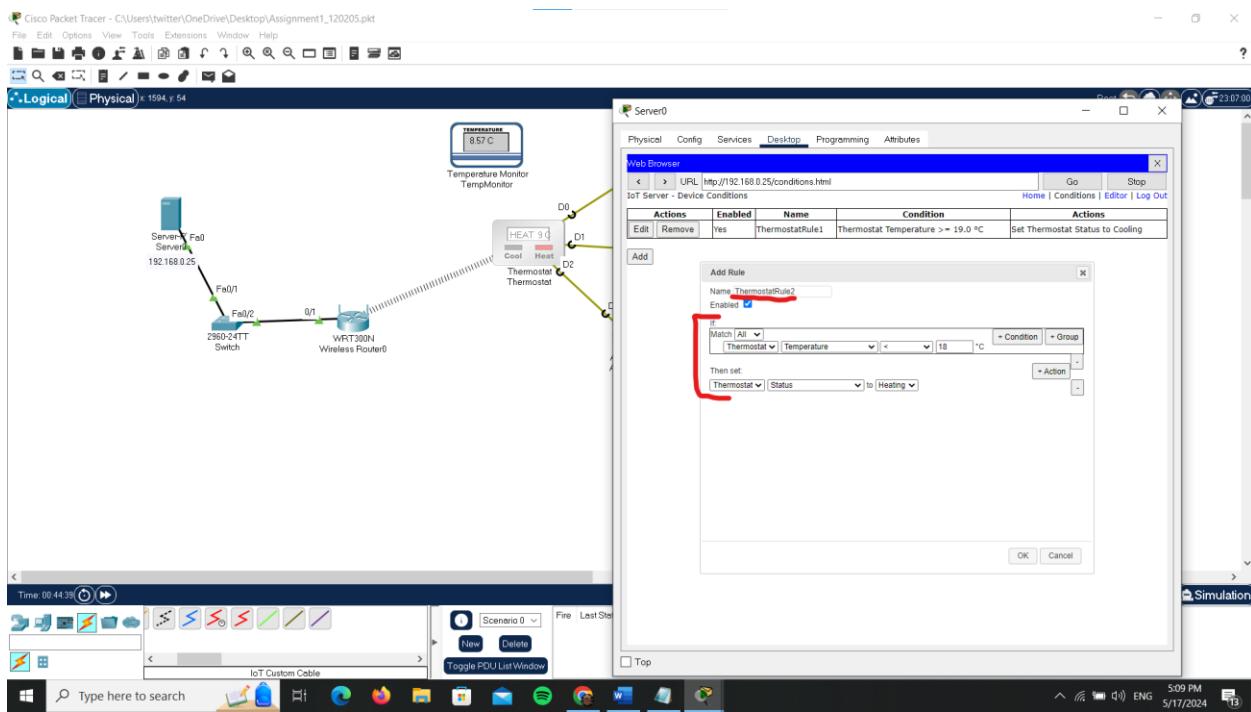
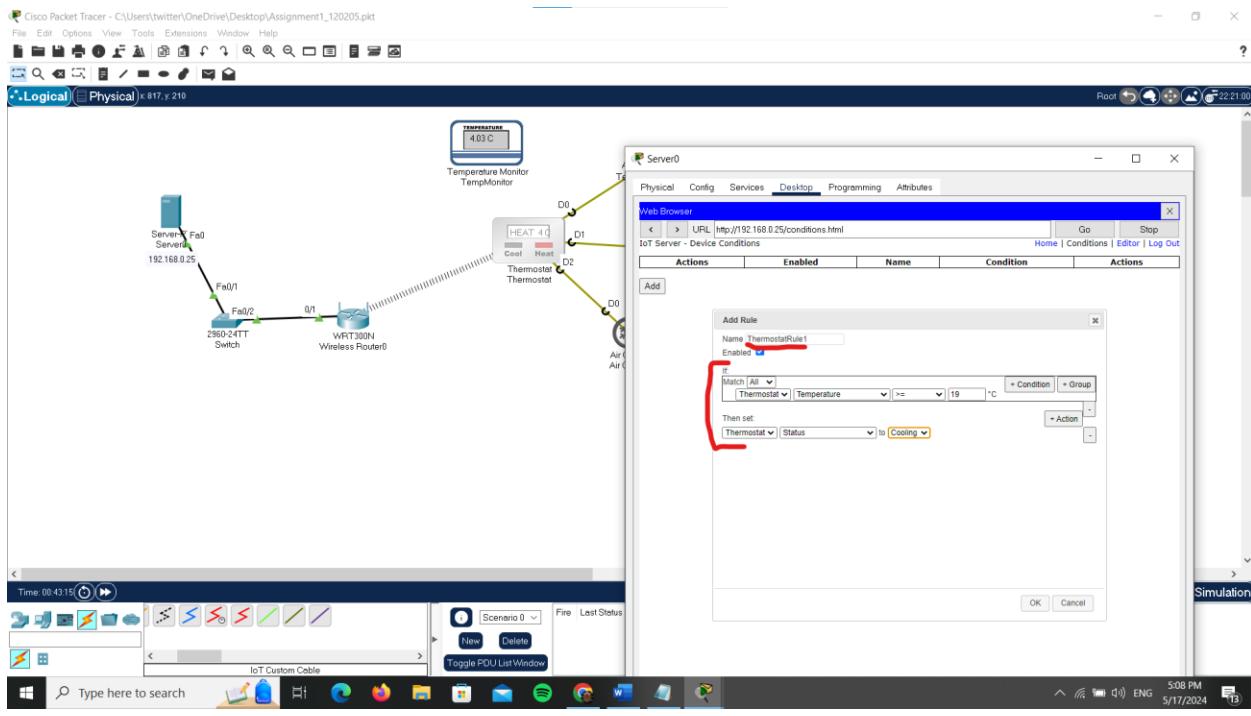
- Temperature device:

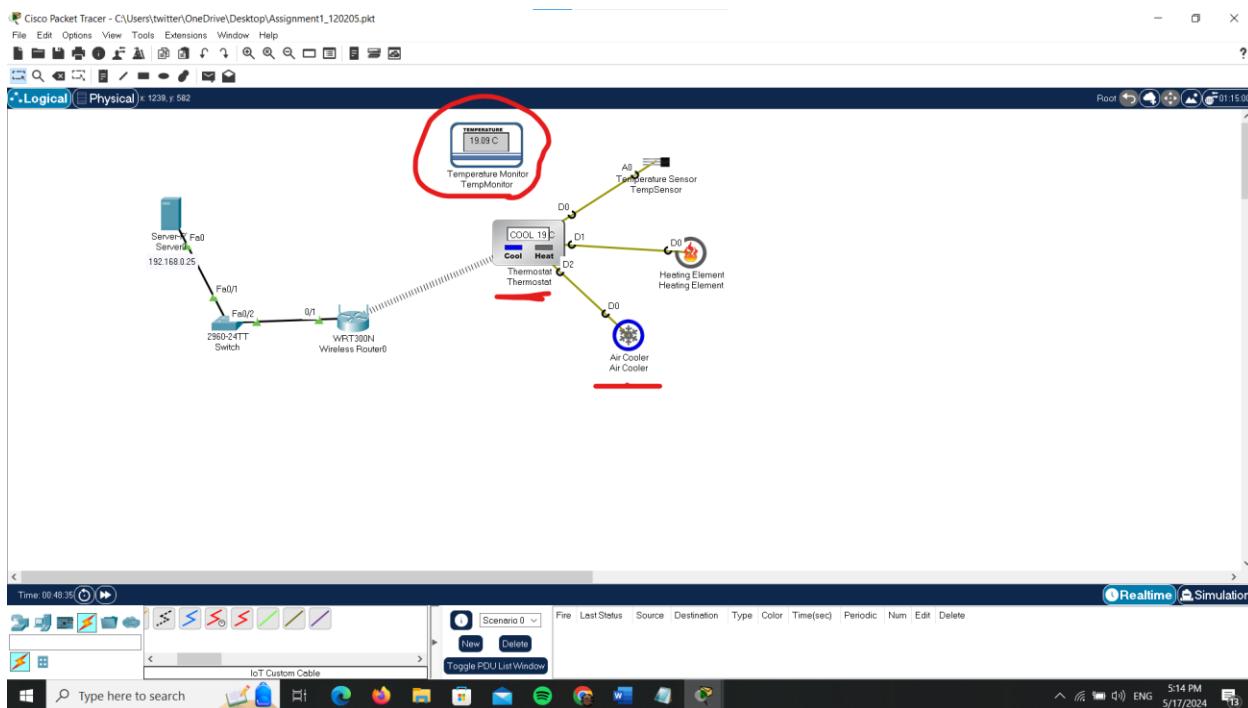
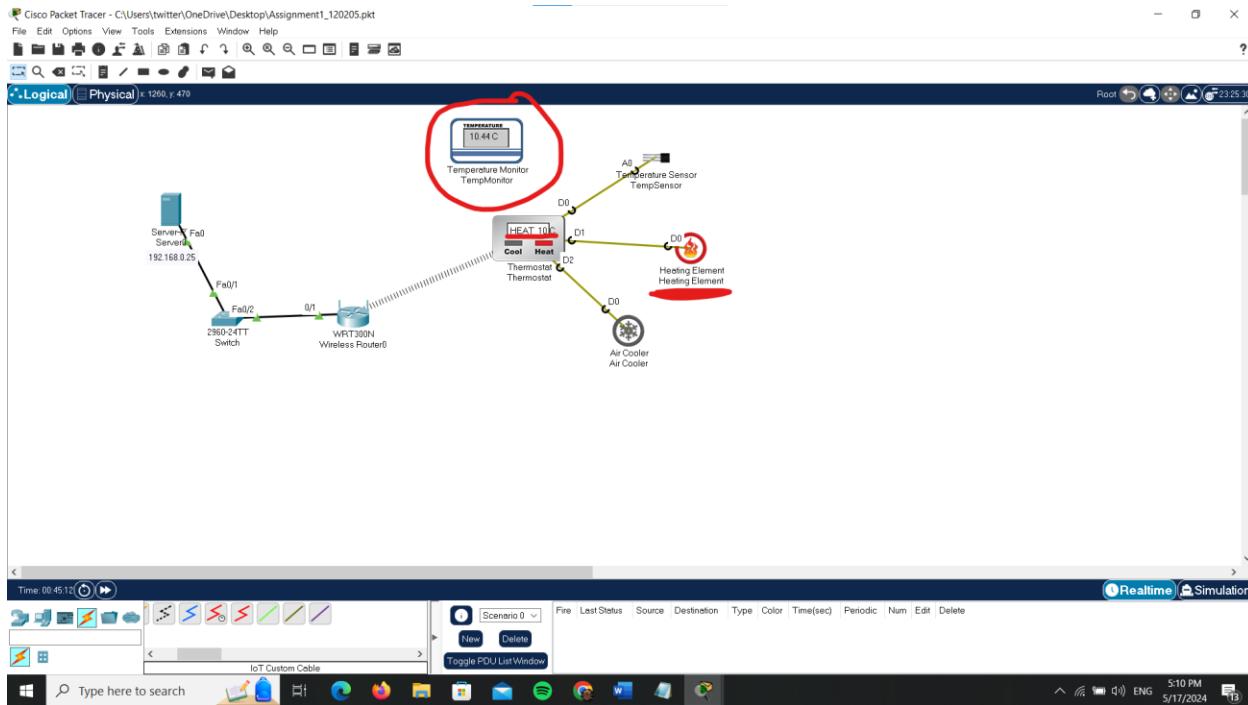




