Project Documentation

Frontend Development with React.js

Introduction:

Project Title: RhythmicTunes: Your Melodic Companion

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Project Overview:

Purpose:

The purpose of RhythmicTunes is to provide a seamless, engaging, and user-friendly music streaming platform built with React.js. It allows users to explore, stream, and manage their favorite tracks with an intuitive interface.

Features:

Browse and play songs with integrated audio controls.

Add/remove songs from Wishlist (Favorites).

Create and manage Playlists.

Advanced search functionality (search by name, singer, or genre).

Responsive design for desktop, tablet, and mobile.

Seamless routing between pages (Songs, Favorites, Playlist).

Architecture:

Component Structure:

App Component → Root component, manages routing and layout.

Sidebar Component → Navigation panel.

Songs Component → Displays list of songs, search bar, and actions.

Favorites Component → Shows songs added to wishlist.

Playlist Component → Displays and manages playlist items.

Reusable Components → Buttons, Search Input, Card UI, Audio Player.

State Management:

Local State: useState for managing search term, currently playing song, etc.

Global State: Managed through props drilling (can be extended later to Context API or Redux if needed).

Routing:

Implemented using react-router-dom:

/ → Songs Component

/favorites → Favorites Component

/playlist → Playlist Component

Setup Instructions:

Prerequisites:

Node.js & npm → Download Here

Git for version control → Download Here

Code Editor (VS Code recommended)

Installation:

```
# Clone the repository

git clone <repository_url>


# Navigate to project directory

cd tunes


# Install dependencies
```

npm install

Start the Application

# Start React app

npm start

# Start JSON server (in a separate terminal)

json-server --watch ./db/db.json

Access at: http://localhost:3000

Folder Structure:

```
tunes/
|— public/
|— src/
|   ├— assets/       # Images, icons, etc.
|   ├— components/   # Reusable components (Sidebar, SearchBar, etc.)
|   ├— pages/        # Songs, Favorites, Playlist
|   ├— utils/        # Helper functions, axios instance, hooks
|   ├— App.js        # Root component
|   ├— App.css       # Global styles
|   └— index.js      # Entry point
|— db/
|   └— db.json       # Mock JSON server database
|— package.json
```

Running the Application:

Frontend: Run npm start in project root.

Backend (Mock): Run json-server --watch ./db/db.json.

Component Documentation:

Key Components:

Songs.js → Displays songs list, handles search and playback.

Favorites.js → Renders saved favorite songs.

Playlist.js → Shows user’s playlist.

Reusable Components:

Card Component → Displays song details with actions.

Button Component → Custom styled buttons for actions (wishlist/playlist).

Search Input → Search bar with icon.

State Management:

Global State:

Data fetched from JSON server (items, favorites, playlist).

Controlled by axios requests and component states.

Local State:

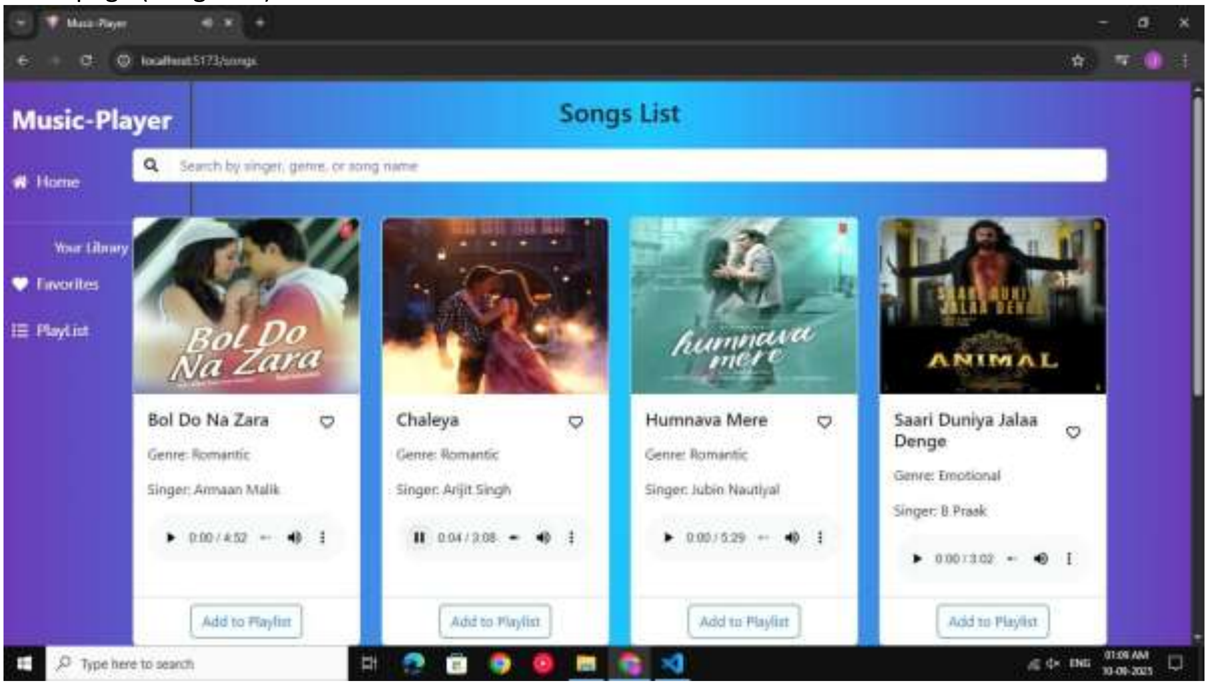
searchTerm → Stores query for filtering songs.

