National Textile University, Faisalabad

Department of Computer Science

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Lab Report:	Lab 13 home task
Course Code:	AIE-3079
Course Name:	IoT Fundamentals
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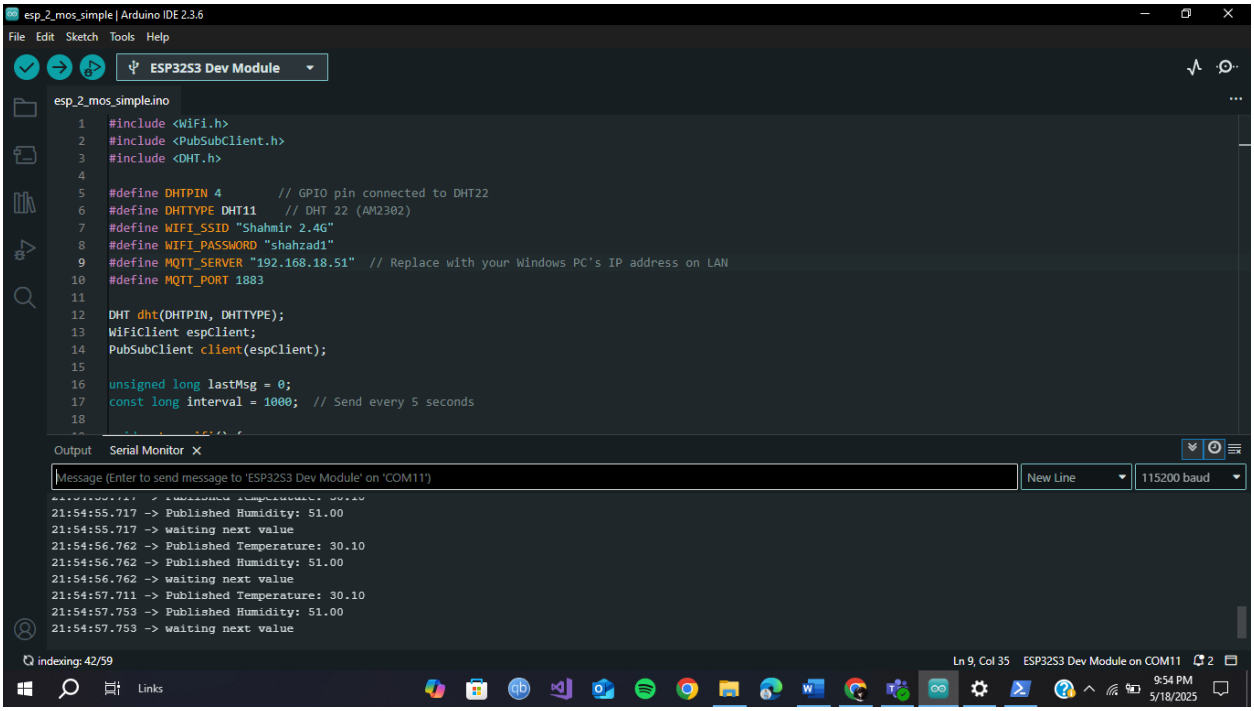
Submission Date:	18-05-2025

IOT Lab13

Home tasks

Task1: Run the Arduino-based code to publish DHT sensor data to the Mosquitto MQTT broker.

Output:



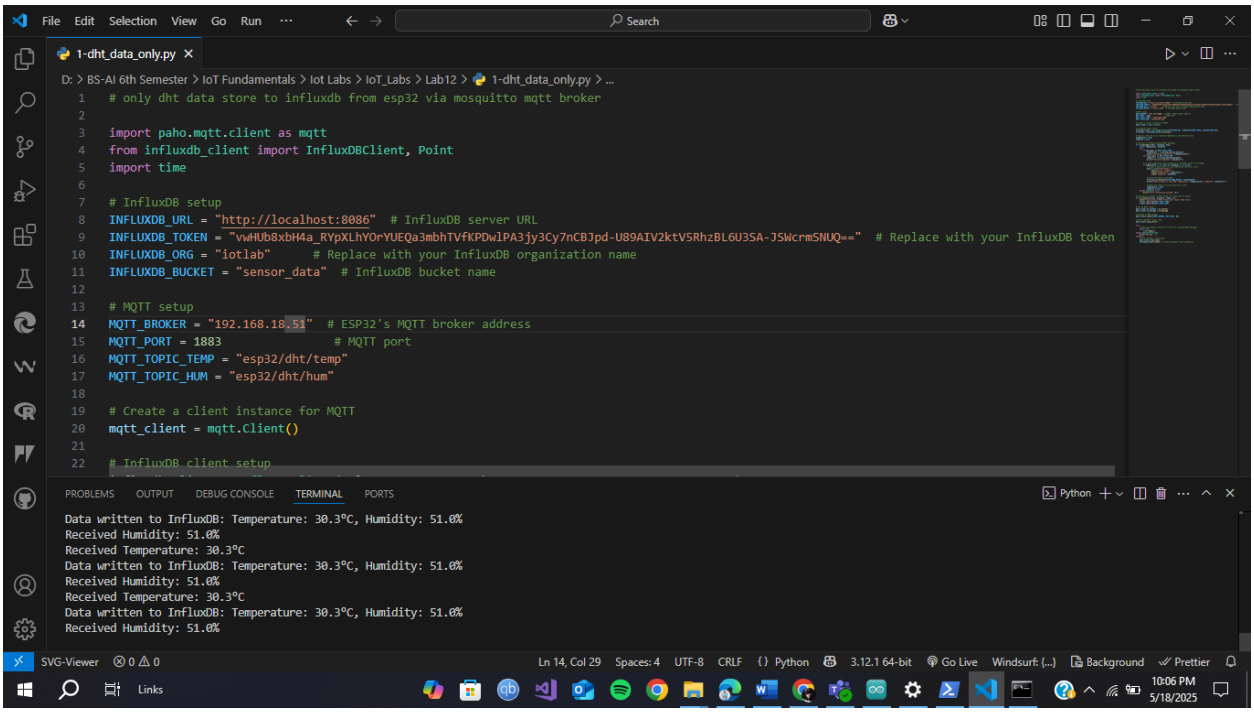
Observations:

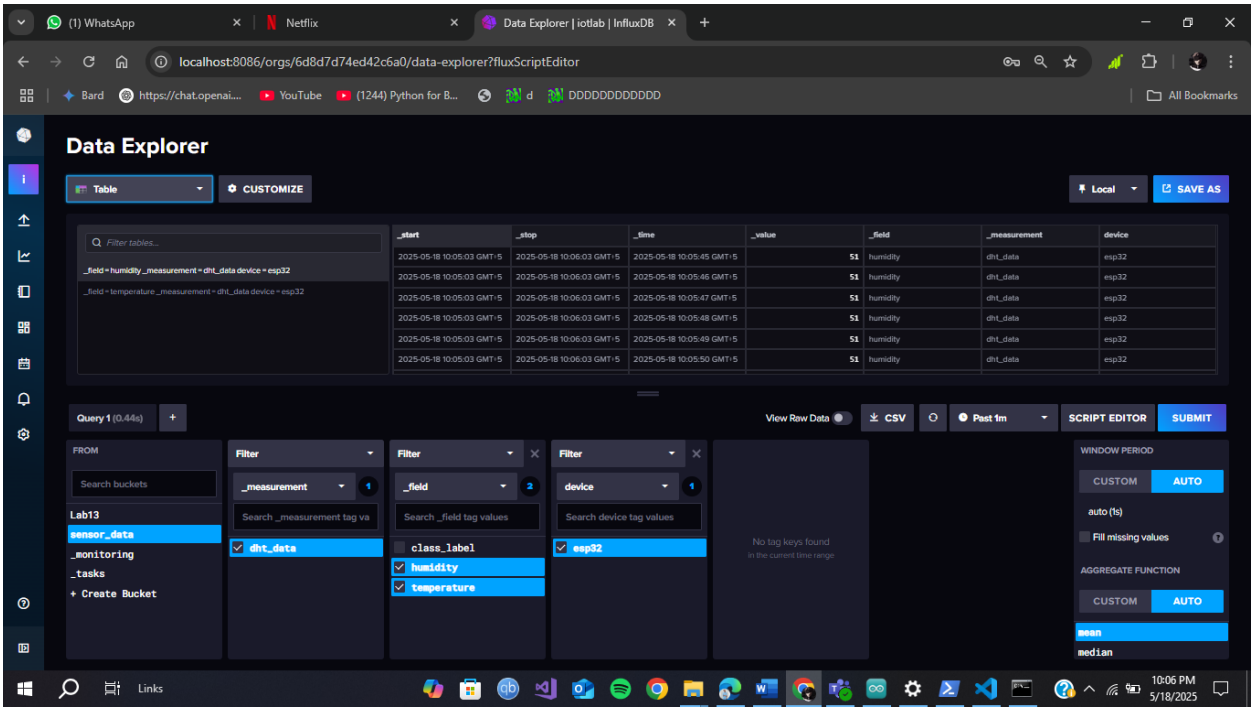
The ESP32 was successfully connected to the WiFi network and communicated with the Mosquitto MQTT broker. Real-time temperature and

humidity data from the DHT11 sensor were accurately published to designated MQTT topics. This confirms the reliable integration of IoT sensor data with MQTT-based communication.