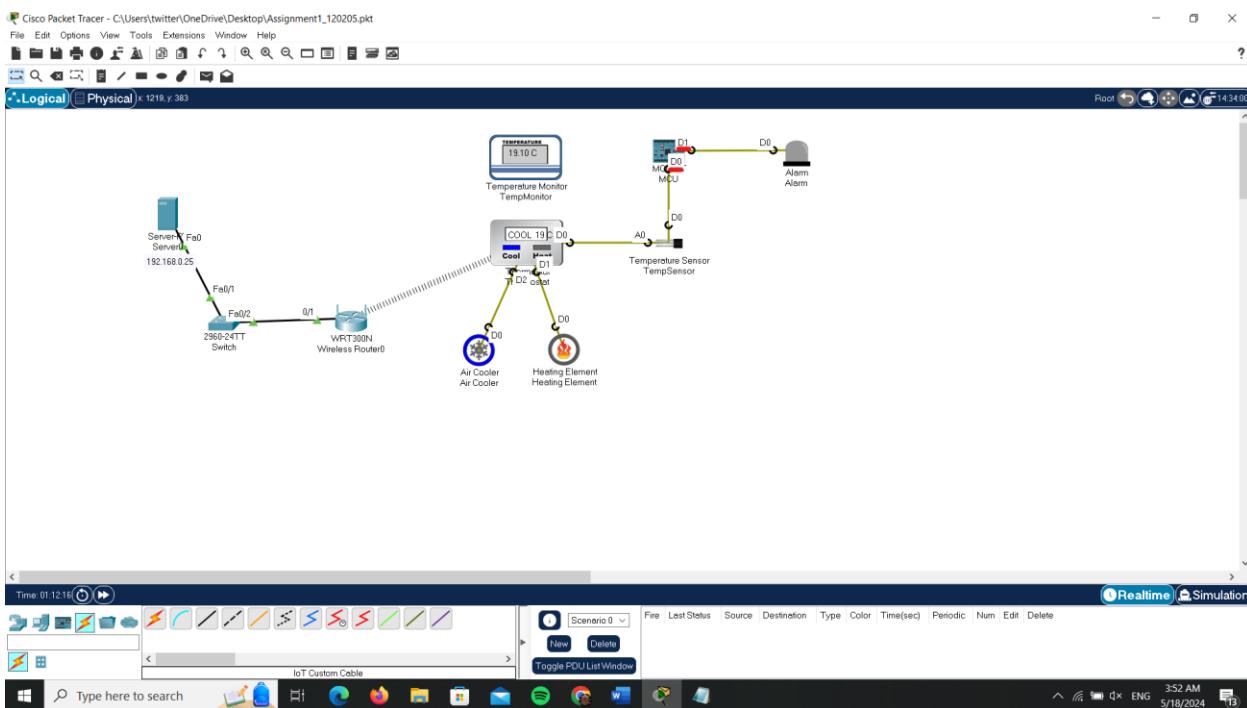
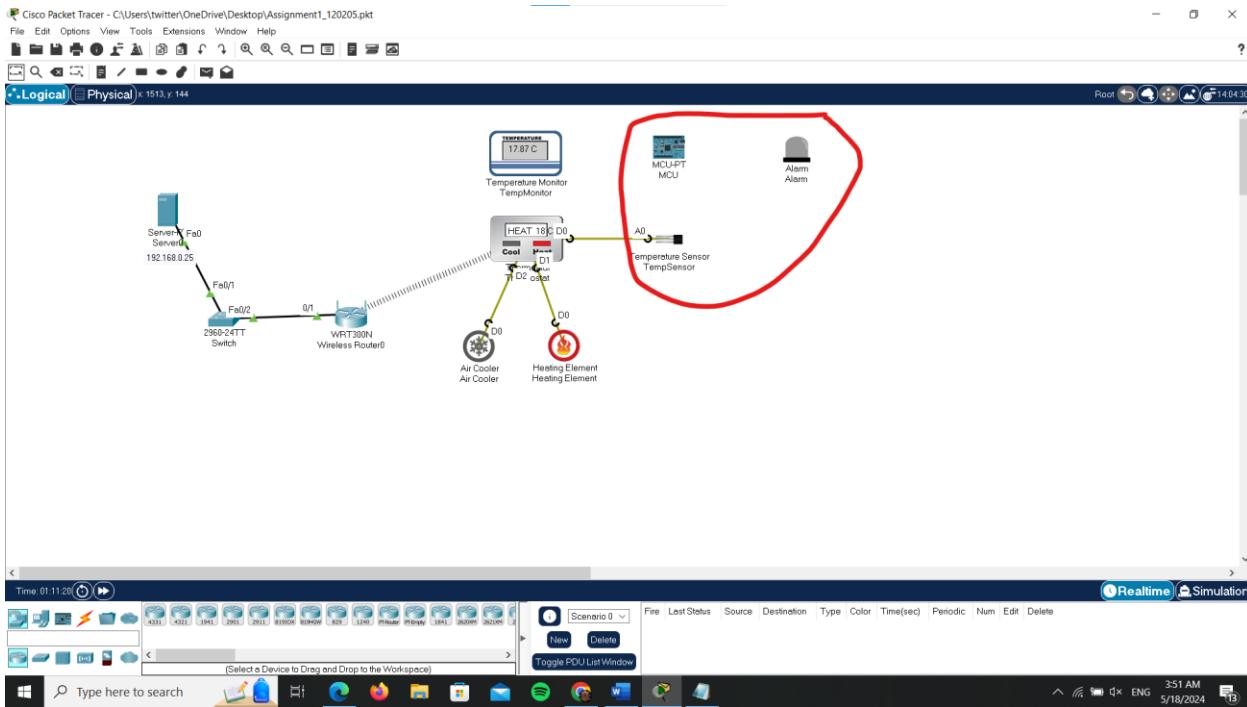