currentlyPlaying → Keeps track of active audio player.

User Interface:

Screenshots added here :

Homepage (Songs List):



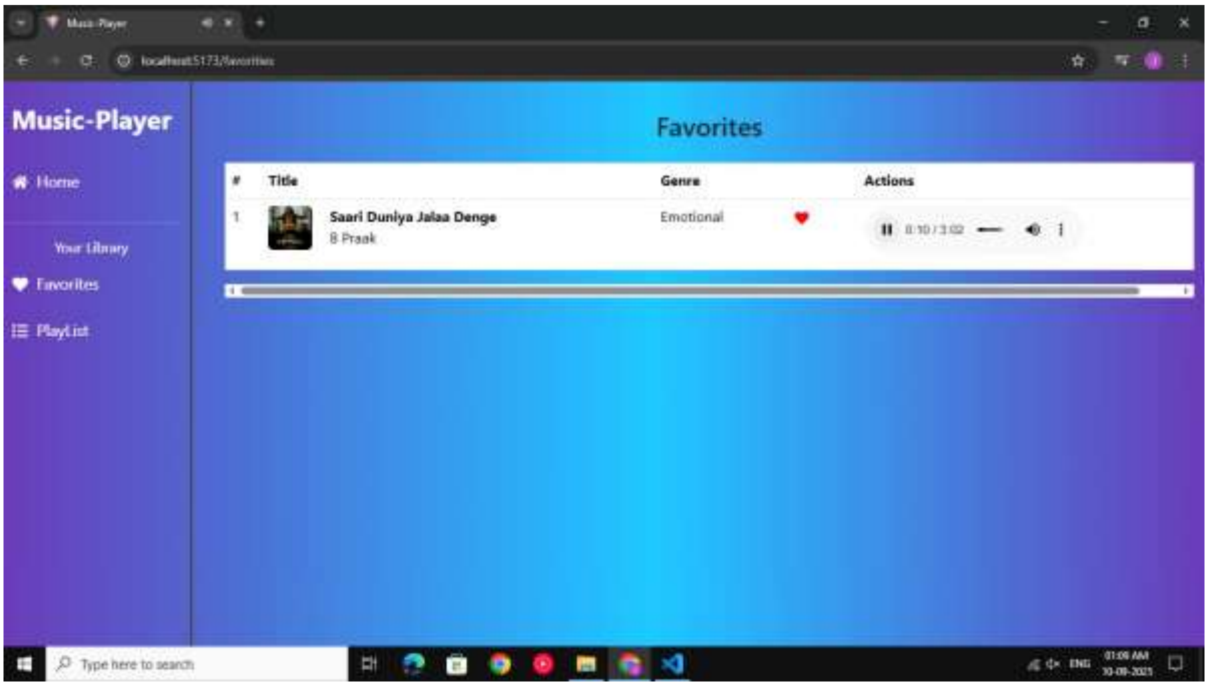
Bol Do Na Zara
Genre: Romantic
Singer: Armaan Malik

