Name: Jayesh Kapade
Roll. No: 23
Enrollment: ADT23SOCB0483
Subject: DE

Smart Retail Insights with Weather Integration

Objective 1: Fetch the live weather data from the public API and store it in PostgreSQL

- API used: **Open-Meteo Archive API**
- Python script: fetch_historical.py
- Successfully fetched last 30 days data for **Thane**.
- Inserted into PostgreSQL database smart_retail in table weather_data.

Objective 2: Create Databases in PostgreSQL

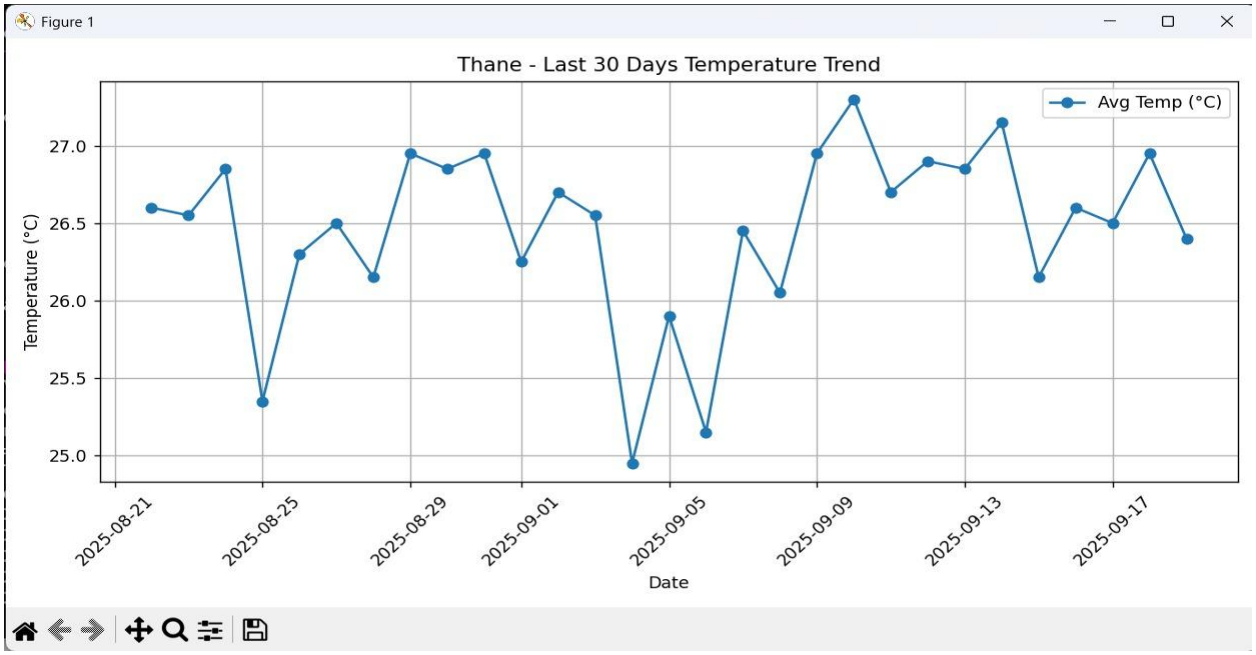
- Database Name: smart_retail
- Table Schema:

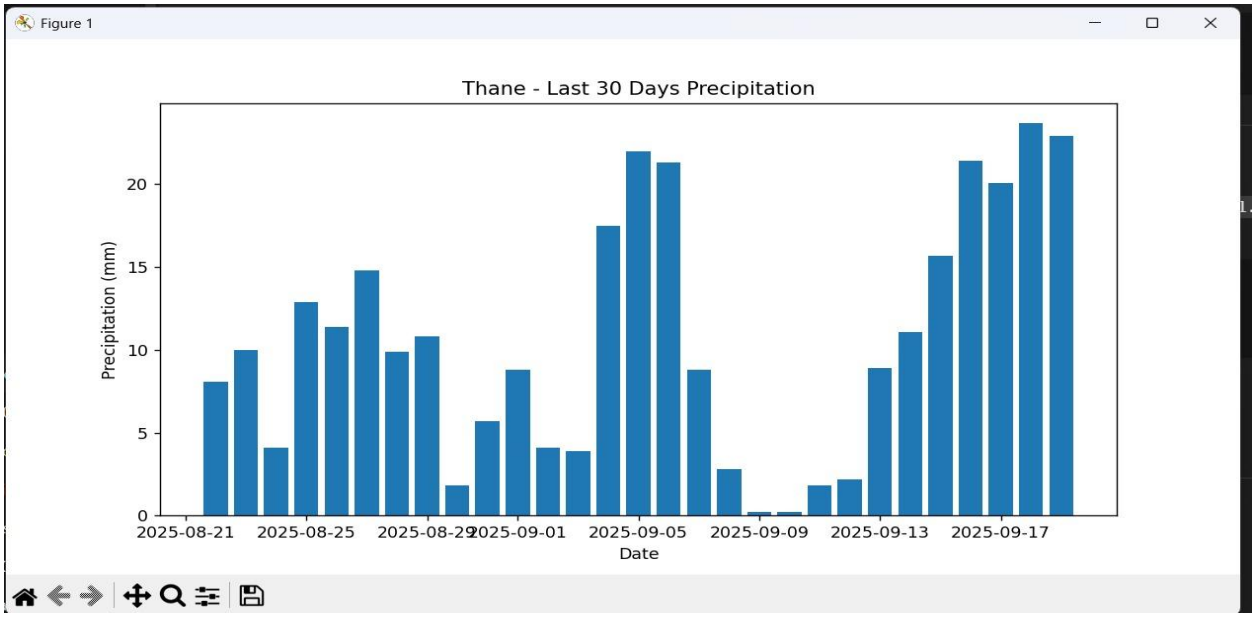
```
CREATE TABLE weather_data (
    id SERIAL PRIMARY KEY,
    city VARCHAR(50),
    temperature FLOAT,
    humidity FLOAT,
    wind_speed FLOAT,
    datetime DATE
);
```

