DEV Homework

Description

Your client, the local city hall, wants to keep track of CO2 levels across several city districts. In order to do so, you agreed to install CO2 sensors throughout the city to provide CO2 concentration readings each 5 minutes for each district to a given endpoint of your server.

As you plan to expand this solution to other cities in a multitenant fashion, sensors need to associate the CO2 readings to a given customer account (authenticate themselves on the server). So you'll need to define some access control. Each city hall can check CO2 concentration historical data per district.

Create a data model in order to store and provide the sensor readings. Design a REST API for creating and querying the CO2 data. The data should at least contain:

- CO2 levels per sensor including a timestamp
- The district the sensor belongs to
- The city the district belongs to

You can to use the following cities/districts:

- Barcelona: Gràcia, Eixample
- Wien: Währing, Penzing
- München: Maxvorstadt

Make sure that each city hall can only query their own sensor readings.

Consider applying all the best practices you know (i.e.,: TDD, SOLID principles, API design etc.). The programming language should be Java version 8 or higher, but you can consider any additional framework, library or technology to use within the application.

Expected output

- Implementation of the backend-service using an freely available in-memory database
- The programming language should be Java (at least version 8)
- You are free to select the tools and frameworks you want to use
- Defnition of your API
- No UI is required
- Submit your code to a publicly available git repository - please make sure we are able to `git clone` your code without an account
- Short instructions on how to run your code
- Example requests for curl (https://curl.se/)
- We don't expect you to work more than 1-2 hours on this. If it takes you longer, do not worry. Just show us what you got until then.

In case questions pop up, feel free to reach out to daniel.zehetner@allianz.at