PROJECT DOCUMENTATION

RHYTHMIC TUNES

1.Introduction

- **Project Title:** Rhythmic Tunes
- **Team ID:** NM2025TMID38595
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2.Project Overview

Purpose: The main purpose of the Rhythmic Tunes project is to provide a platform where users, freelancers, and administrators can collaborate in the field of music. It

aims to create an easy-to-use digital space for sharing, managing, and communicating about music-related projects.

Features:

- ✧ **User-Friendly Interface**: Simple navigation for all types of users.
- ✧ **Music Library**:Wide collection of tracks across genres.Categorized by artist, album, and mood.
- ✧ **Project Details Page**: Displays detailed information about individual music projects.
- ✧ **Authentication System**: Secure login and registration for users.
- ✧ **Chat Support**: Direct communication between users and freelancers.
- ✧ **Database Integration**: Stores project data, user details, and communication logs.
- ✧ **Scale able Design**: Built to support future feature additions and upgrades.
- ✧ **Search & Filters**:Search by song, artist, album, or genre.Advanced filters for quick discovery.

✧ **Offline Support for Favorites:**Option to download only favourite tracks for easy offline playback.

3.Architecture

➢ **Component Structure**

✓ **UI Layer** – Clean and user-friendly interface for smooth navigation.

✓ **Audio Player** – Core engine to play, pause, resume, and stop songs.

✓ **Playlist Manager** – Create, edit, and manage personal playlists.

✓ **Music Library** – Organizes songs by categories (artist, genre, mood).

✓ **Search & Filter** – Quickly locate songs with smart filters and keyword search.

✓ **Data Storage** – Saves playlists, favorites, history, and downloads.

✓ **Recommendation Engine** – Suggests tracks based on listening habits, rhythm, or mood.

➢ **State Management**

- ✓ Track whether music is playing, paused, or stopped.

- ✓ Manage the current playlist, selected track, and playback queue.

- ✓ Store user preferences like volume level, theme, or equalizer settings.

- ✓ Handle navigation state (switching between library, playlist, and player screens).

- ➢ **Routing Structure**

  - ✓ **Home Screen** – Main dashboard with trending and recommended songs.

  - ✓ **Library Screen** – Complete list of songs (by artist, genre, mood).

  - ✓ **Playlist Screen** – User-created and saved playlists.

  - ✓ **Now Playing Screen** – Shows currently playing track with controls & lyrics.

  - ✓ **Settings Screen** – Manage preferences (volume, theme, downloads, equalizer).

4.Setup Instructions

- **Prerequisites:**

  - ✓ Node.js & npm
  - ✓ React.js
  - ✓ VS code
  - ✓ Git

- **Installation Steps:**

Clone the repository git clone

  - ✓ Git clone <your-repo-url>
  - ✓ Cd insight stream
  - ✓ N pm install
  - ✓ N pm start

5.Folder Structure

|--db/

|__db.json/

|--node_modules/ # all the node modules installed

|code/

|--public/

|__songs/

|__vite.svg/

|--scr/

|__assets/

|__components/

|__app.css/

|__app.jsx/

|__index.css/

|__main.jsx/

|--.eslintrc.cjs/

|--gitignore/

|--index.html/

|--package-lock.json/

|--package.json/

|--README.md/

|--vite.config.js/

6.Running The Application

- **Install Dependancies:**
  - ✓ N pm install
- **Start the app:**
  - ✓ npm sta
- **Access:**
  - ✓ Visit http://localhost:5173

7.State Management

- ✓ **Playback Control –** Track the current state of the player (playing, paused, or stopped).
- ✓ **Playlist & Song Management –** Maintain the active playlist, selected track, and playback queue.
- ✓ **User Preferences –** Store settings like volume level, equalizer adjustments, and playback position.

- ✓ **Navigation State –** Manage transitions between different app screens (e.g., Library → Now Playing → Playlist).

- ✓ **History Tracking –** Keep a record of recently played songs for quick access.

8.Component Documentation

- ➢ **Navbar Component**

    - ✓ **Purpose:** Provides app-wide navigation with links to Home, Library, Playlists, Favorites, and Settings.

    - ✓ **Props:** None (static navigation menu).

- ➢ **HeroBanner:**

    - ✓ **Purpose:** Highlights the app's main title and tagline with a featured image, background animation, or promotional banner.

    - ✓ **Props:** None

- ➢ **TrendingTracks:**

- ✓ **Purpose:** Displays a grid/list of top trending songs and albums.

