Ahmednagar Jilha Maratha Vidya Prasarak Samaj's

New Arts, Commerce and Science College,Ahmednagar
[Autonomous]

Department of Computer Application
A Project Report On

"Hosting Music Streaming Platform On AWS"

Submitted to Savitribai Phule Pune University for

Bachelor in Computer Application(Semester – VI)

Submitted by

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CERTIFICATE

This is to certify that **Mr. Auti Ghanashyam Nilesh, Mr. Sathe Saurabh Asaram, Mr. Akolkar Vishal Vitthal ,Mr.Shinde Mahesh Subhash** of **Bachelor in Computer Application Sem-VI** has successfully completed project work entitled **"AWS EC2-HOSTING Music Streaming Site"** prescribed by Savitribai Phule University, Pune during academic year 2023-24 and this report represents their bonafide work.

Date: /   /2024

Place: Ahmednagar

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Prof. Patil Madam

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Acknowledgement

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Introduction:

Embark on a melodious journey with our cutting-edge music streaming platform, a project that redefines simplicity and sophistication in the digital realm of music. This project report unveils a streamlined platform, focused on three essential pillars: user login, an extensive repertoire of tracks, and detailed artist information. Our goal is to offer users an uncomplicated and immersive experience, allowing them to seamlessly access and enjoy their favorite tunes without unnecessary complexities. In this report, we delve into the meticulous development process, shedding light on strategic decisions made to ensure secure user logins, an expansive selection of tracks spanning various genres, and a user-friendly interface that places the spotlight on artists. Join us as we navigate the intricate landscape of music streaming, prioritizing the core elements that make the experience truly resonate with our audience.

Abstract:

Title :- A Simplified Music Streaming Platform

Our music streaming platform is designed with a user-friendly approach, emphasizing simplicity and ease of use. The platform includes essential features such as user login, a well-organized catalog of tracks, and artist names, fostering a minimalist design for enhanced accessibility. Users can create accounts, log in securely, and explore an extensive collection of tracks spanning various genres. The platform's user-centric focus allows for easy navigation, enabling users to discover new artists and curate a personalized music experience. This project report provides insights into the development process, covering design choices, technological aspects, and considerations for user experience. It also addresses challenges faced during development and outlines potential future enhancements, positioning our platform as a scalable and evolving solution in the dynamic landscape of online music streaming.

Scope:

The scope of this music streaming platform project is to create a focused and minimalist digital space for users to access, explore, and enjoy music effortlessly. By limiting the platform's features to user login, track availability, and artist details, we aim to streamline the user experience, making it accessible to a wide audience. The platform's scope includes the development of a secure and user-friendly interface, ensuring that users can seamlessly navigate through an extensive library of tracks while gaining insights into the artists' backgrounds..

Key Features:

- ❖ **Search Functionality:**
  - ➢ Robust and intuitive search capabilities to enable users to easily discover their favorite tracks, artists, and albums.

- ❖ **User Profile:**
  - ➢ Option to update profile information and change password for enhanced security.
  - ➢ Hassle-free logout functionality for quick and convenient account

- ❖ **Playlist Management:**
  - ➢ Creation and management of custom playlists for users to curate their own musical journeys.
  - ➢ Collaborative playlist features, allowing users to share and collaborate on playlists with friends.

- ❖ **Explore Section:**
  - ➢ Curated and algorithm-driven recommendations for discovering new tracks, artists, and genres.
  - ➢ Trending and popular sections to stay updated on the latest music trends.
  - ➢ Genre-specific exploration options for users to dive into their preferred music categories.

- ❖ **Singles and Albums:**
  - ➢ Dedicated sections for singles and albums, providing users with easy access to individual tracks or entire collections.
  - ➢ Detailed information about each single and album, including release date, genre, and artist credits.

Technology Stack

- **Frontend:**
  - **HTML/CSS:** The fundamental building blocks for structuring and styling the web pages, providing a user-friendly interface.
  - **JavaScript:** Enhancing interactivity, enabling dynamic content updates, and handling client-side functionalities for a responsive and engaging user experience.

