Threading Sounds RESTful API

Challenge Overview

A rising independent music producer, Threading Sounds, reaches out to you with a challenge. In the era of digital music, they find themselves overwhelmed in managing their growing library of tracks. They're looking for a solution that allows them to easily add, retrieve, update, and delete song records. As they plan to share access with their team and potentially integrate with other systems, they emphasize the need for this solution to be accessible through a web interface. Your mission is to develop a RESTful API using Java Spring Boot, with song data stored in a PostgreSQL database, to meet Threading Sounds' needs.

Solution Overview

You will create a Java Spring Boot application that serves as a backend service for managing music songs. The application will expose RESTful endpoints to perform CRUD operations on a song database. Each song record will include details such as title, artist, album, and duration. This API will interact with a PostgreSQL database to persist song data, ensuring that Threading Sounds can manage its music library efficiently.
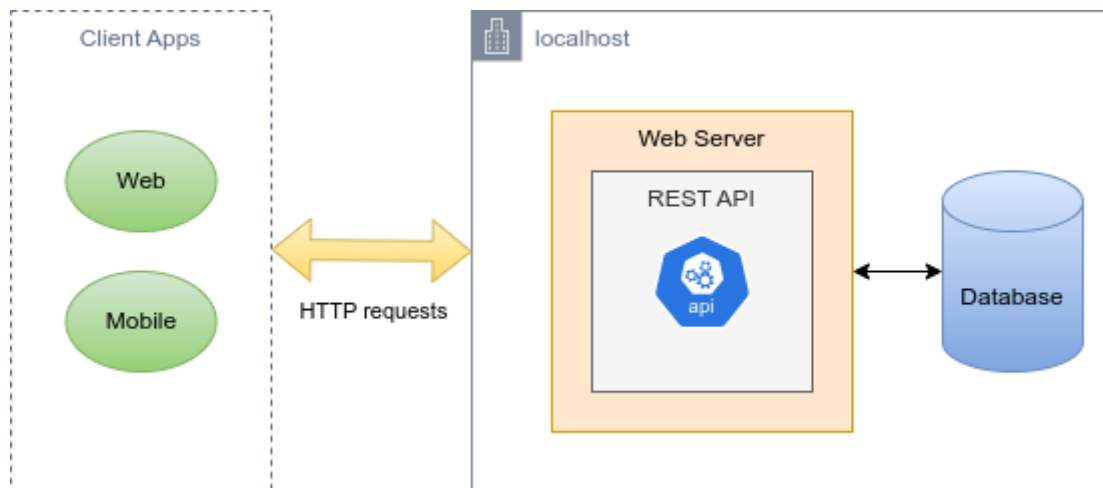

FIGURE 1 Solution Architecture

The architecture consists of the following components:

- **Java application**: Start a new [Java Spring Boot](#) project. This will be a RESTful API with defined routes to handle HTTP requests for adding, retrieving, updating, and deleting song records.
- **GitHub**: Version control system used to store the code of the application.
- **PostgreSQL Database**: A relational database system to store song data. You'll define a songs table with fields for title, artist, album, and duration.

Requirements

- Requirements analysis and system design
- Database normalization and relationship modeling
- The Java application must consider:
    - Robust error handling
    - Application logging
    - Health checks and observability

Expectations

- Documentation of the analysis, design, and implementation process in the README or a PDF file.

- The documentation must include a complete ERD with all relationships and the database schema.

- The documentation must be shared and reviewed within 3 days.

- The solution will be presented within 7 days.

- The presentation will be conducted in English, targeted at the C-level directors of the company.