Logo, company name

Description automatically generated

Assignment 1

Student: Manici Valentin Dan

Grupa: 30642

Requirements

The first module of the system consists of an online platform designed to manage clients, smart devices equipped with energy consumption sensors and monitored data from sensors. The system can be accessed by two types of users after a login process: administrator, and clients. The administrator can perform CRUD operations on client accounts (defined by ID, name, birth date, address) registered smart devices that have sensors attach to monitor energy consumption (defined by ID, description, address (location), maximum energy consumption, average/baseline energy consumption), smart sensors attached to devices (ID, sensor description, maximum value) and on the mapping of clients to devices (each client can own one or more devices that are monitored) and sensors to devices (each device has one sensor monitoring its energy consumption). Usually, the device is either a house equipped with a smart power meter or part of a house, case in which a client has several devices. Each device has one sensor monitoring its energy consumption. The sensor records periodically, at fixed timestamps, tuples of the form , where energy consumption is a counter measuring in kWh the total energy consumed by the device since it was started. Each client can view its devices, and their current and historical energy consumption, as well as the total energy consumption of their devices

In distributed architecture, components are presented on different platforms and several components can cooperate with one another over a communication network in order to achieve a specific objective or goal.

* In this architecture, information processing is not confined to a single machine rather it is distributed over several independent computers.
* A distributed system can be demonstrated by the client-server architecture which forms the base for multi-tier architectures; alternatives are the broker architecture such as CORBA, and the Service-Oriented Architecture (SOA).
* There are several technology frameworks to support distributed architectures, including .NET, J2EE, CORBA, .NET Web services, AXIS Java Web services, and Globus Grid services.
* Middleware is an infrastructure that appropriately supports the development and execution of distributed applications. It provides a buffer between the applications and the network.
* It sits in the middle of system and manages or supports the different components of a distributed system. Examples are transaction processing monitors, data convertors and communication controllers

Java Spring Boot

Java Spring Framework (Spring Framework) is a popular, open source, enterprise-level framework for creating standalone, production-grade applications that run on the Java Virtual Machine (JVM).

Java Spring Boot (Spring Boot) is a tool that makes developing web application and microservices with Spring Framework faster and easier through three core capabilities:

1. Autoconfiguration
2. An opinionated approach to configuration
3. The ability to create standalone applications

React

React. js/React is an open-source frontend framework that is based on JavaScript, developed by Facebook, and best known for its virtual DOM feature. React. js is an open-source JavaScript library that is used for building user interfaces specifically for single-page applications. It's used for handling the view layer for web and mobile apps. React also allows us to create reusable UI components.

DB designGraphical user interface, application

Description automatically generated

Table Client (defined by ID, name, birth date, address)

Table Device(defined by ID, description, address, maximum\_energy\_consumption, average\_energy\_consumption)

Table Sensor (defined by ID, description, max\_value)

Table Users(defined by ID, name, password, role)

UML Deployment diagram

Diagram

Description automatically generated

Webography

<https://www.ibm.com/cloud/learn/java-spring-boot>

<https://www.youtube.com/watch?v=VlklL6TPlpw&ab_channel=CodeStepByStep>

https://dev.to/olumidesamuel\_/implementing-protected-route-and-authentication-in-react-js-3cl4