- **Backend:**
  - **PHP:** Serving as the server-side scripting language to handle user requests, process data, and interact with the database.
  - **MySQL:** A relational database management system used to efficiently store and retrieve user data, playlists, track information, and other relevant content.

- **Web Server:**
  - **Apache:** Providing a reliable web server environment to host and serve the PHP-based web application.

- **Cloud Service :**
  - **AWS: Amazon EC2** provides secure, resizable compute in the cloud, offering the broadest choice of processor, storage, networking, OS, and purchase model.

- **Development Tools:**
  - **Code Editor (Visual Studio Code):** Providing a feature-rich environment for writing, editing, and managing code files.
  - **Database Management Tool (phpMyAdmin):** Facilitating database administration, allowing for efficient data manipulation and maintenance.

- **JavaScript Libraries/Frameworks:**
  - **jQuery:** Simplifying JavaScript programming tasks, enhancing DOM manipulation, and facilitating AJAX for seamless data retrieval.

Future Enhancements

1. **Artist Login:**
   - Artists can upload and manage their discography, update biographical information, and engage with their fanbase.

2. **Label Login:**
   - Implement a separate login system for music labels, providing them with tools to manage their signed artists, track performance metrics, and contribute to promotional activities on the platform.

3. **Social Integration:**
   - Integrate social media features to allow users, artists, and labels to share music, playlists, and achievements on external platforms. This promotes community engagement and expands the platform's reach.

4. **Offline Listening:**
   - Enable users to download tracks for offline listening, enhancing accessibility for users in areas with limited internet connectivity or during travel.

