Architecture Document

*S6 Software Engineering*

*4207734*

*Matei-Cristian Mitran*

*Fontys Eindhoven*

*08.03.2023*

C1

Diagram

Description automatically generated

This C1 Software Architecture diagram shows the highest overview of the YouSound project. A user visits the pages of the YouSound frontend application and uses its interface to make API calls to the Java SpringBoot backend.

C2

Diagram

Description automatically generated

This is a C2 Architecture diagram of the backend of my individual project, YouSound. The client, using a React TypeScript frontend application will send a HTTP request that will get routed to the specific microservice. The microservice’s spring controller will receive the request than use the specific service class to CRUD data from the repositories that are connected to the specific database. This system is robust, designed using domain driven design. It is designed for a scalable architecture, so if any component crashes, the system will still be running. Eventually, a service mesh might be implemented so on the occasion a service crashes, there will be a sidebus proxy running.

Technologies

**Typescript:**

TypeScript is a programming language that provides numerous advantages compared to plain JavaScript. These benefits include superior type checking, simpler debugging and maintenance, improved integration with IDEs, and better organization of code. By detecting errors before runtime, TypeScript's static typing increases the dependability and ease of maintaining code, especially in extensive codebases.

**React:**

React is one of the most popular JavaScript libraries and allows developers to build interactive interfaces effectively. It allows managing the state of the application therefore ensuring better performance. React has a component-based architecture that allows code reusability and scalability.

**Java Spring Boot:**

Java Spring Boot is a very efficient framework that speeds up the process of Java development. It allows for reducing boilerplate code and the modular architecture enables easy integration with other technologies. It provides a wide range of tools for testing, deployment, and management, therefore being one of the most popular choices for building robust and scalable architectures.

**MariaDB:**

MariaDB is an open-source relational database management system that allows high performance and reliability. It is one of the best choices for enterprise applications due to its extensive community support and cost-effectiveness. It is MySQL-compatible and offers advanced security, clustering, and replication.

**MongoDB:**

MongoDB is a NoSQL document-oriented database that provides high scalability and availability. I decided to choose MongoDB for my User and Song database because of their high read and write usage. It stores data in a way similar to JSON, allowing for easier interaction than traditional relational databases.

**Cypress:**

Cypress is a powerful end to end testing framework that offers fast, reliable, and easy-to-use capabilities. It has features such as real-time reloading, automatic waiting and time-travel debugging. I chose Cypress as my E2E testing technology because of my experience with it and the edge it has over other modern testing frameworks.