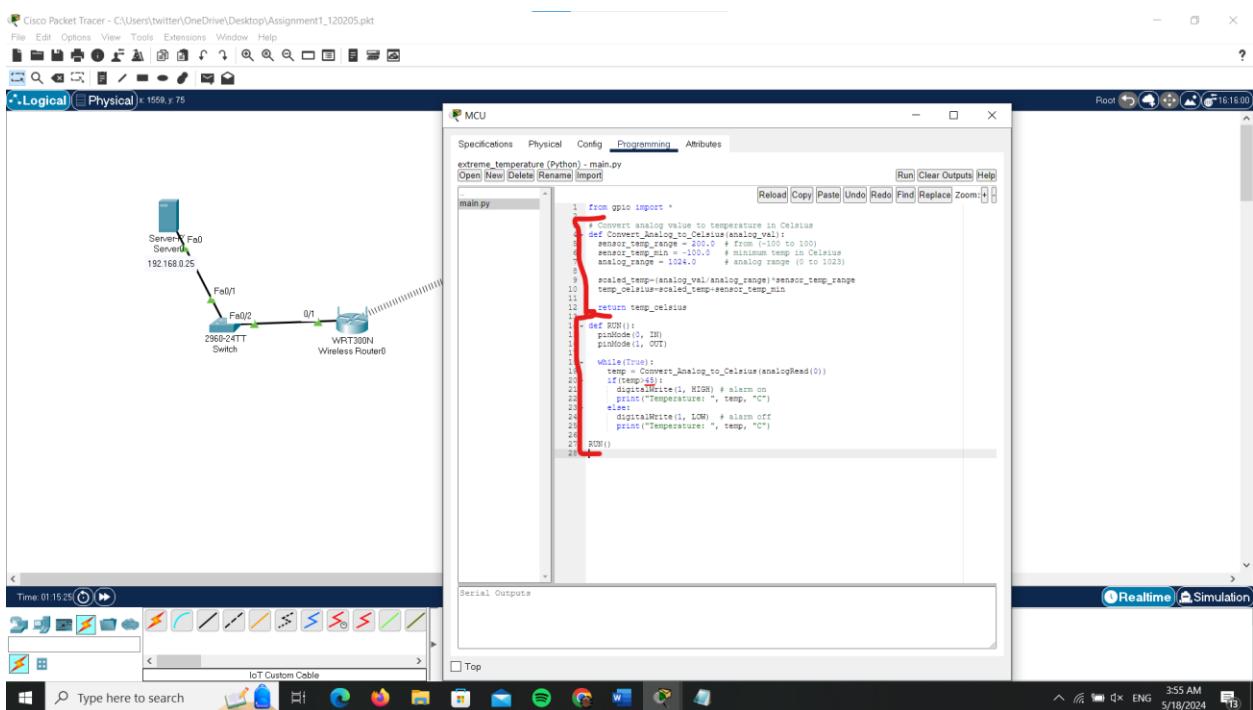
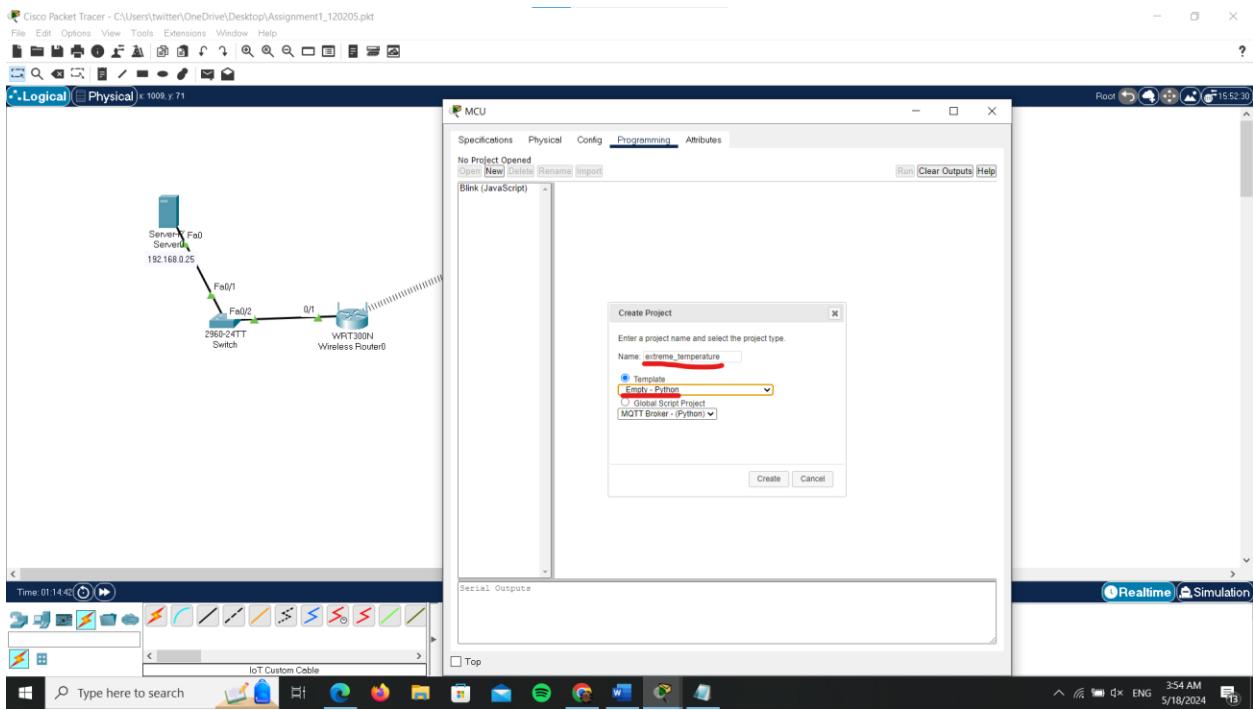


