

# Project Documentation : Music System

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## 1. Introduction

The **Music System Platform** is a web-based application designed to facilitate collaboration among musicians. It allows users to create projects, manage music files, showcase portfolios, and connect with other artists. The platform aims to streamline the creative process and foster teamwork within the music industry.

## 2. Features

### Core Features:

- **User Management:** Create, update, and manage user accounts.

- **Project Management:** Create and organize music projects with collaborative tools.
- **Music File Management:** Upload, share, and manage audio files.
- **Portfolio Showcase:** Display musician portfolios to highlight their work.
- **Search and Filter:** Real-time search and filter options for users, projects, and files.

## 3. Technology Stack

### Backend:

- **Language:** Java
- **Framework:** Spring Boot
- **Database:** MySQL

### Frontend:

- **Language:** HTML, CSS, JavaScript
- **Framework:** Bootstrap
- **Template Engine:** JSP

### Others:

- **Version Control:** Git
- **Build Tool:** Maven
- **Server:** Apache Tomcat

## 4. Setup and Installation

### Prerequisites:

- Java 11 or later
- Apache Maven
- MySQL Server
- Apache Tomcat

### Steps:

#### 1. Clone the repository:

git clone <https://github.com/Pranavjeetvats/Music-player-project.git>

**2. Navigate to the project directory:**

```
"C:\Users\prana\Downloads\music-collab-main-main\music-collab-main-main"
```

**3. Configure the application.properties file for your MySQL database.**

**4. Build the project:**

```
mvn clean install
```

**5. Deploy the WAR file to Apache Tomcat.**

**6. Access the application at <http://localhost:8080/>.**

## 5. System Architecture

The platform follows a **Model-View-Controller (MVC)** architecture:

- **Model:** Handles the database and business logic.
- **View:** Manages the user interface (JSP templates).
- **Controller:** Connects the Model and View by handling HTTP requests.

## 6. Database Design

**Key Tables:**

**1. Users**

- id (Primary Key)
- username
- email
- password
- role

**2. Projects**

- id (Primary Key)
- name
- description
- created\_by (Foreign Key referencing Users)

**3. Music Files**

- id (Primary Key)
- file\_name
- file\_path
- project\_id (Foreign Key referencing Projects)

#### 4. Portfolios

- id (Primary Key)
- musician\_id (Foreign Key referencing Users)
- portfolio\_details

## 7. API Endpoints

### User Management:

- POST /users: Add a new user.
- GET /users: Retrieve a list of all users.
- PUT /users/{id}: Update a user's details.
- DELETE /users/{id}: Delete a user.

### Project Management:

- POST /projects: Add a new project.
- GET /projects: Retrieve all projects.
- GET /projects/{id}: Retrieve project details.
- DELETE /projects/{id}: Delete a project.

### Music File Management:

- POST /music-files: Upload a music file.
- GET /music-files: Retrieve all music files.
- DELETE /music-files/{id}: Delete a music file.

## 8. UI Components

### Key Pages:

1. **Home Page:**
  - Navigation menu.
  - Welcome message and links to key sections.
2. **User Management Page:**
  - Table listing all users.
  - Form for adding new users.
  - Real-time search functionality.
3. **Project Management Page:**
  - Table listing all projects.
  - Form for adding new projects.
4. **Music File Management Page:**
  - Table listing all uploaded files.

- File upload form.

## 9. Future Enhancements

- **Real-time Collaboration:** Integrate real-time chat and file-sharing capabilities.
- **Enhanced Security:** Add role-based access control and two-factor authentication.
- **Mobile App:** Develop a companion mobile application for on-the-go access.
- **Integration with DAWs:** Allow direct integration with digital audio workstations (DAWs).

## 10. Conclusion

The Music Collaboration Platform is designed to streamline the creative process for musicians, offering a centralized hub for project management, file sharing, and collaboration. With planned future enhancements, it aims to become an indispensable tool for the music industry.