Enefit Home Assignment

Thank you for showing interest in joining Enefit!

We have put together a small task to give us a better overview of your capabilities. Your assignment is to implement a small application where a customer for some imaginary energy company can login and check how much has he/she consumed electricity and how much did it cost per market data.

General Requirements

- Application has a database with the following 3 tables -> **customers**, **metering_points**, **consumption**
- Customer can login (e.g username + password) and logout
- Customer can view his/her consumption data and the cost of that consumption based on market prices (recommended to use graphs, not plain tables).
- Consumption cost must be calculated based on market data on that specific date
    - Use a publicly available market data service for the Baltics (e.g Estonia's https://estfeed.elering.ee/exchange-prices -> https://estfeed.elering.ee/api/public/v1/energy-price/electricity)
    - You must proxy this service's data through your backend (can't call from frontend directly)
    - For simplicity only develop month based consumption solution (e.g UI graphs show a specific year and 12 values for it)
- Consumption is linked to the metering point where it was consumed
- Metering point is linked to the customer who it belongs to
- Customer can have multiple metering points and thus see many metering point addresses and consumption related to those
- Anonymous users and other customers can't view data that doesn't belong to them
- Application can be prefilled with example data about customers -> at least 2 customers, one of them has multiple metering points with varying amount of consumption.
- Some unit tests for both backend and frontend, code coverage is not important (min. 3 tests for backend and same for frontend)
- Project code contains the readme on how to run the solution locally and with any important notes about the solution (if there are any notes)
- You have **7 days** to complete the task from the moment you receive it
- Solution must be uploaded to a public repository -> **when you submit your solution just send the repository link to the Enefit contact**

Technical requirements

- **Backend**
  - Java 21 (or higher) + Spring Boot 3
  - PostgreSQL database
  - Gradle as build tool
- **Frontend**
  - React (plain, e.g Next.js not needed)
  - Vite as build tool
  - Whatever design library or a framework you want to use (PrimeReact, Bootstrap etc)

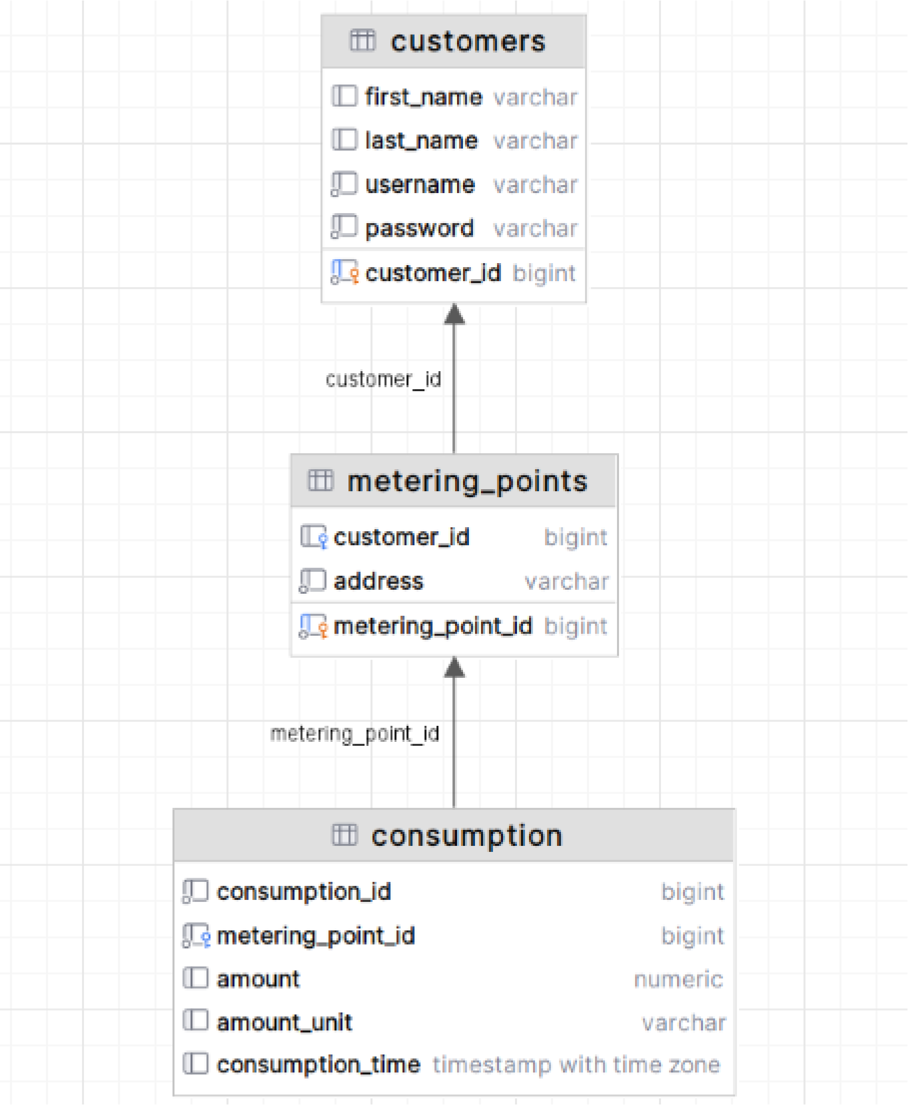
Nice to Haves

These features are not required from the solution but you can add any one them if you have time and want to display additional proficiency.

- Containerized setup for local development (Docker image, compose file)
- Database change management (e.g Liquibase)
- User password security can be improved (also relates to the provided database structure example)
- Caching for market data in the backend
- Logging solution for backend

Tips

For the database structure you can use the following diagram as an example:


customers
first_name varchar
last_name varchar
username varchar
password varchar
customer_id bigint
customer_id
metering_points
customer_id bigint
address varchar
metering_point_id bigint
metering_point_id
consumption
consumption_id bigint
metering_point_id bigint
amount numeric
amount_unit varchar
consumption_time timestamp with time zone