- ✓ **tracks:** Array of track objects → { title, artist, album Art, audio Ural }

- ✓ **Props:** None

- ➢ **Genres Section:**

  - ✓ **Purpose:** Allows users to browse music by genres (Pop, Rock, Lo-fi, Classical, etc.).

  - ✓ **genres:** Array of genre objects → { name, icon }

  - ✓ **Props:**None

- ➢ **NowPlayingBar:**

  - ✓ **Purpose:** A sticky footer player showing the currently playing track with basic controls.

  - ✓ **currentTrack:** Object → { title, artist, duration, audioUrl }

- ➢ **PlaylistsPanel:**

- ✓ **Purpose:** Displays user-created playlists or system-generated collections (e.g., “Top 100”, “Chill Mix”).

- ✓ **Props:**None

- ✓ **playlists:** Array of playlist objects → { name, tracks, cover Image }

- ➢ **Footer:**

  - ✓ **Purpose:** Provides a site-wide footer with category tags, links, and legal information (privacy policy, terms of service).

  - ✓ **Props:** None

9.User Interface

- ➢ **Now Playing Bar**

  - ✓ Fixed at the bottom of the app.

  - ✓ Displays the current track, play/pause, next/previous buttons, and progress bar.

  - ✓ Ensures users can control playback seamlessly from any screen.

- **Genres Section**

  - ✓ Showcases music genres with icons, images, or color-coded cards.

  - ✓ Enables quick exploration and discovery of songs by preferred style or mood.

10. Styling

- **Modular Styling –** Uses CSS Modules / Styled Components for reusable and scoped styles.

- **Responsive Design –** Optimized for all devices (mobile, tablet, desktop) with fluid layouts.

- **Dark Mode Support –** Provides a music-friendly visual theme for better user experience.

- **Animations & Transitions –** Adds smooth effects for playback, hover actions, and UI feedback to enhance interactivity.

11. Testing

To maintain reliability, performance, and user satisfaction, multiple testing strategies were applied:

- ✓ **Unit Testing** – Verified individual components (Music Player, Playlist Manager, Controls) using Jest.

- ✓ **Integration Testing** – Ensured seamless communication between front end components and back end API s.

- ✓ **UI/UX Testing** – Checked usability, navigation flow, and responsiveness across devices.

- ✓ **Performance Testing** – Measured load times, buffering, and playback smoothness under different network conditions.

12. Known Issues

- ✓ **Audio Playback Delay** – A slight delay is noticeable when switching between tracks, which disrupts smooth playback.

- ✓ **No User Authentication** – Users cannot save playlists or preferences permanently as the login system is not yet implemented.

- ✓ **Limited Offline Support** – Currently, playback requires an active internet connection, with no option for offline downloads.

13. Future Enhancement

- ✓ **User Authentication –** Implement secure login and account management so users can save playlists, favorites, and preferences.

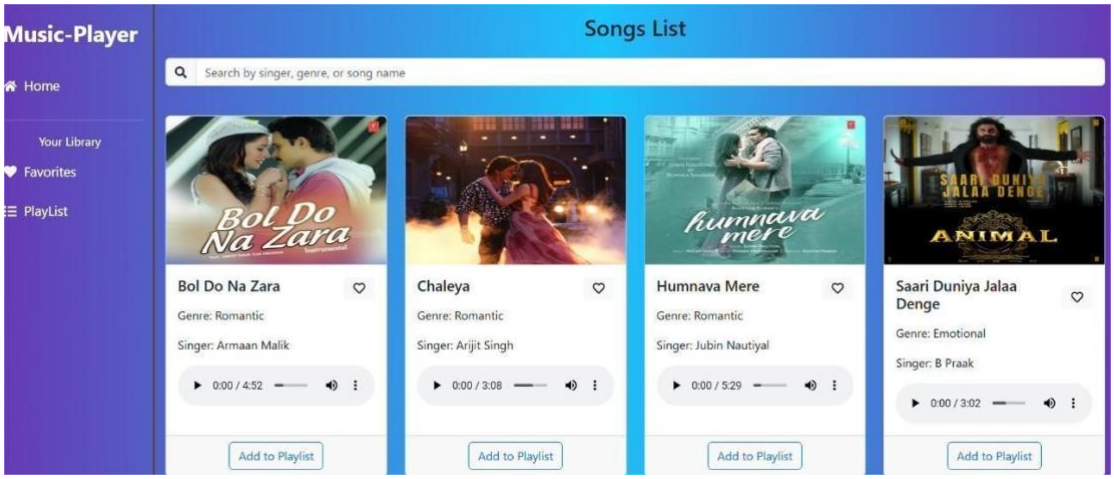
- ✓ **Smart Recommendation Engine –** Introduce AIpowered personalized music recommendations based on listening habits and moods.

