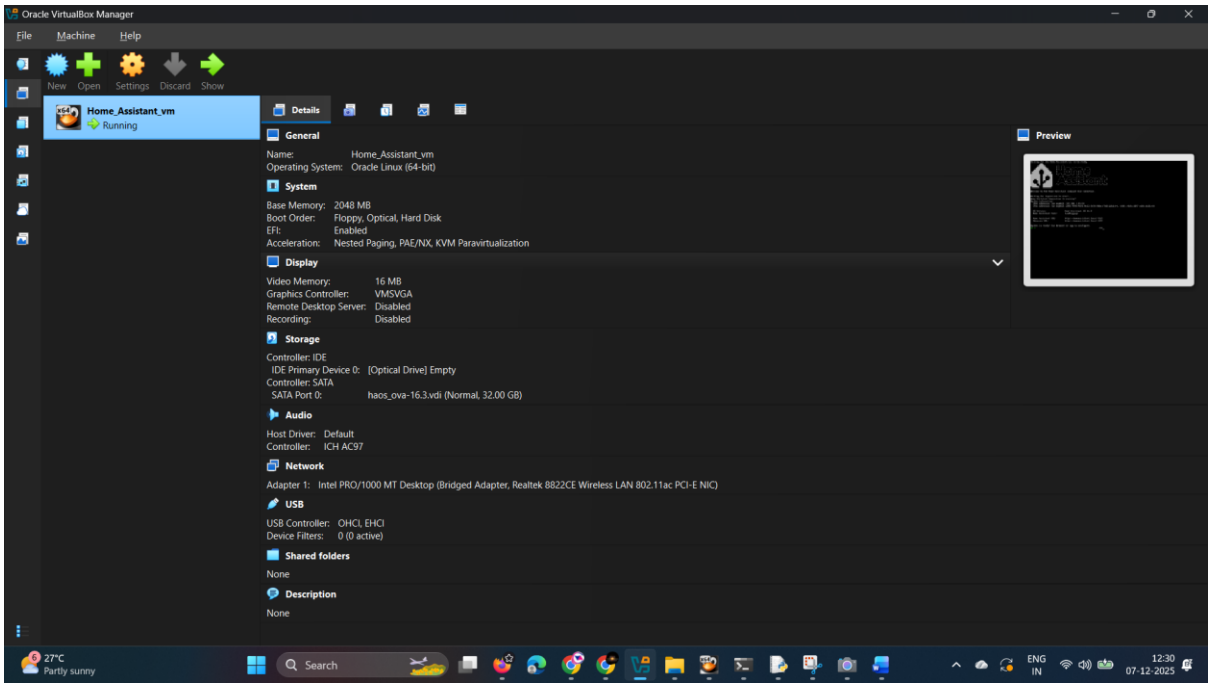
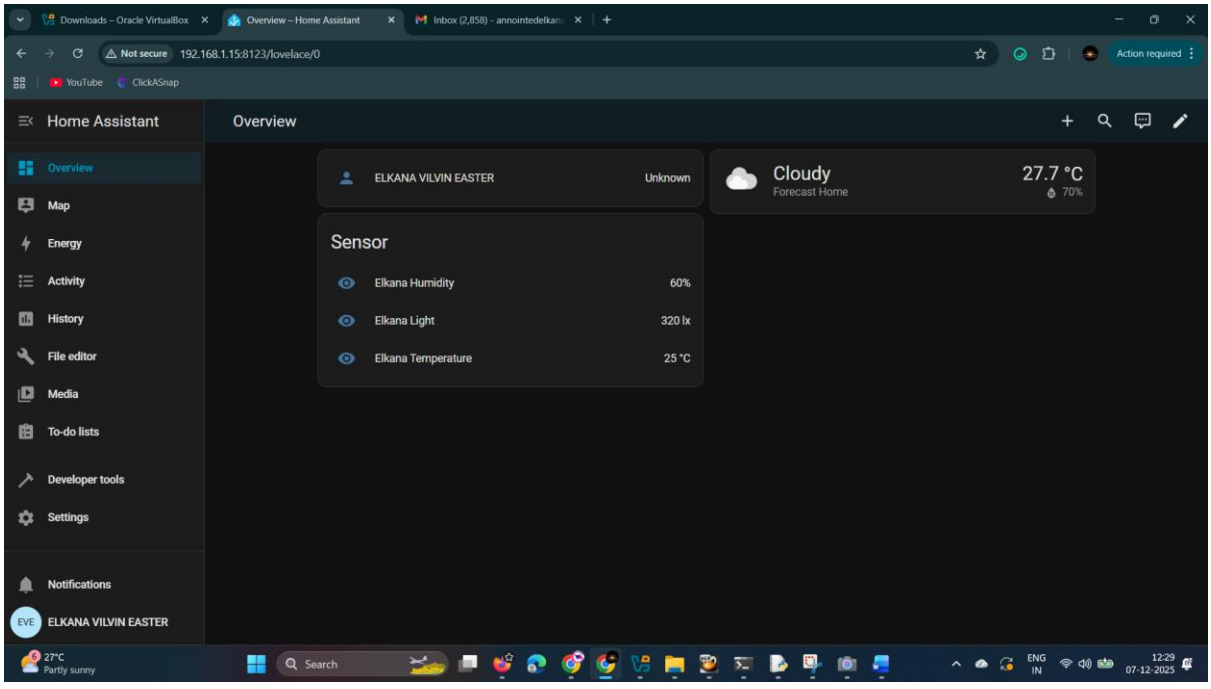
NAME: ELKANA VILVIN EASTER