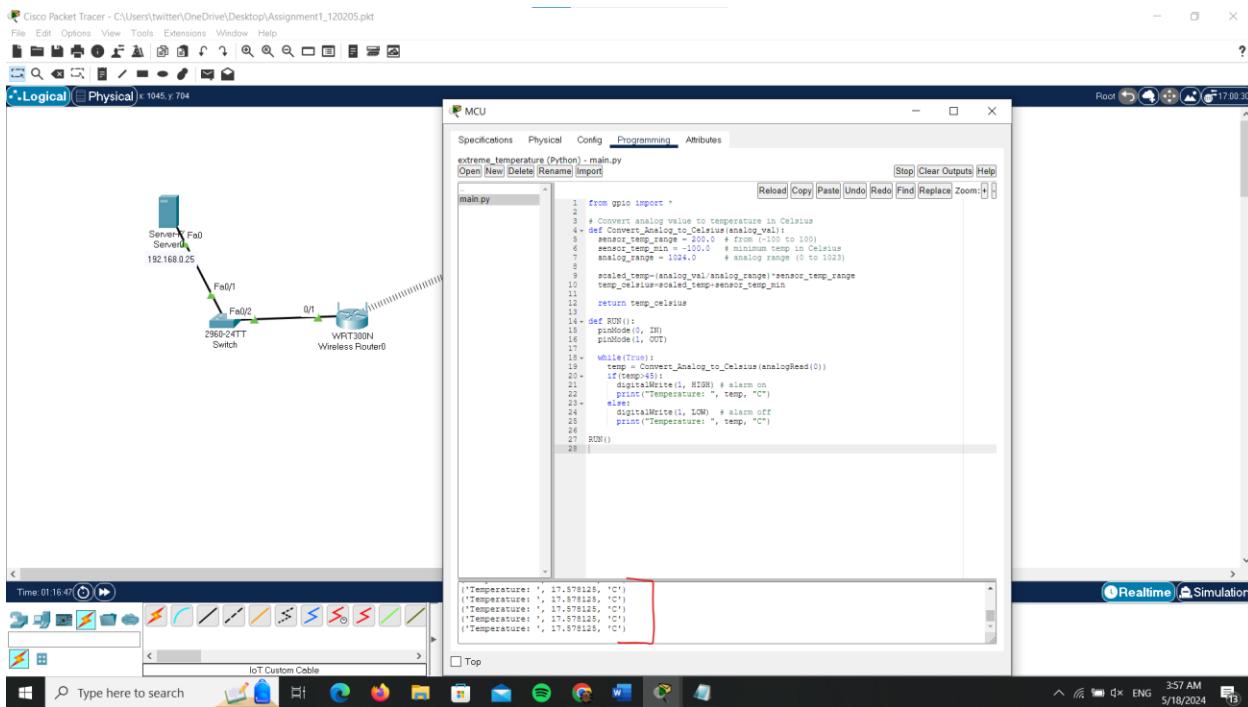




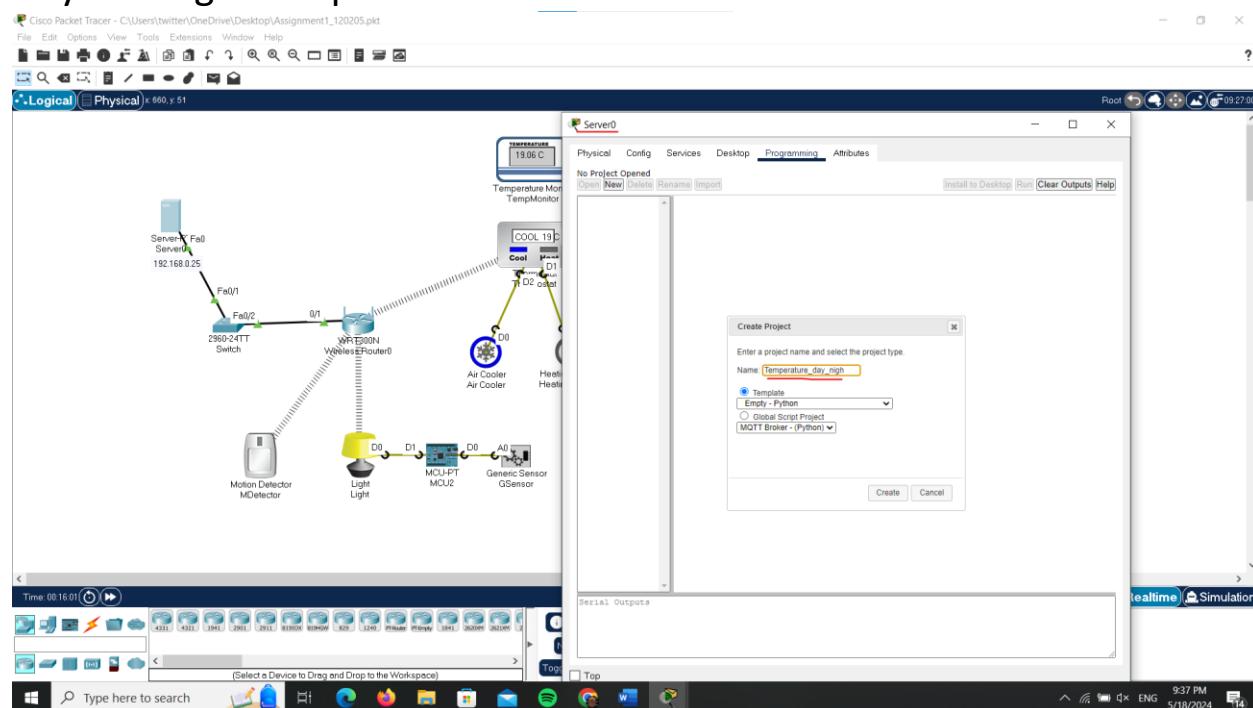
- Extreme temperature:

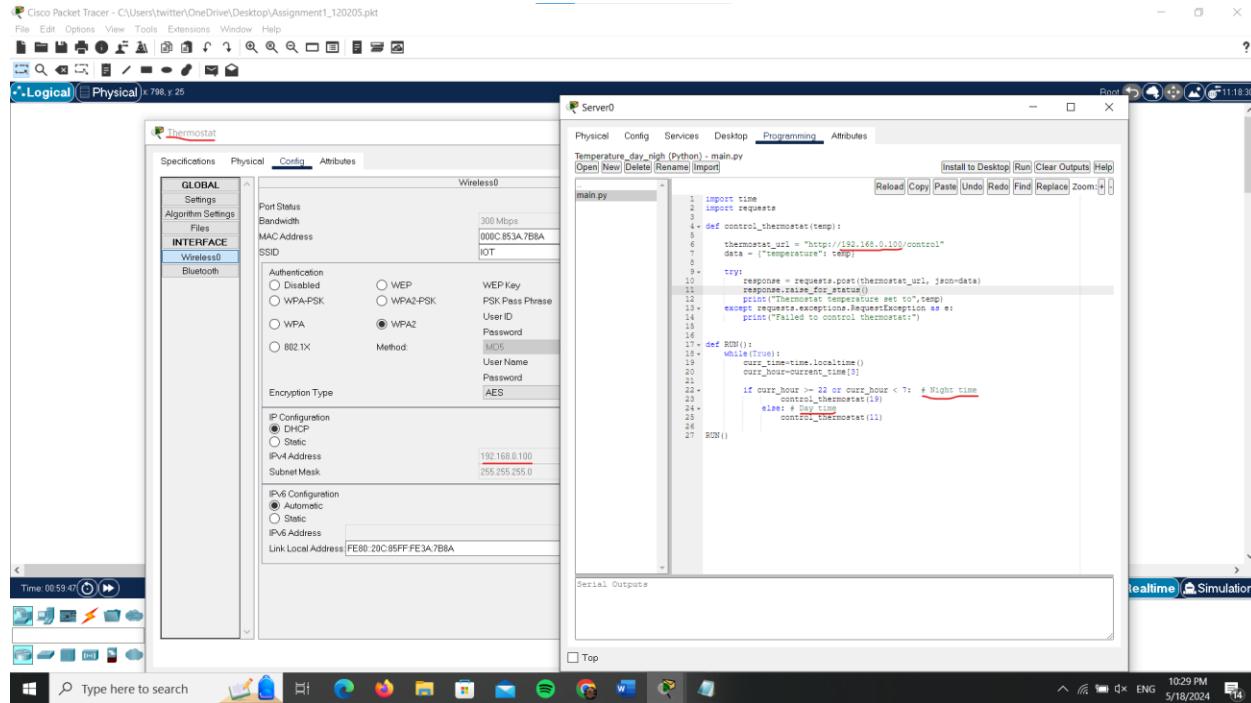




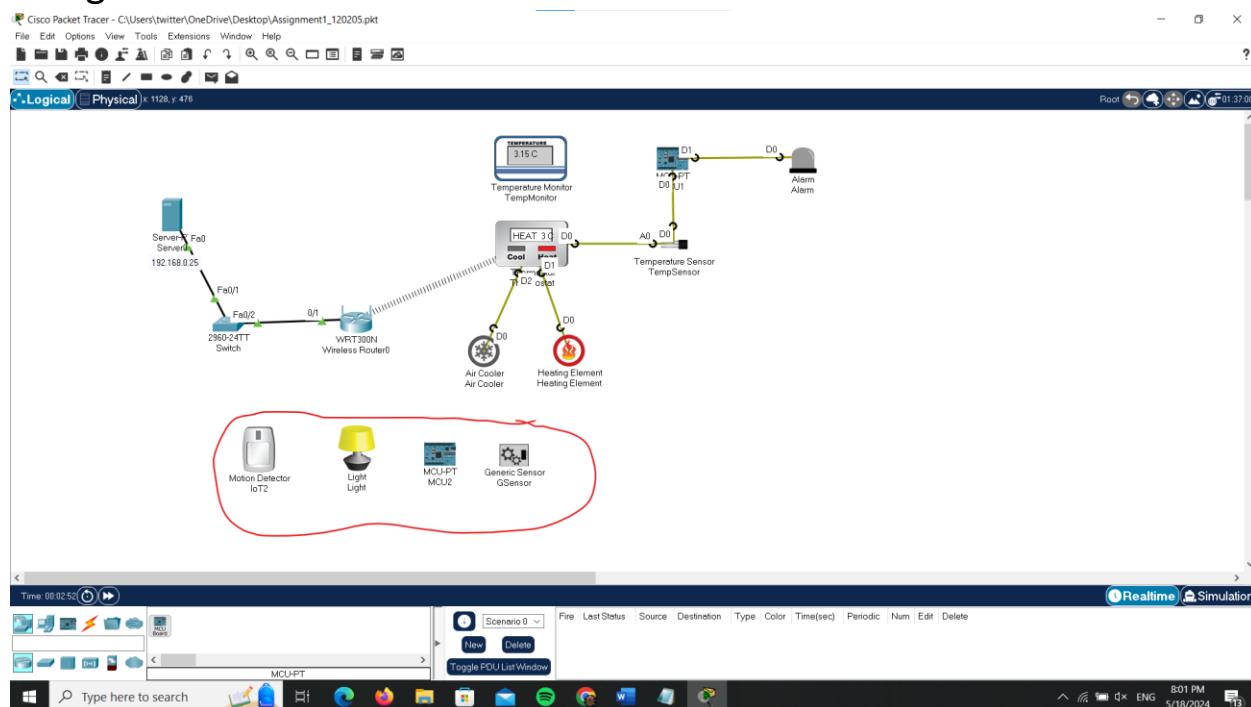


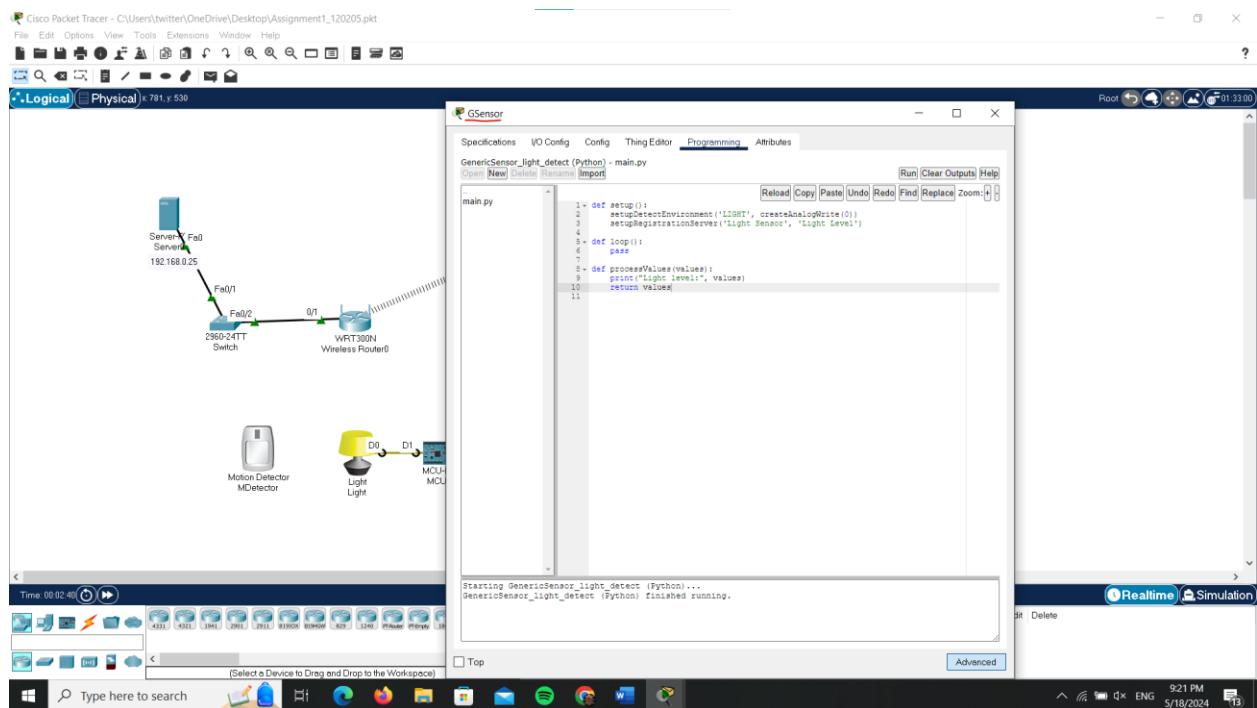
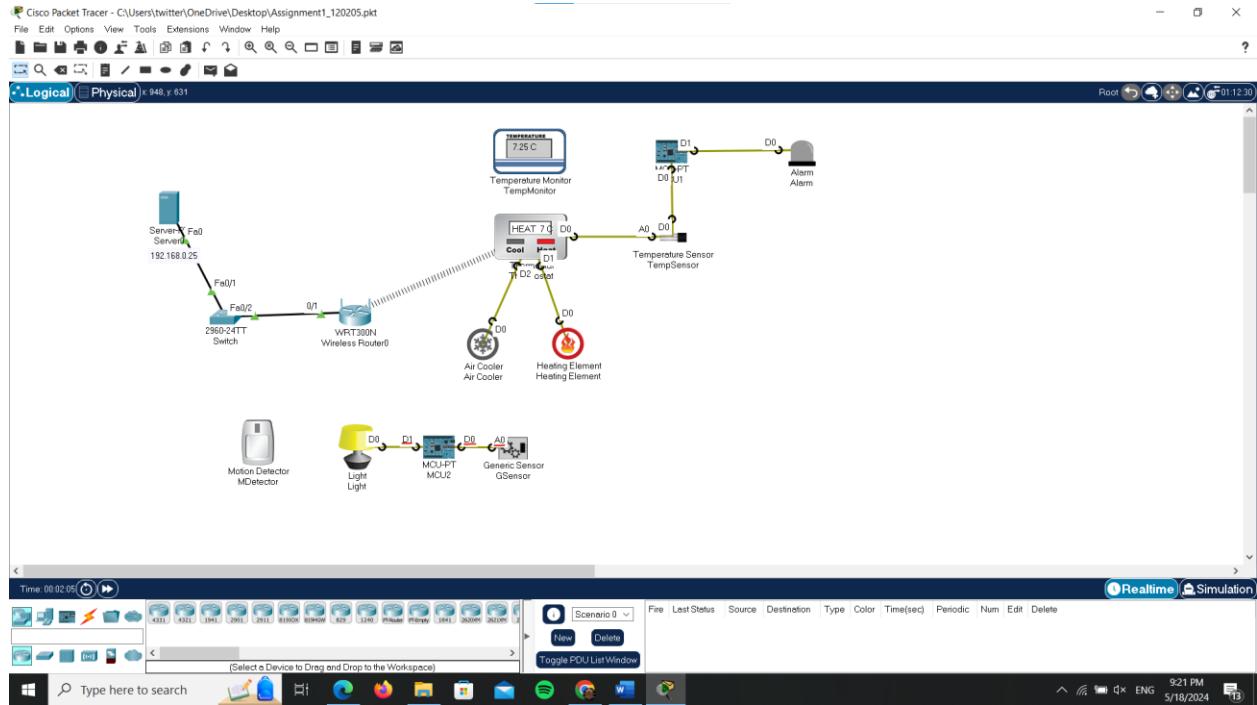
- Day and night temperature:

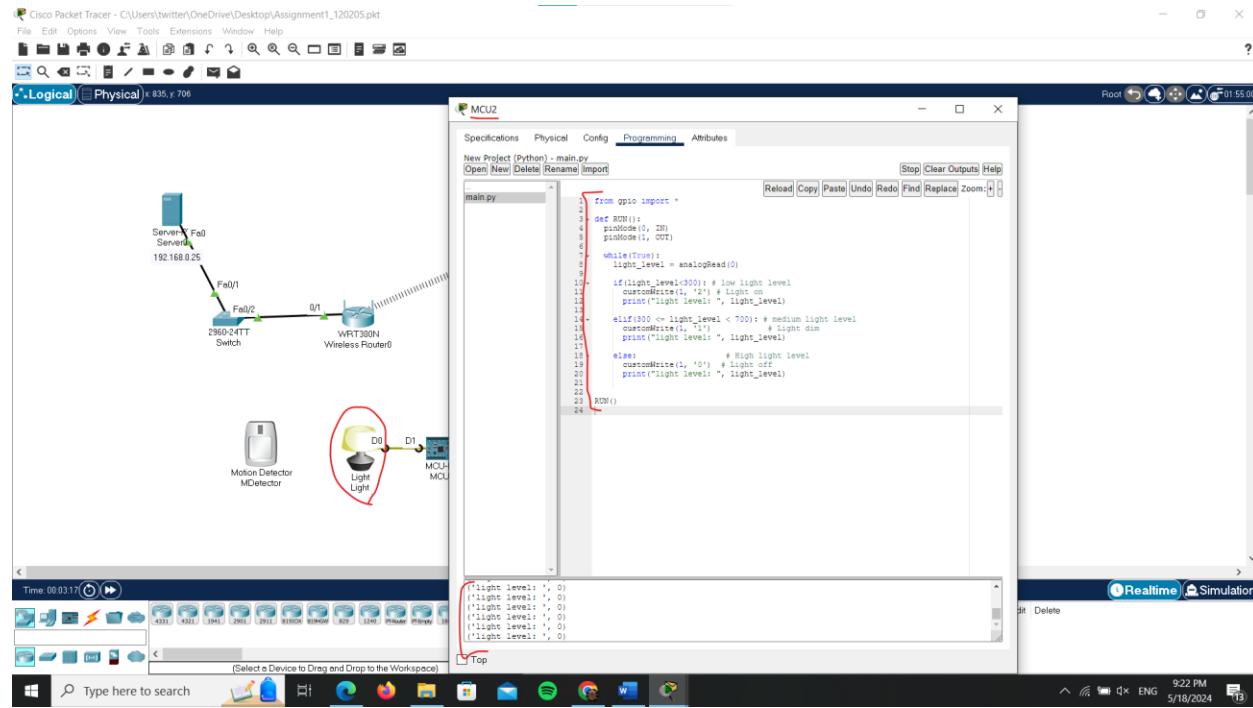




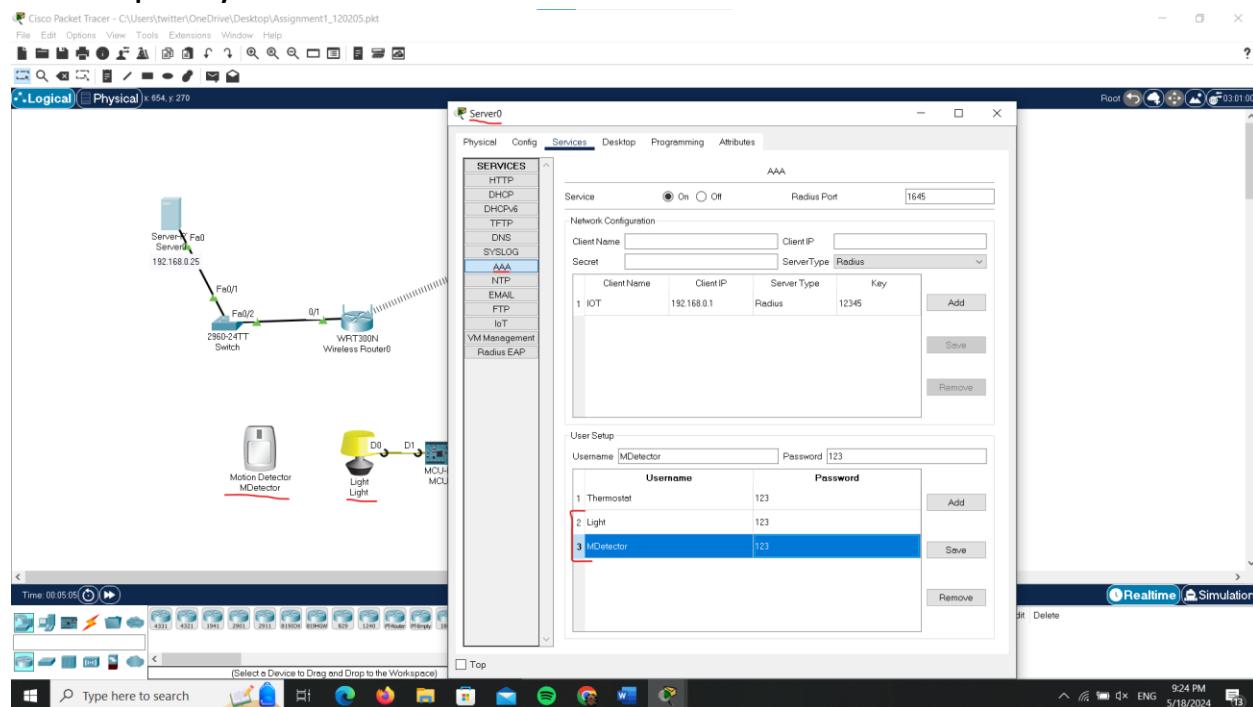
- Light Level and occupancy:
 - Light level:

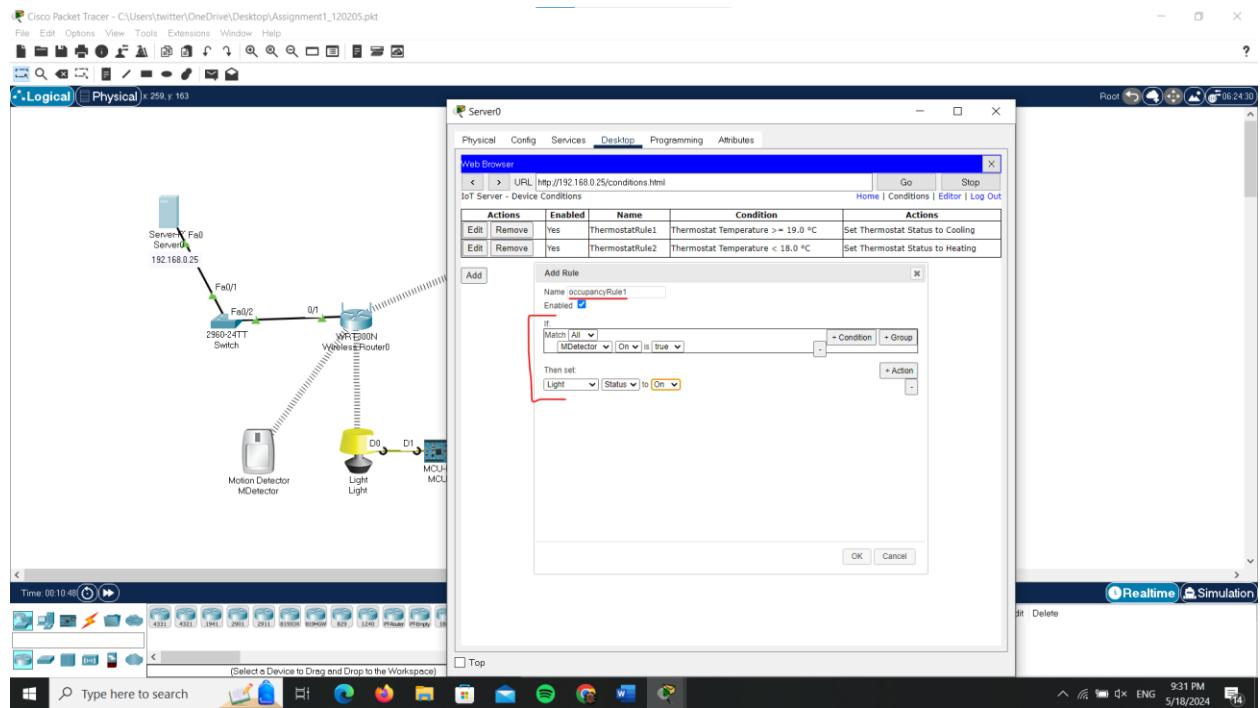
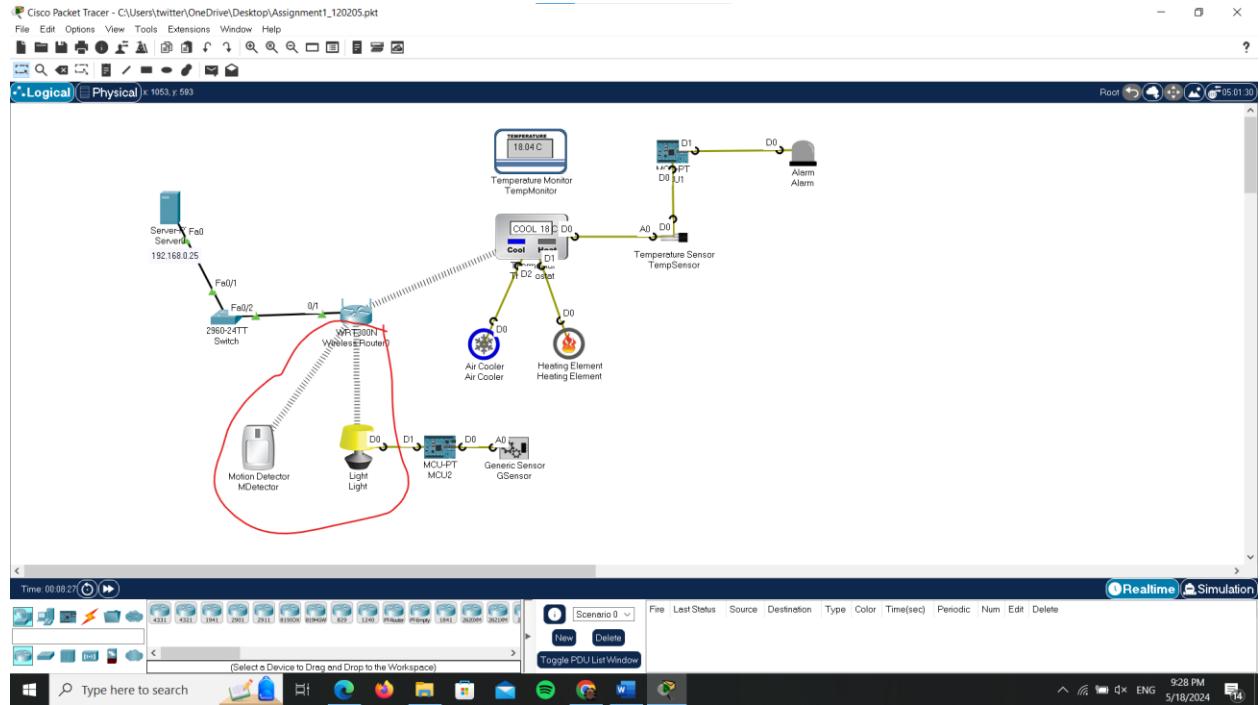