- ✓ **Offline Playback Mode –** Enable downloads for listening without internet access.

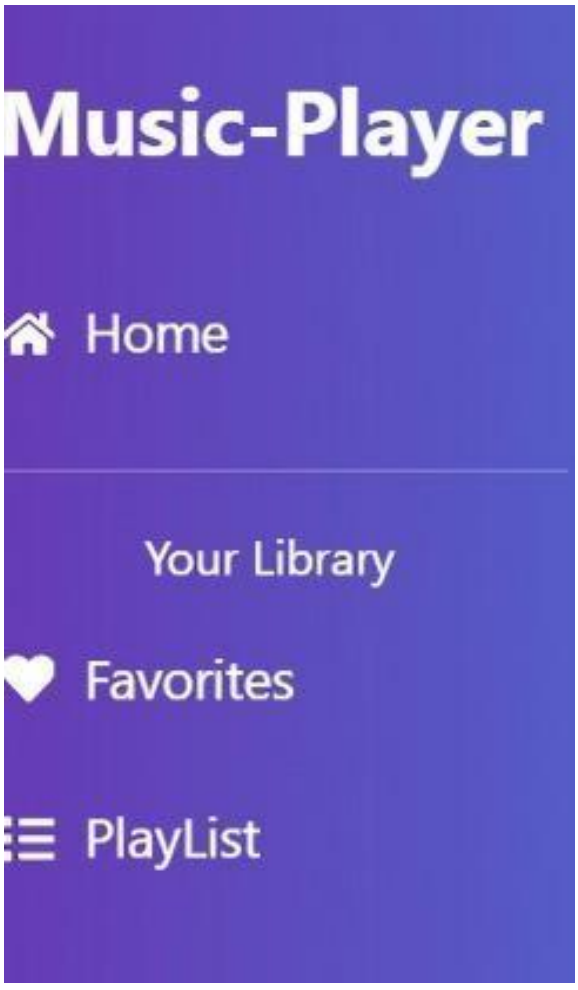
- ✓ **Advanced Audio Features –** Add customization equalizer settings, cross fade, and gap less playback for an enhanced listening experience.

- ✓ **Multi-Platform Support –** Extend app availability to desktop, web, and smart devices for wider accessibility.

