Problem 1:

I set up a PostgreSQL server on my local computer and setup a test database called ‘wxdata’

Created a local PostgreSQL data table called ‘station_data’:

```
CREATE TABLE IF NOT EXISTS station_data (
    station_id VARCHAR(20) NOT NULL,
    date DATE NOT NULL,
    max_temperature DECIMAL(7, 2),
    min_temperature DECIMAL(7, 2),
    precipitation DECIMAL(7, 2),
    PRIMARY KEY (station_id, date)
);
```

Problem 2:

Ingestion is done with the code wxdata_ingest.py
Logging in wxingest.log

Problem 3:

Created a local PostgreSQL data table called ‘weather_stats’:

```
CREATE TABLE IF NOT EXISTS weather_stats (
    station_id VARCHAR(20) NOT NULL,
    year INT NOT NULL,
    max_temperature_avg DECIMAL(7, 2),
    min_temperature_avg DECIMAL(7, 2),
    precipitation_accum DECIMAL(10, 2),
    number_obs_maxtemp INT NOT NULL,
    number_obs_precip INT NOT NULL,
    PRIMARY KEY (station_id, year)
);
```

Calculation and database ingesting in wxstats_ingest.py
Logging in wxstats.log

Problem 4:

Local Flask REST API by running api.py

Sample call using web:
http://127.0.0.1:5000/api/weather?station_id=USC00110072&date=1985-01-01

Swagger documentation: http://127.0.0.1:5000/apidocs

Deployment on AWS:
For simple small APIs, I would use the AWS Gateway API tool to set up a REST API. The code would reside in a serverless Lambda. Database using PostgreSQL on AWS (or another similar SQL database tool). I would also set up a Lambda to run the weather ingest and statistics calculation using something like CloudWatch or another scheduling tool.