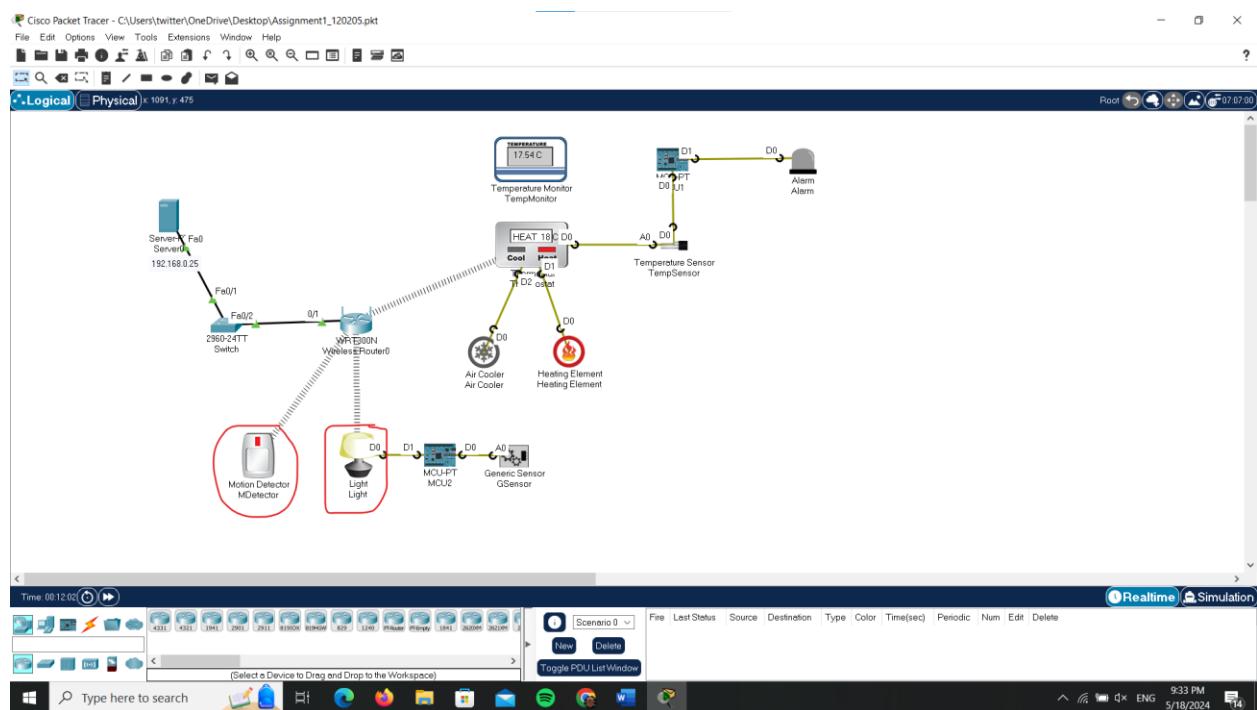
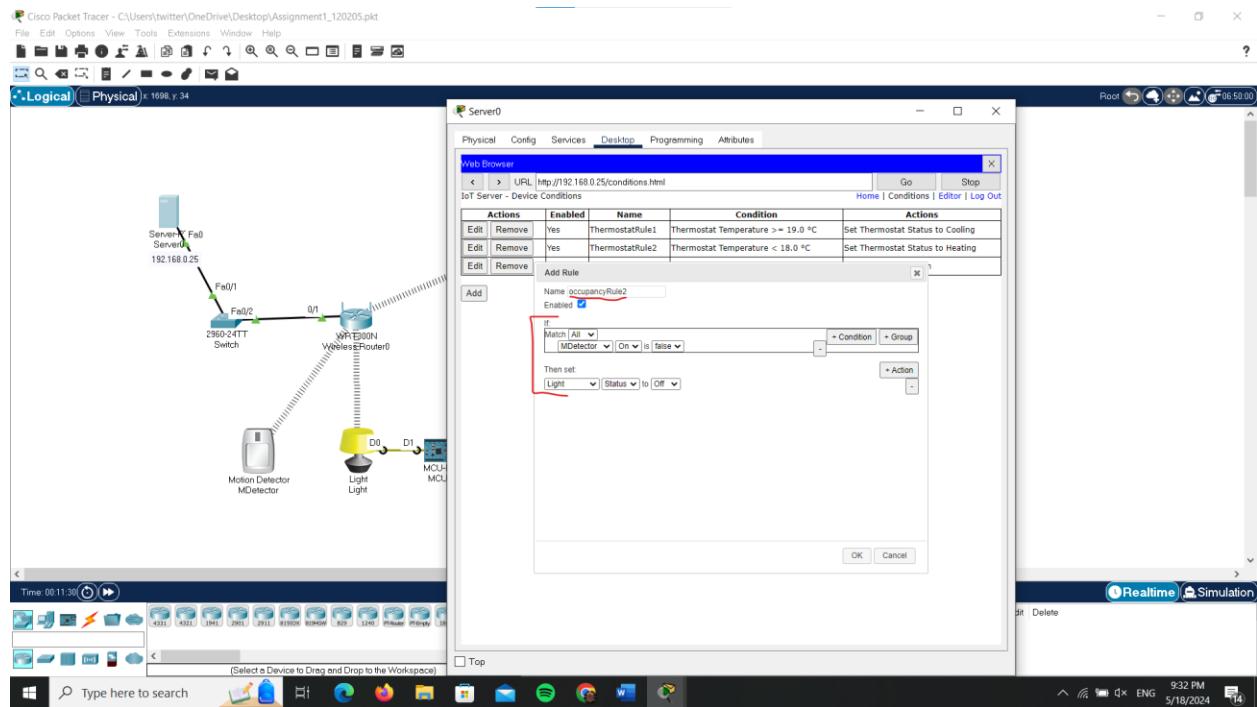




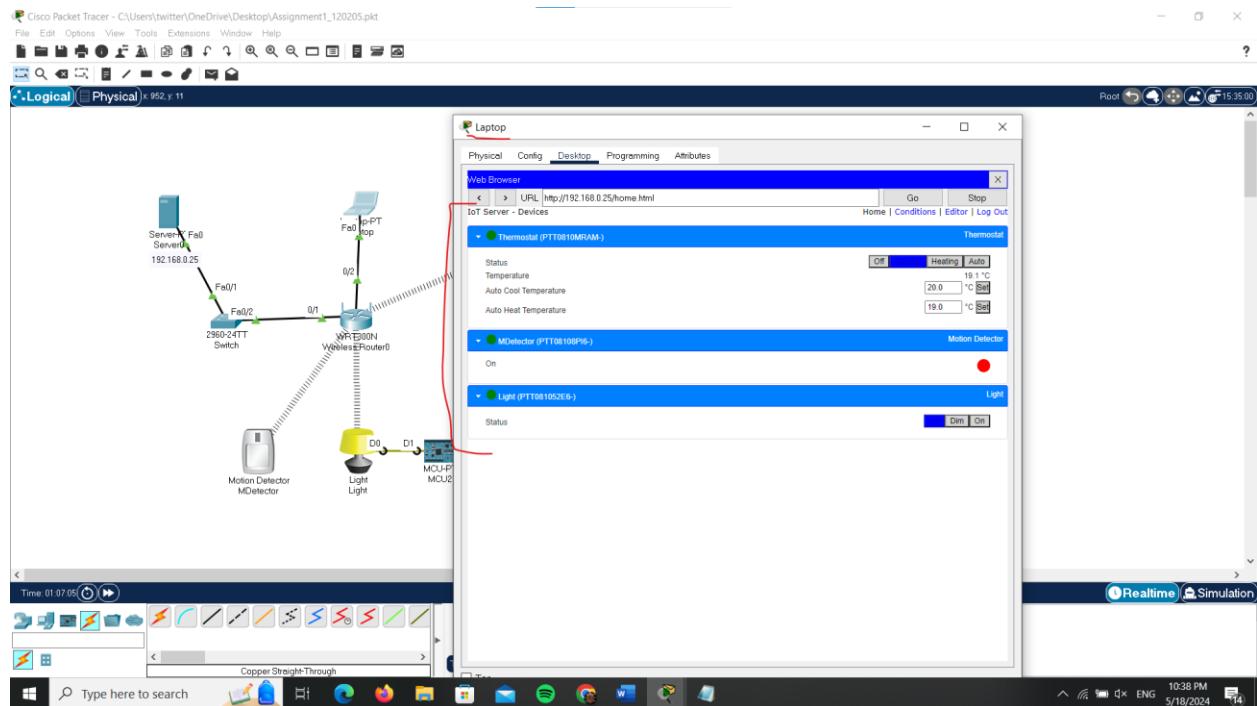
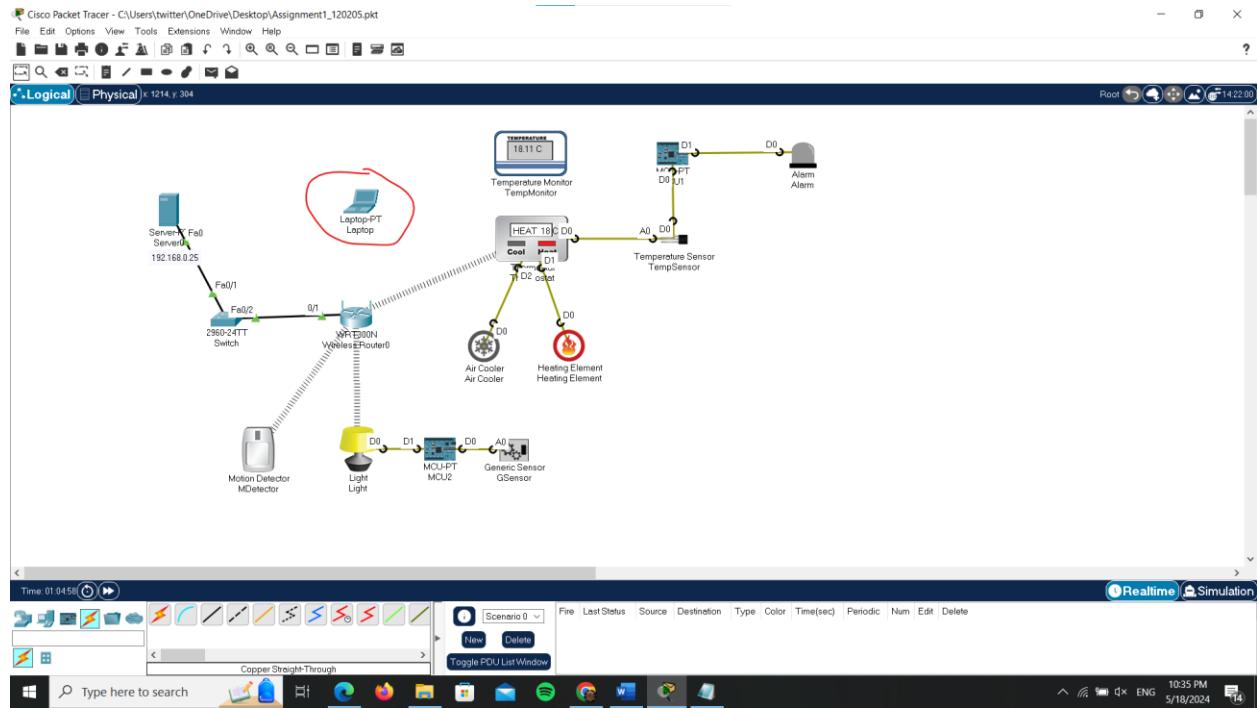
○ Occupancy:

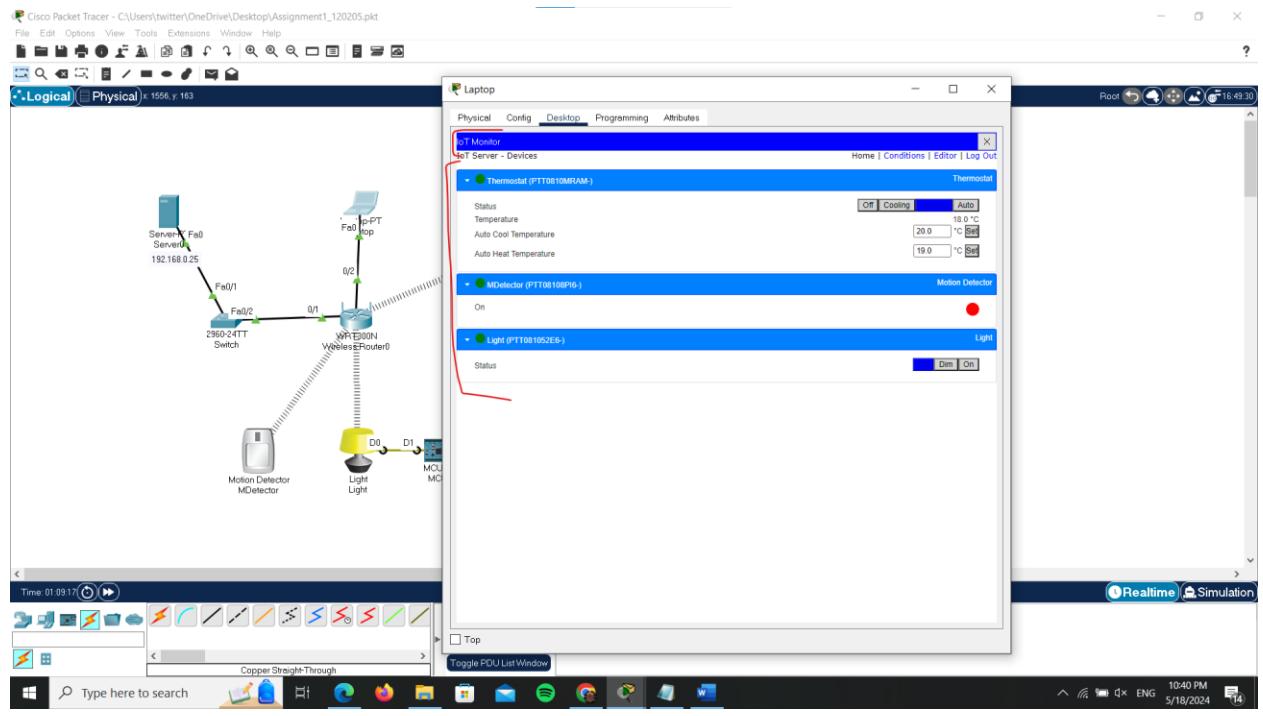






- remote control capabilities for temperature and lighting settings:





- **IoT Design Methodology:**

1. **Step(1) Purpose & Requirements Specification:**

- **Purpose:**

design and implement a smart home automation system that allows the remote control of temperature and lighting through a web application.

- **Behavior:**

- Auto Mode:

- Lighting Control: The system measures the light level and switches on the lights when it gets dark.
 - Temperature Control: The system maintains comfortable temperatures based on predefined rules, adjusting the thermostat according to the time of day and user preferences.

- Manual Mode:

- Lighting Control: Users can manually switch lights on or off remotely through the web application.
 - Temperature Control: Users can manually set the temperature remotely through the web application.

- **System Management Requirement :**

The system should provide remote monitoring and control functions.

- **Data Analysis Requirement :**

The system should include temperature sensors, light sensors, and occupancy sensors to collect data on environmental conditions and occupancy status.

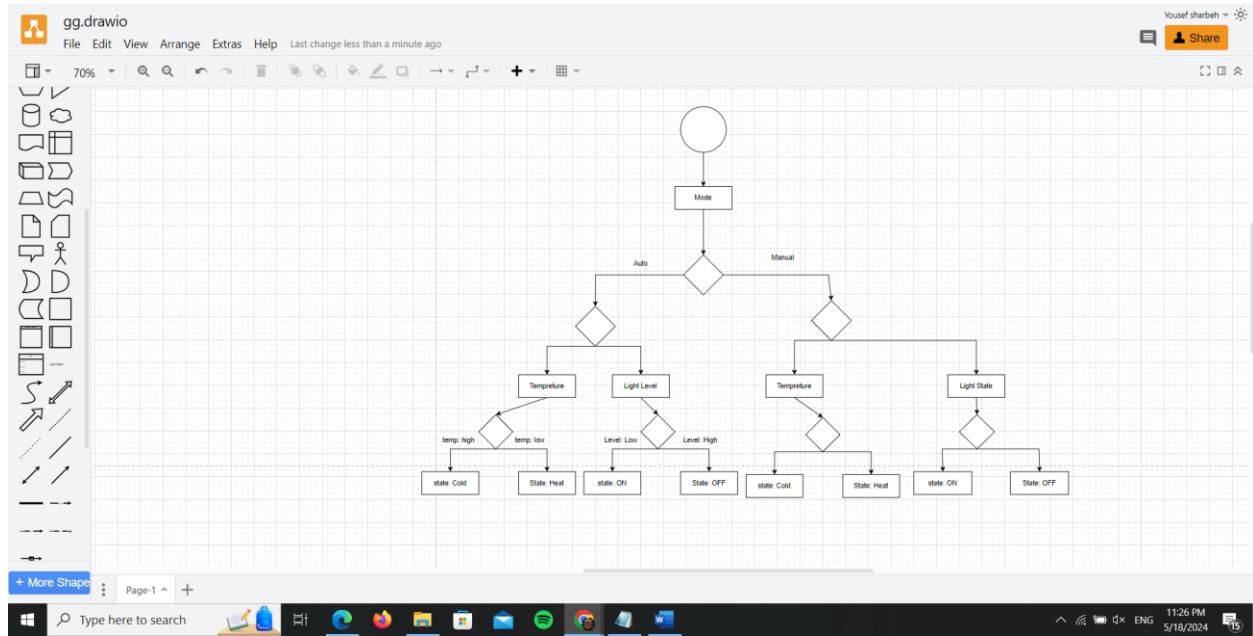
- **Application Deployment Requirement :**

- Analyze temperature data to control smart thermostats and maintain comfortable temperatures.
- Analyze light levels and occupancy data to control smart lights and optimize energy usage.
- Implement predefined rules for temperature control based on time of day or user preferences.
- Implement predefined rules for lighting control based on ambient light levels and occupancy.

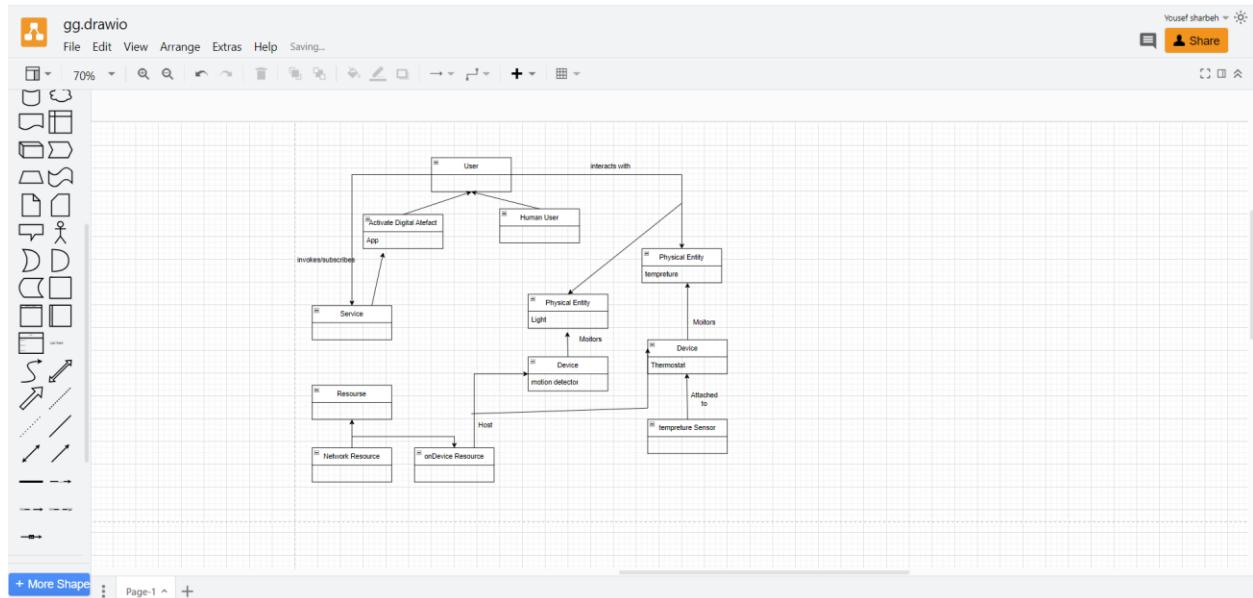
- **Security Requirement :**

The system have basic user authentication capability like (AAA).

2. Process Specification:



• Domain Model Specification:



- **Information Model Specification:**