Register Number: 42611034

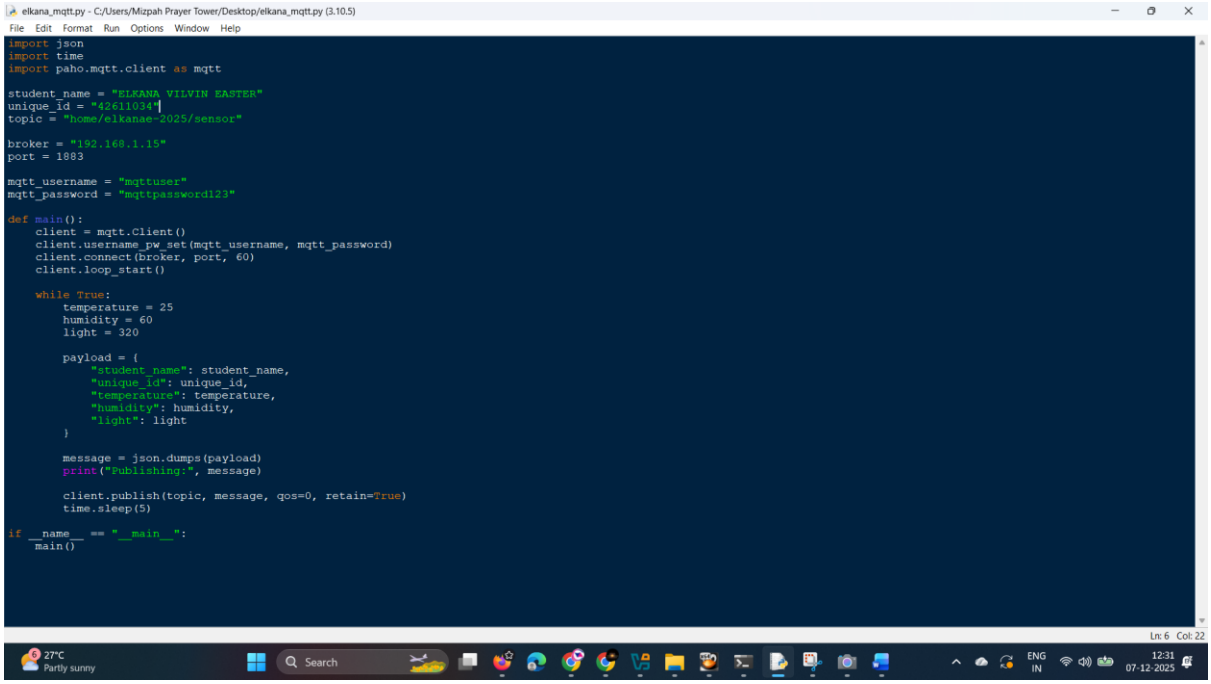
Virtual Box (Machine)