Task2: Execute the Python script 1-dht_data_only.py to store MQTT data in InfluxDB.

Output:





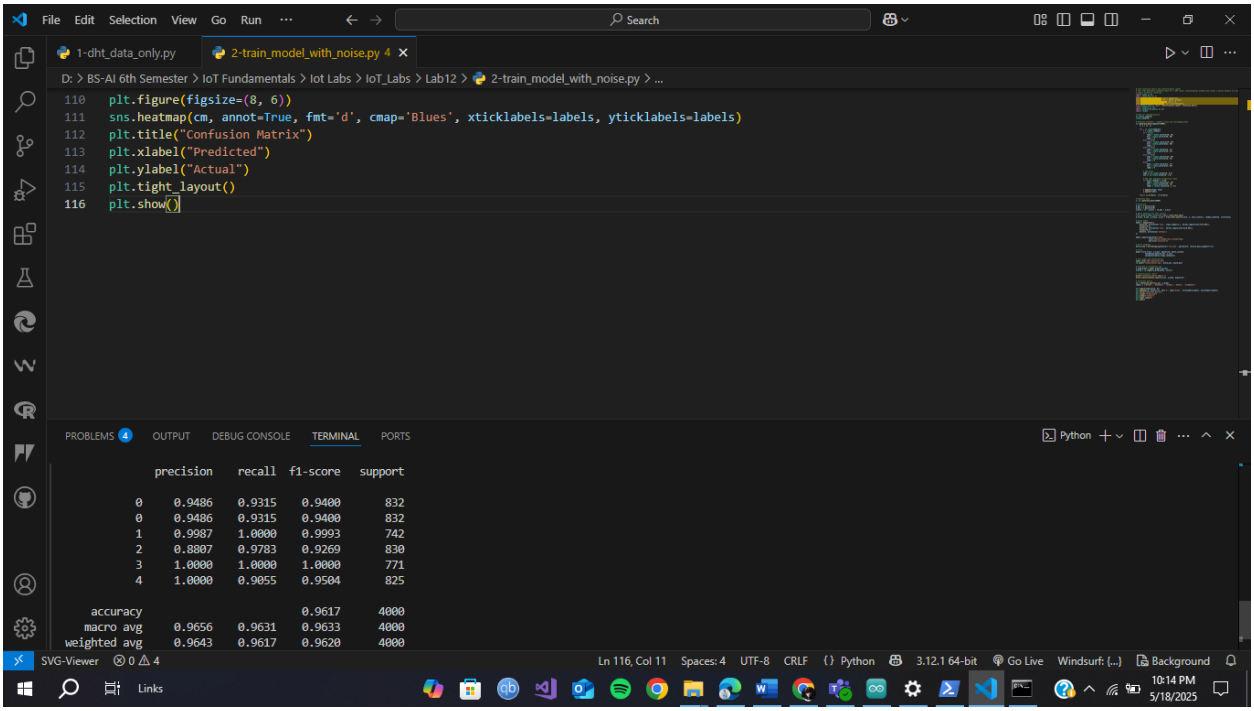
Observations:

After providing the correct credentials for Influxdb i.e Influxdb token, influxdb organization, influxdb bucket and IPv4 address for MQTT Broker, the python script runs successfully and show real time temperature humidity data at the terminal and on for displaying it on influxdb interface, run “influxd” command on cmd and provide the username and password which will show the real time data.