5. **Lyrics Integration:**
   - Partner with lyric databases to integrate lyrics into the platform, allowing users to follow along with their favorite songs. This feature enhances the overall music discovery experience.
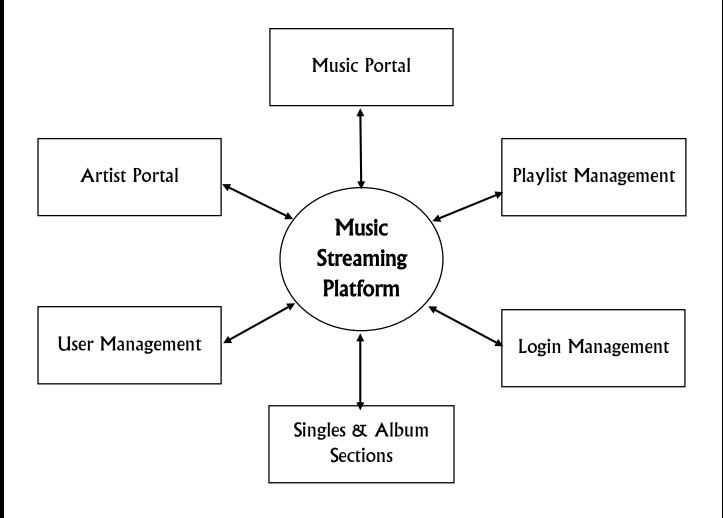
6. **Recommendation Algorithms:**
   - Enhance recommendation algorithms by incorporating machine learning and artificial intelligence techniques to provide more accurate and personalized music suggestions.
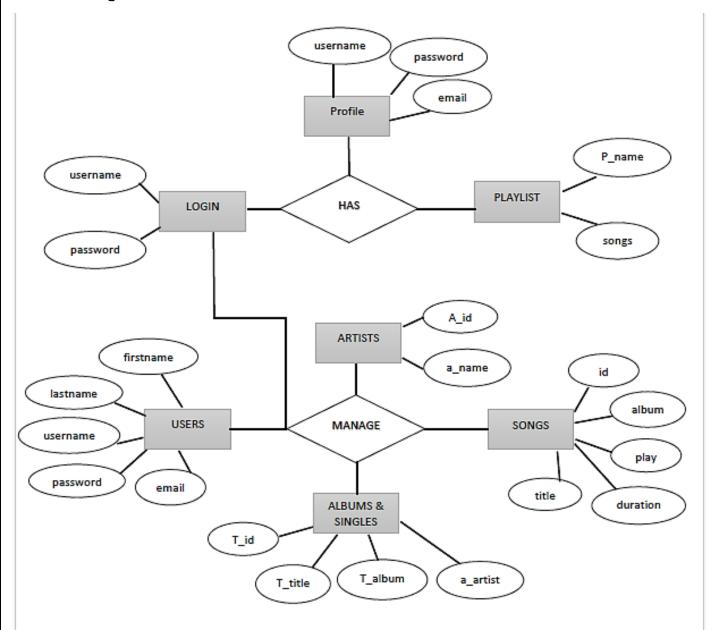
These future enhancements aim to elevate the music streaming platform by incorporating advanced features for artists, labels, and users. By expanding functionality and embracing technological advancements, the platform can stay competitive and continually offer an enriched experience to its diverse user base.
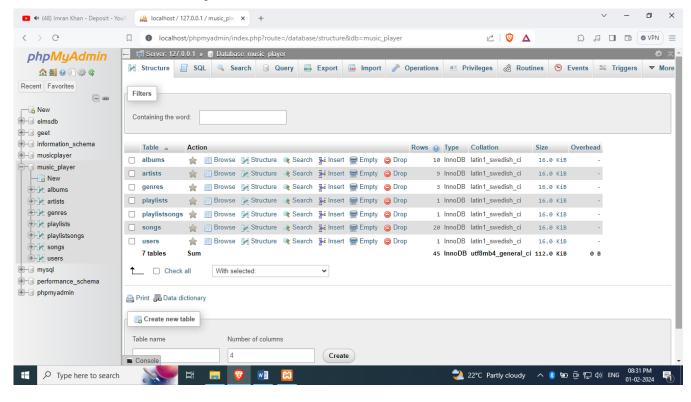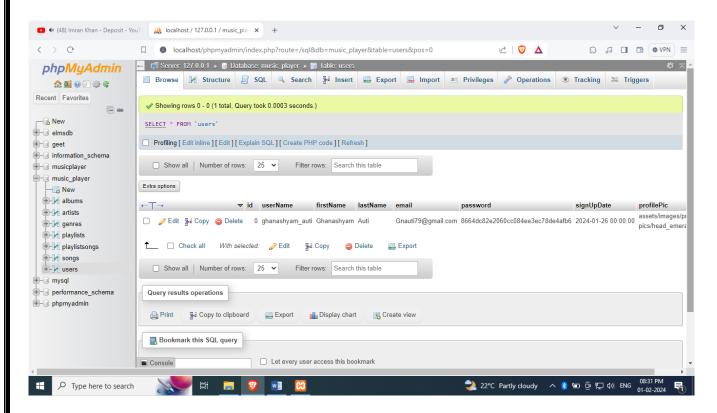
System Design:

i.DFD Diagram

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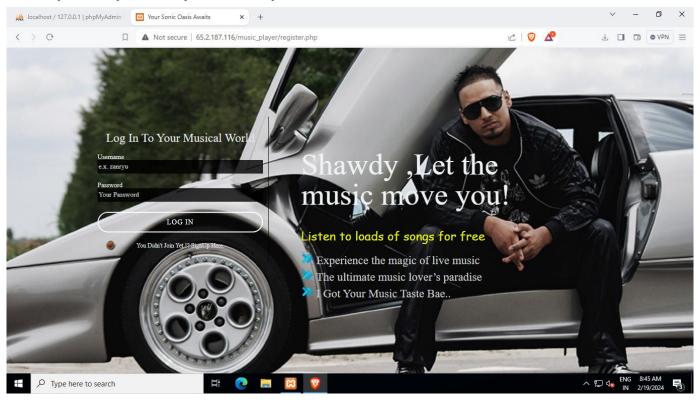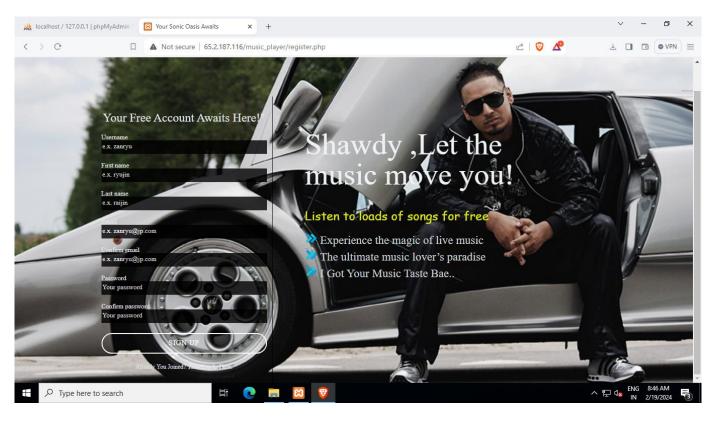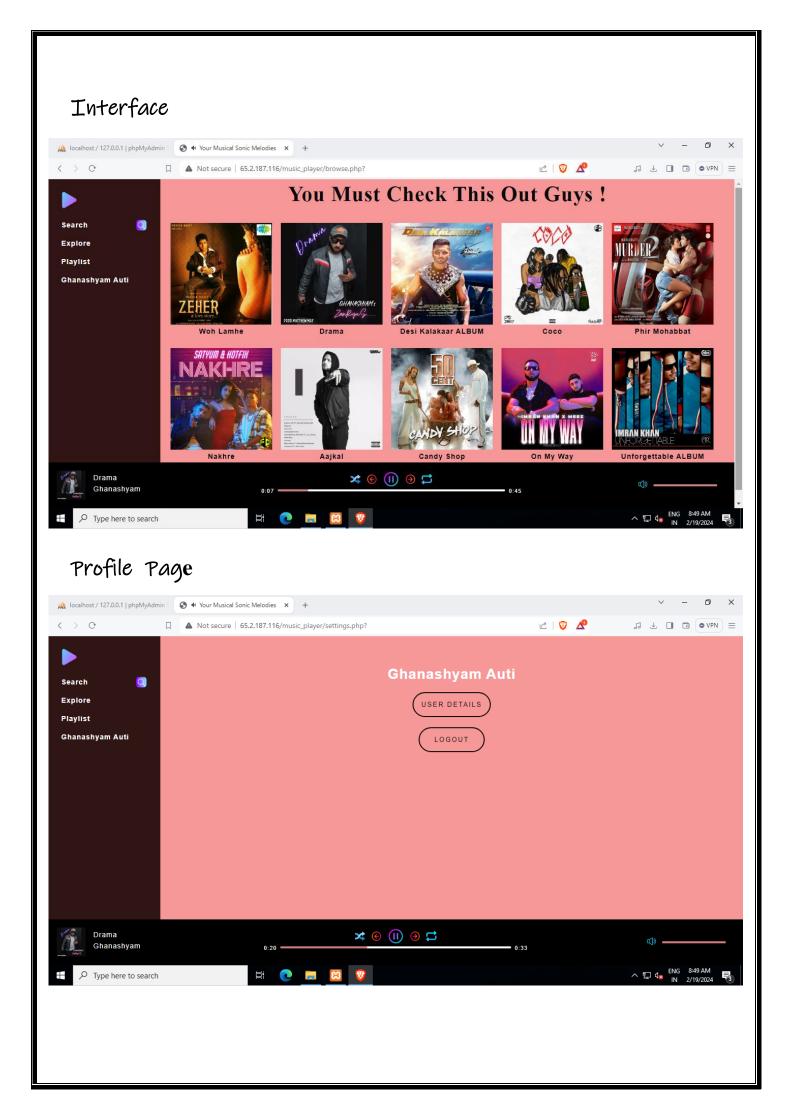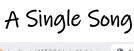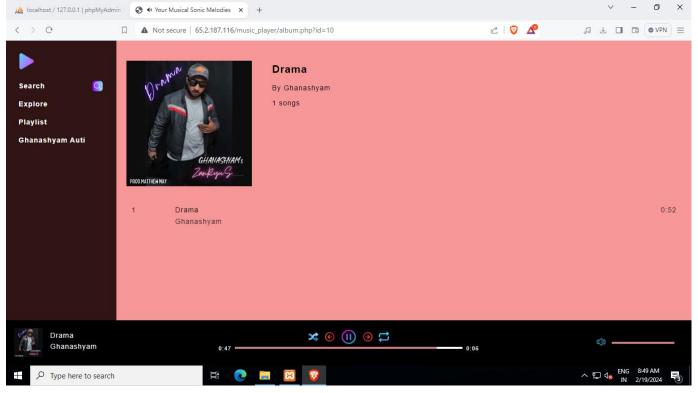
ii.ER Diagram