- Exported schema as schema.sql (uploaded to GitHub).

Objective 3: Implement visualization of weather data (last 30 days for one city)

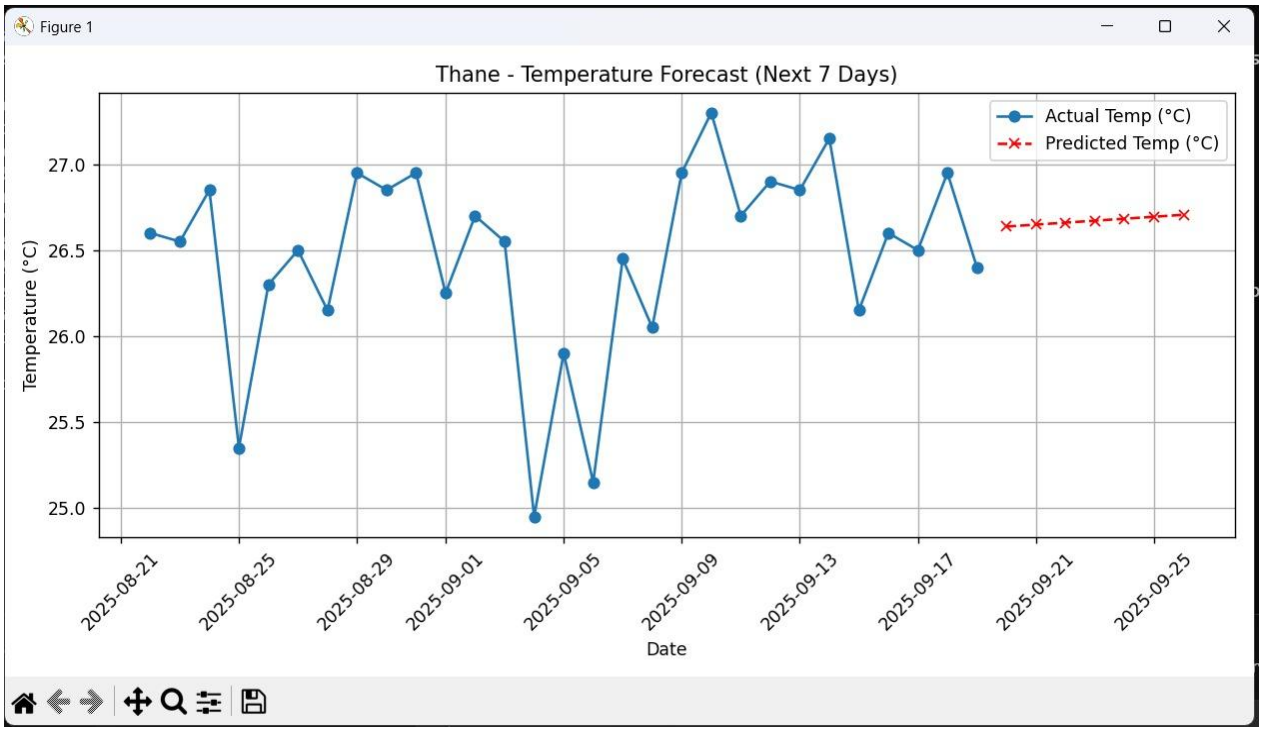
- City Analyzed: **Thane**
- Visualization Tool: **Matplotlib**
- Graph plotted: Temperature vs Date (actual last 30 days)





Objective 4: Use basic ML prediction models for forecasting

- Model: **Linear Regression (Scikit-Learn)**
- Trained on last 30 days temperature data.
- Forecasted **next 7 days temperatures**.
- Graph plotted: Actual vs Predicted.



5. GitHub Repository Link:

https://github.com/JayeshKapade/SmartRetailWeatherProject

6. Conclusion

- Successfully completed all objectives:
  - Live weather data fetched & stored in PostgreSQL
  - Database created with schema
  - Visualization for last 30 days done
  - Basic ML model applied for next 7-day forecasting