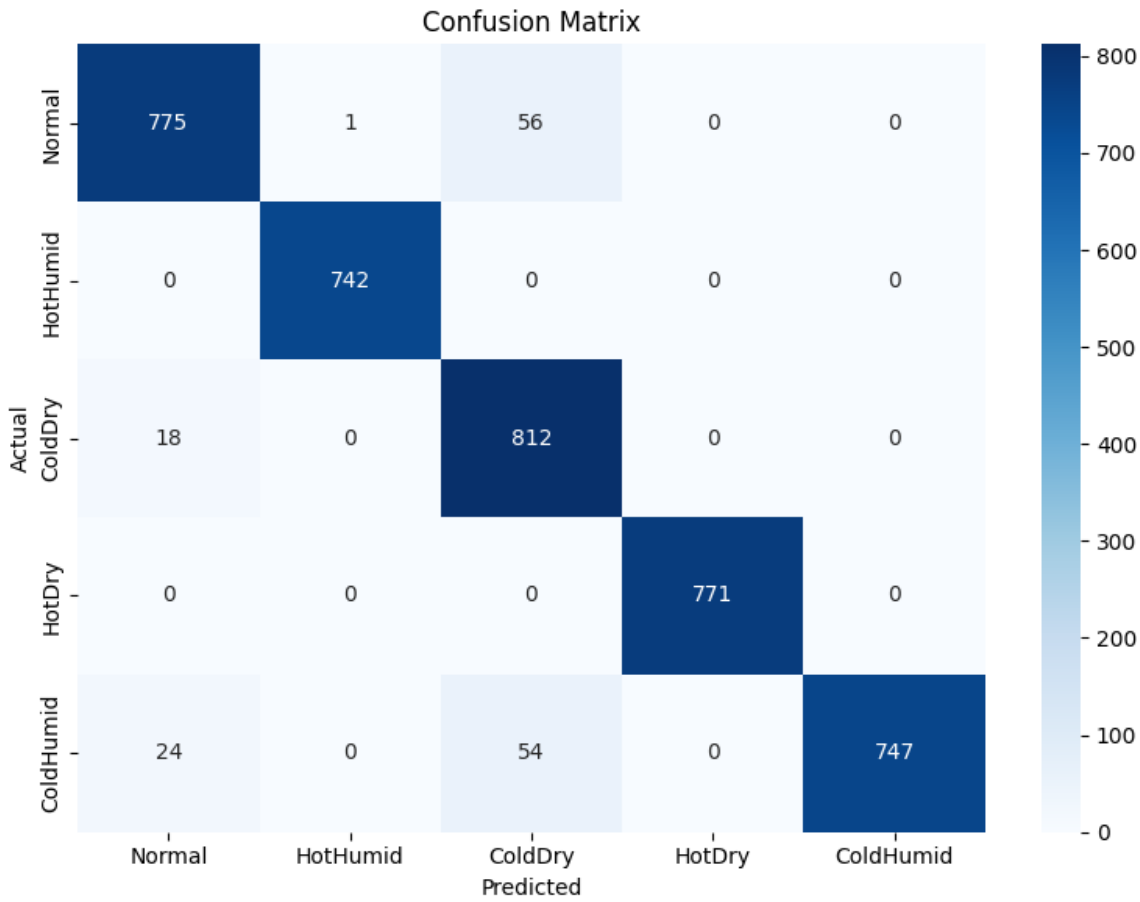
Task3: Run 2-train_model_with_noise.py and record the confusion matrix and classification report.

Output:

Confusion Matrix:



Classification Report:

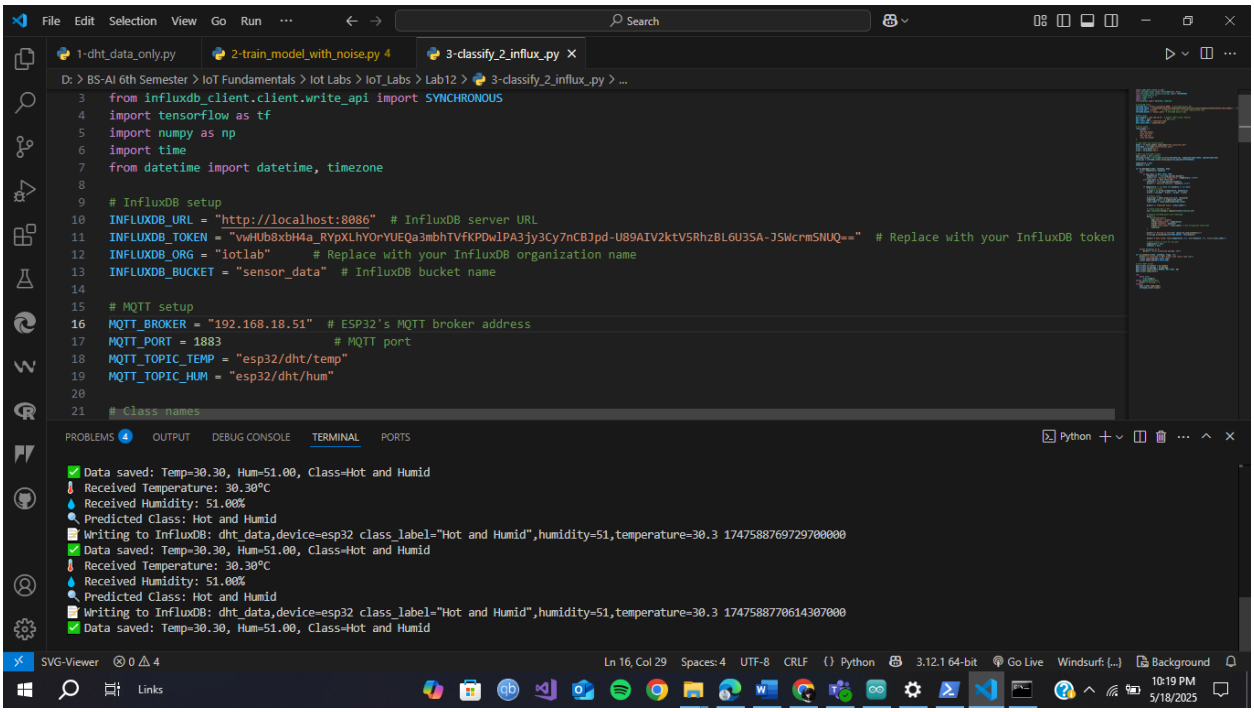


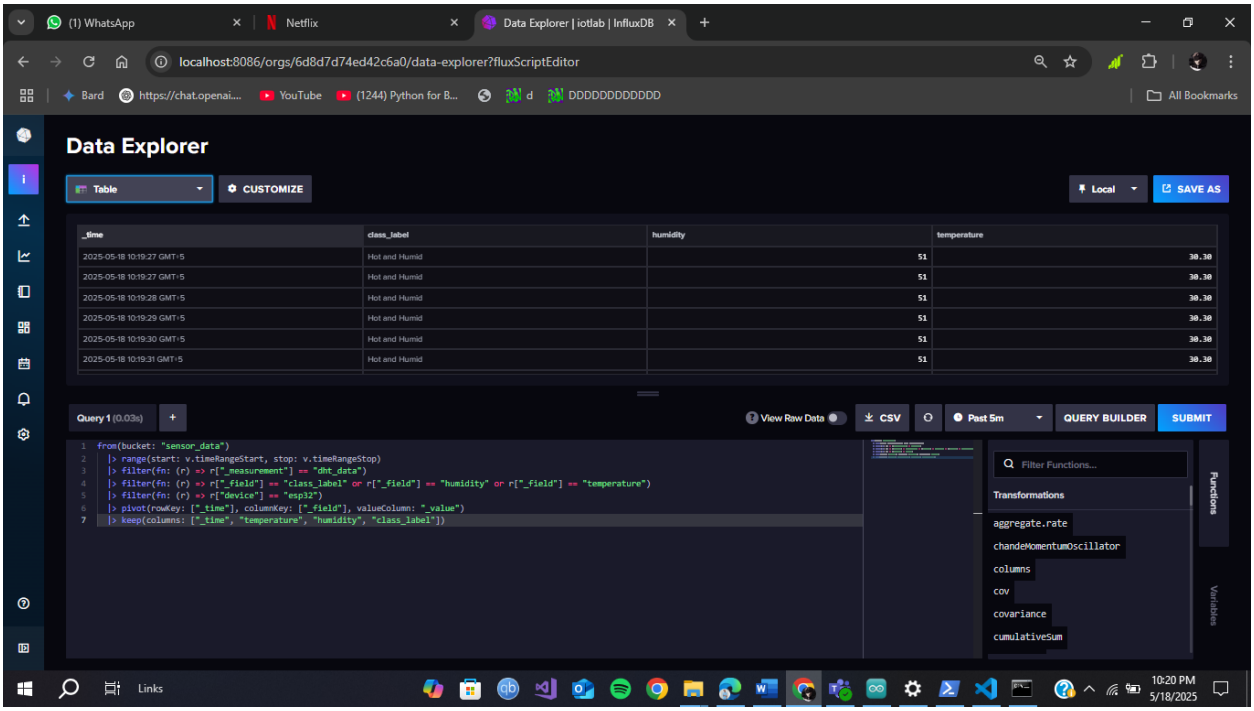
Observations:

The neural network accurately classified DHT sensor readings into five environmental conditions using synthetic, noisy data. The model showed balanced performance, with a clear confusion matrix and strong classification report indicating reliable generalization.

Task4: Execute 3-classify_2_influx.py and verify InfluxDB data for temperature, humidity, and classification results.

Output:





Observations:

This script integrates MQTT, a trained DHT classifier model, and InfluxDB to predict environmental conditions in real-time based on temperature and humidity. Predicted class labels and sensor data are successfully stored in InfluxDB for monitoring and analysis.