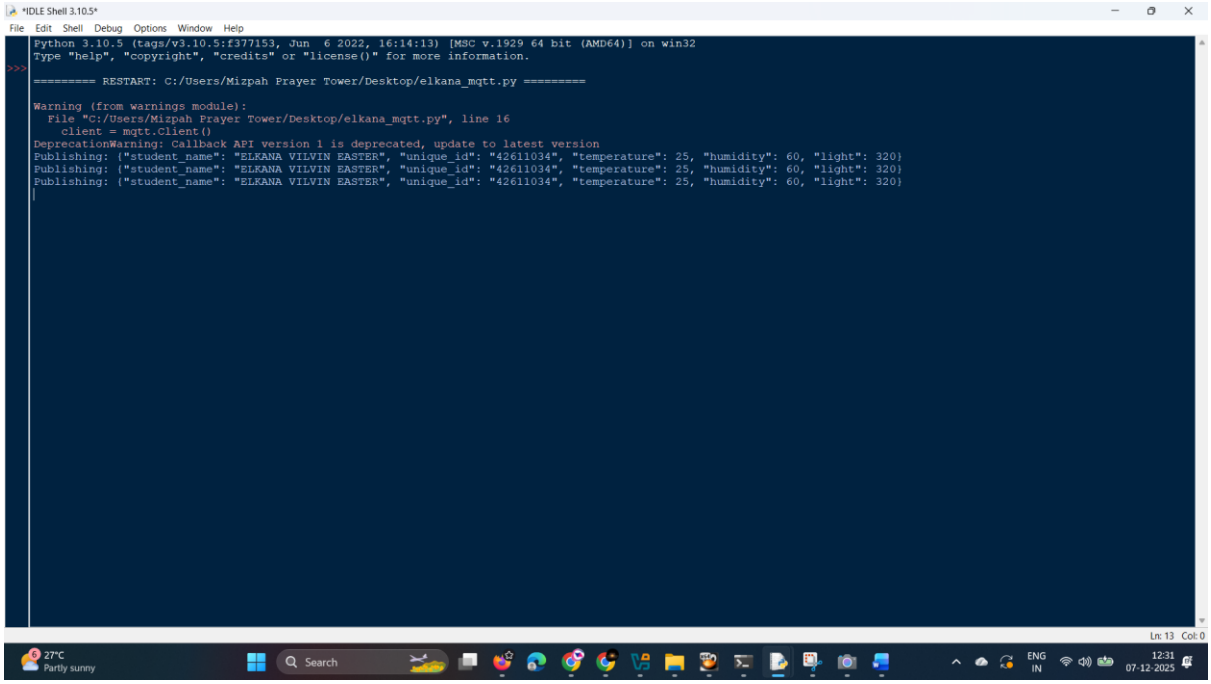
Dashboard



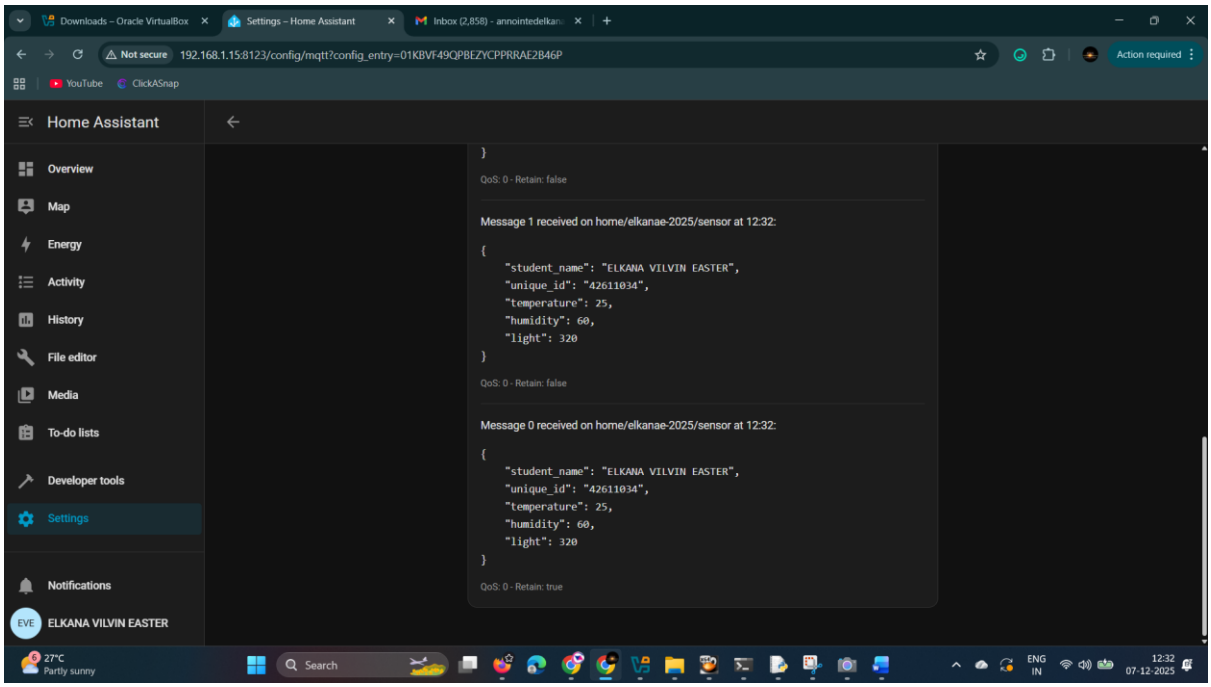
Python Script



Output (Publishing)



MQTT Listening SS:



Extra sensor : Light sensor used

Explanation of this Project:

In this project, I installed Home Assistant inside a VirtualBox machine. After Home Assistant finished setting up, I installed the Mosquitto MQTT Broker add-on and enabled the MQTT integration.Then I wrote a Python script on my Windows laptop. This script sends temperature, humidity, and an extra sensor value (light) to a fixed MQTT topic. I added my name, register number, and topic in the script as required.

Home Assistant receives these MQTT messages through the Mosquitto broker. I created three MQTT sensors in the configuration.yaml file so Home Assistant can read the JSON values and show them on the dashboard.

After restarting Home Assistant, I could see all three values updating live on the dashboard while the Python script was running. This shows that MQTT communication between Python and Home Assistant is working correctly.

Conclusion Of this Project:

This assignment helped me understand how MQTT works and how Python, Home Assistant, and the MQTT broker connect together. I learned how to publish data using Python and how Home Assistant reads and displays it.

Everything worked successfully in the end — the values from my script updated live on the Home Assistant dashboard. This shows that my setup and configuration were correct.

This was a good learning experience and it helped me understand IoT communication in a simple, practical way.