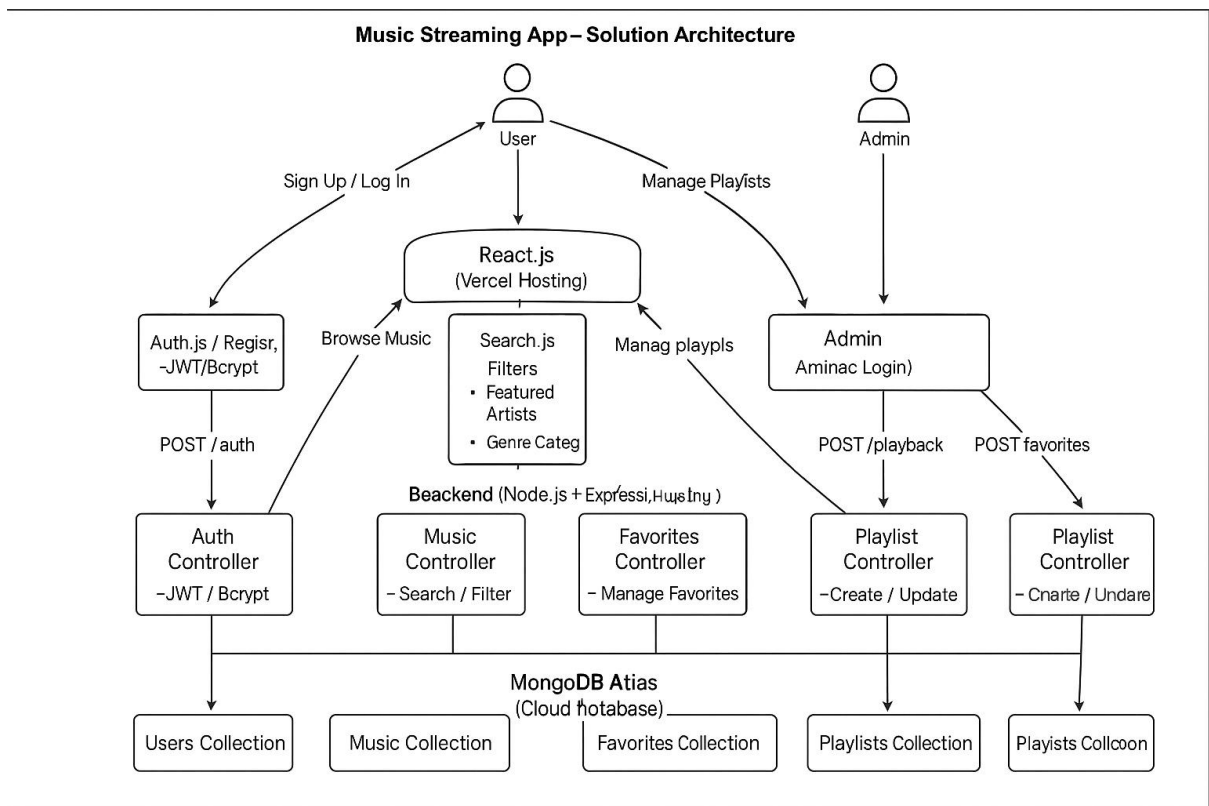


# Project Design Phase

## Solution Architecture

Date	17/04/2025
Team ID	SWTID1744376795
Project Name	Tune Trails
Maximum Marks	4 Marks

### Solution Architecture Diagram



### 1. Architectural Overview

The Music Streaming App follows a three-tier architecture consisting of:

- Presentation Layer (Frontend) – React.js-based user interface
- Application Layer (Backend API) – Node.js and Express.js handling business logic
- Data Layer (Database) – MongoDB Atlas for data persistence

### 2. Solution Characteristics

- Scalable: MongoDB and Node.js can scale horizontally
- Secure: Token-based auth and role-based routing
- Modular: Separation of concerns across components and routes
- Cloud-Hosted: Deployed on cloud platforms (MongoDB Atlas, Railway, Vercel)

3. Key Features Defined by Architecture

Feature	Responsibility Layer
User Authentication	Backend (JWT, bcrypt)
Music Search and Filtering	Backend + Frontend
New Releases Management	Admin Panel (Backend + DB)
Playlist Creation & Management	Backend + MongoDB
Favorite Tracking	Backend + User DB
Music Playback	Backend (Streaming) + Frontend (Player)
Responsive UI	Frontend (React + SCSS)
Recommendation Engine	Backend + DB

4. Development Phases

Phase	Description
Phase 1	User Auth, Music Browsing, Home Page with Featured Artists, Genre Categories
Phase 2	Playlist System, New Releases, Favorites, Basic Audio Player
Phase 3	Admin Panel, Analytics Dashboard, Advanced Recommendations
Phase 4	Deployment, Testing, UI Polish, Optional Premium Subscription Gateway