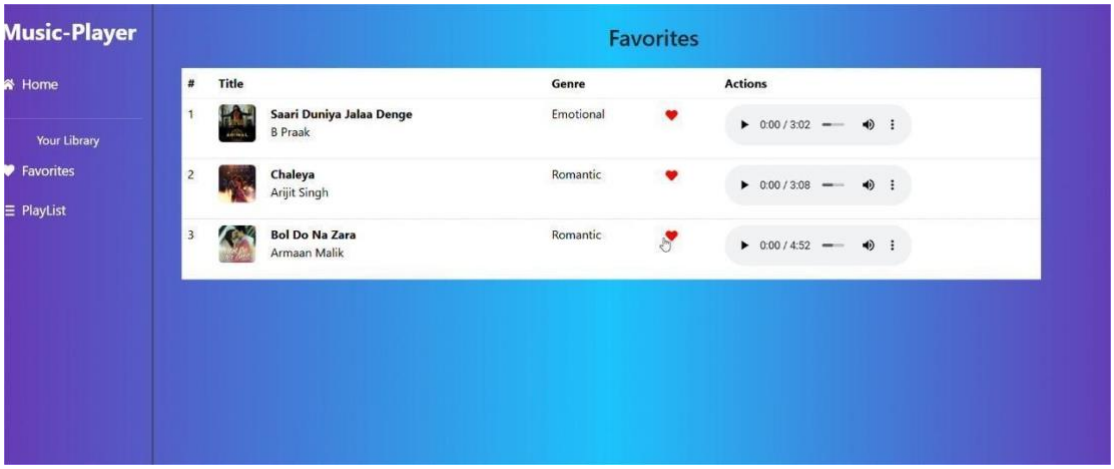
14. Screenshots HOME PAGE



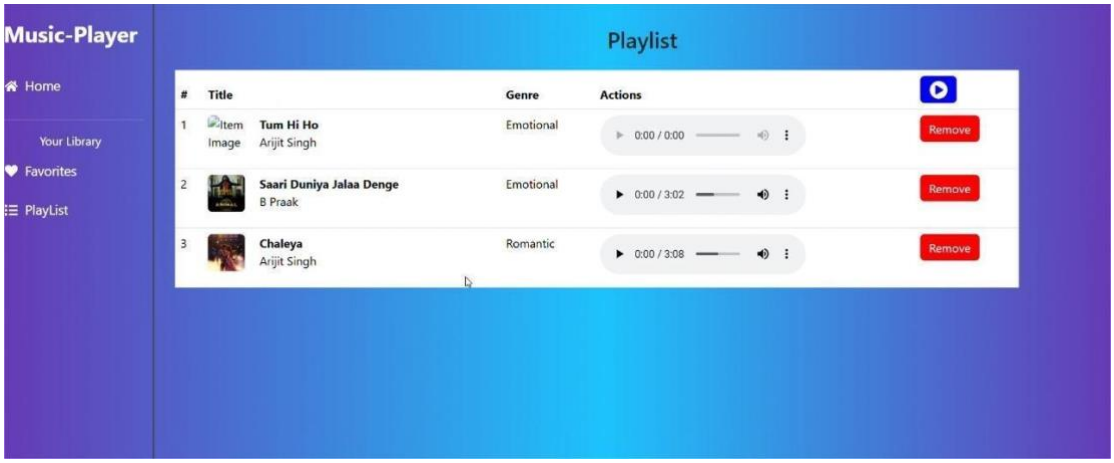
NAV BAR



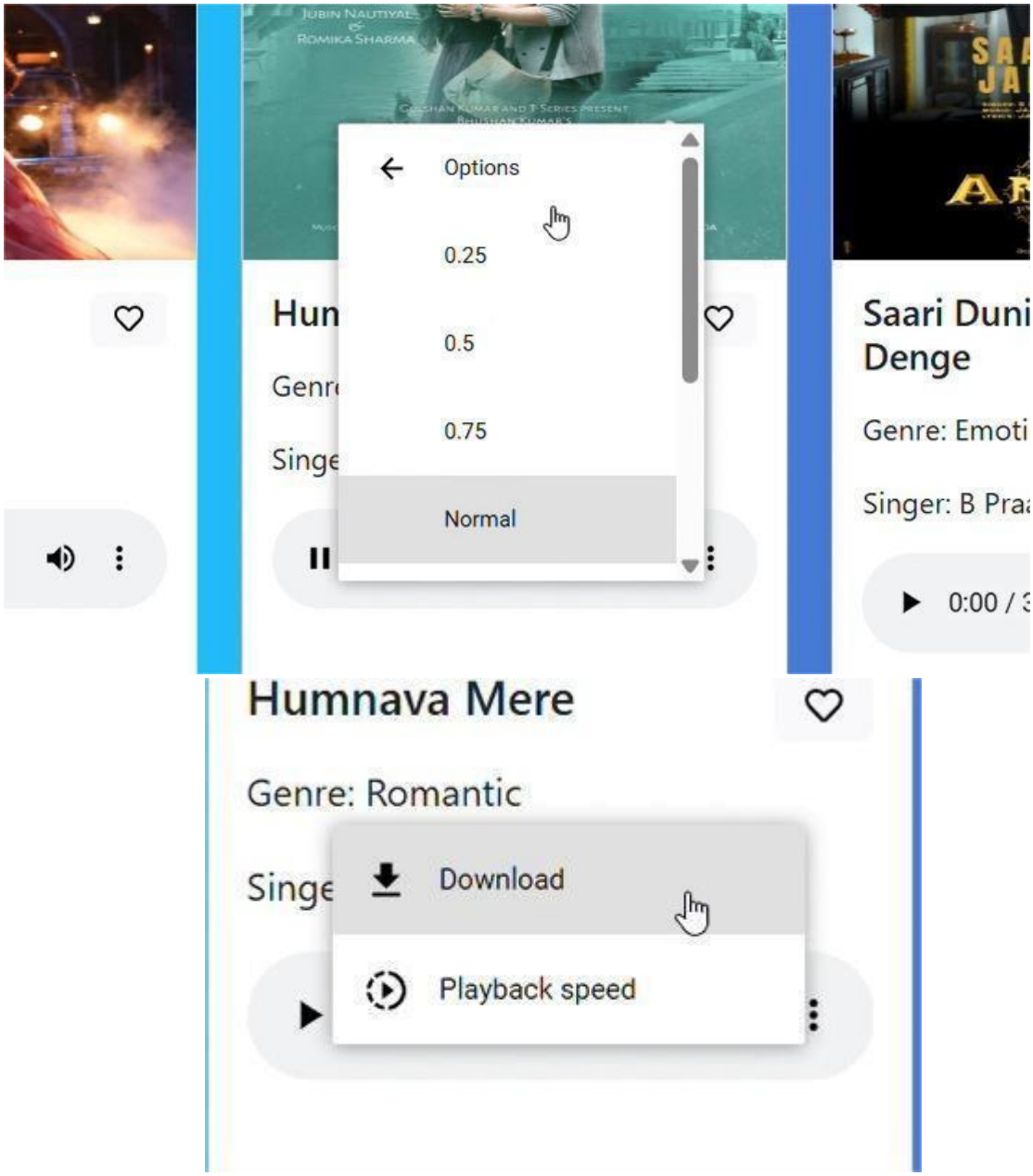
FAVORITES



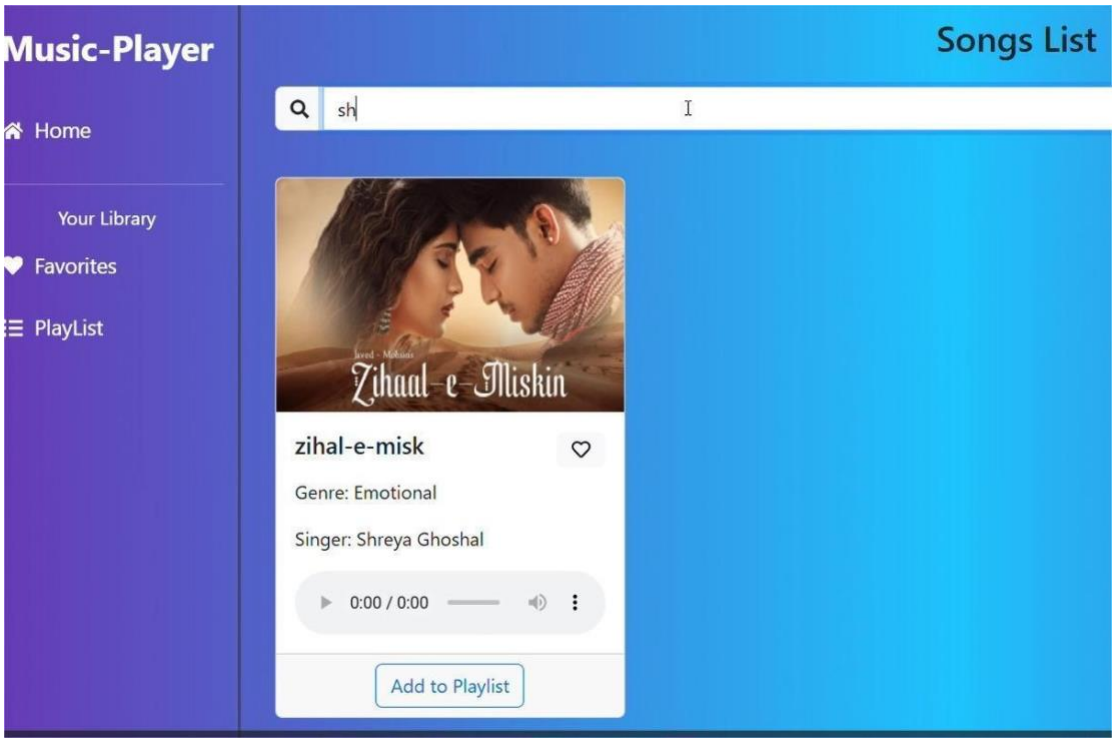
PLAYLIST



OPTIONS


Options
0.25
0.5
0.75
Normal
Saari Duni
Denge
Genre: Emoti
Singer: B Pra
0:00 / 3
Humnava Mere
Genre: Romantic
Download
Playback speed

SEARCHBAR


Music-Player
Songs List
Home
sh
Your Library
Favorites
PlayList
Zihaal-e-Miskin
zihal-e-misk
Genre: Emotional
Singer: Shreya Ghoshal
0:00 / 0:00
Add to Playlist