Chaleya
Genre: Romantic
Singer: Arijit Singh

Humnava Mere
Genre: Romantic
Singer: Jubin Nautiyal

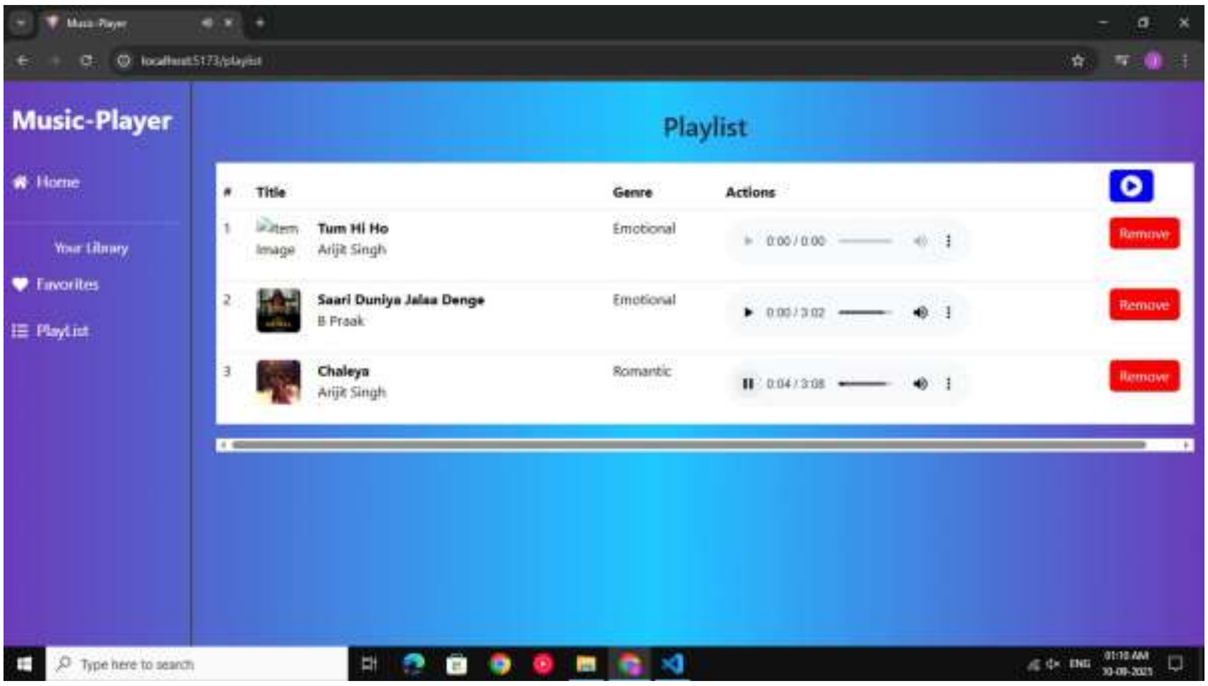
Saari Duniya Jalaa Denge
Genre: Emotional
Singer: B Praak

Favorites Page:



#	Title	Genre	Actions
1	Saari Duniya Jalaa Denge B Praak	Emotional	0:10 / 3:02

Playlist Page:



Playlist

#	Title	Genre	Actions	
1	item Image Tum Hi Ho Arijit Singh	Emotional	0:00 / 0:00	Remove
2	Saari Duniya Jalaa Denge B Praak	Emotional	0:00 / 3:02	Remove
3	Chaleya Arijit Singh	Romantic	0:04 / 3:08	Remove

Styling:

CSS Frameworks/Libraries:

Bootstrap (for responsive layout and grid system).

Tailwind CSS (for modern utility-first styling).

Theming:

Dark/Light mode not implemented (future enhancement).

Consistent music-themed design with icons and audio player styling.

Testing:

Testing Strategy:

Unit Tests: For reusable components (Buttons, Cards, Search Input).

Integration Tests: Ensuring Songs component interacts correctly with Favorites/Playlist.

End-to-End Testing: Can be implemented using Cypress for user flows.

Code Coverage:

Basic tests can be implemented with Jest + React Testing Library.

Known Issues:

Songs may overlap if multiple audio players are triggered.

No authentication system yet (data resets on refresh).

No API integration (currently using JSON server mock data).

Future Enhancements:

User authentication & profile management.

Integration with real music APIs (Spotify/Apple Music).

Offline mode for downloaded tracks.

Dark/Light theme support.

Advanced recommendations powered by AI.