AWS EC2 Instance Dictionary:

Database Dictionary:

SCREENSHOTS

Login Page & Sign Up Page

Interface

Profile Page
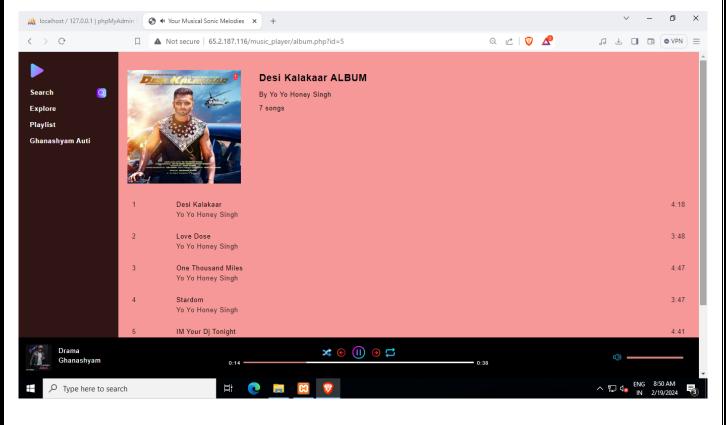
A Single Song

An Album

Search Bar

Artist Page

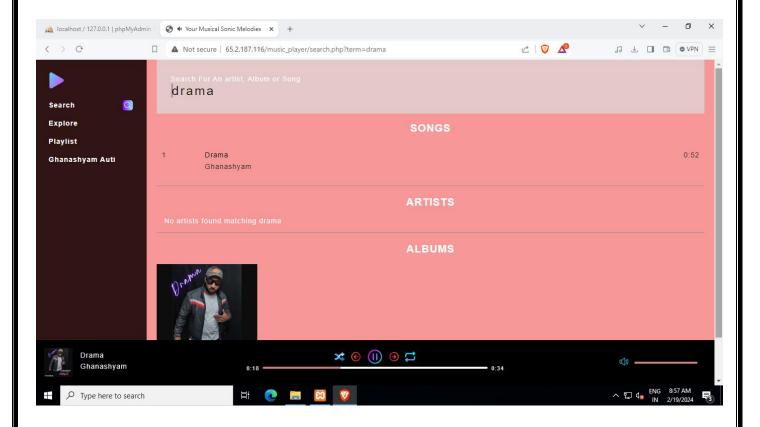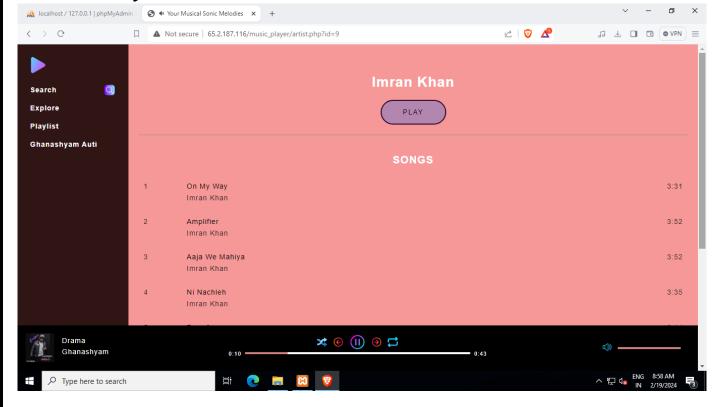# Playlist Page
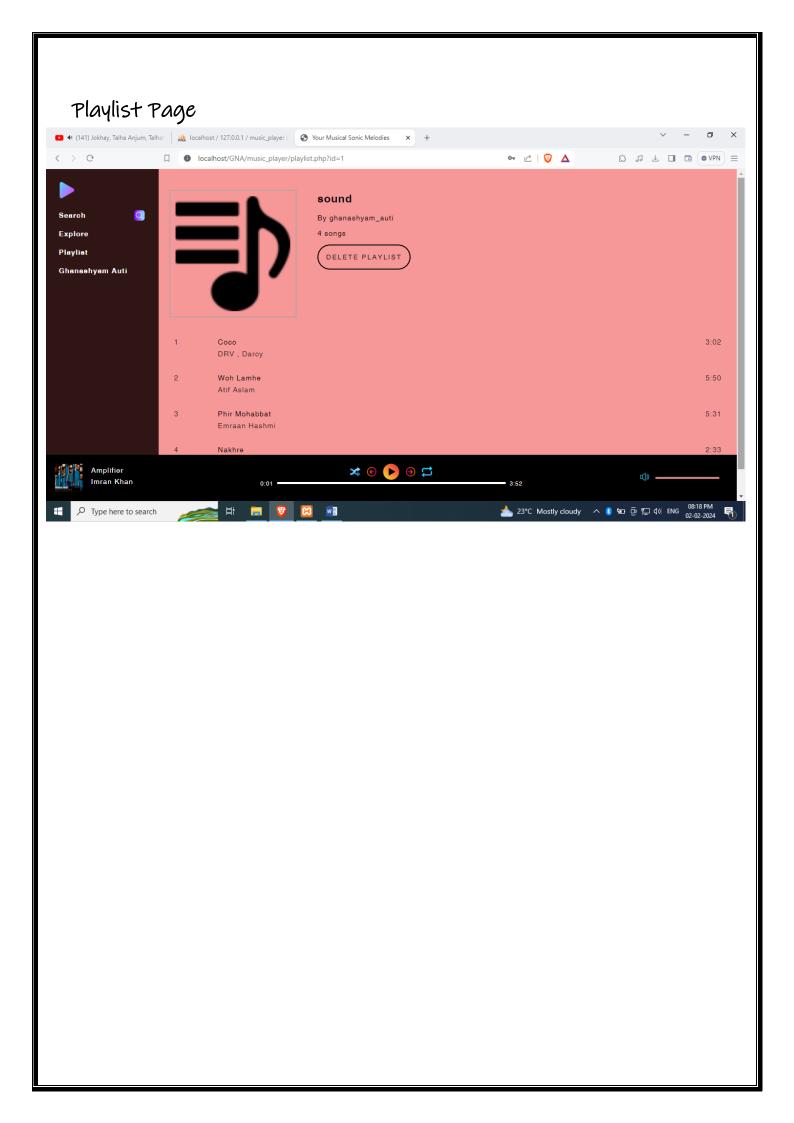
Challenges Overcome:

- **User Authentication Challenges:**
  - Achieved a secure login system.
  - Balanced security measures with user convenience.

- **Database Optimization:**
  - Designed an efficient database schema.
  - Implemented query optimization for quick data retrieval.

- **Responsive User Interface:**
  - Developed an intuitive and responsive design.
  - Conducted iterative user testing for usability improvements.

- **Infrastructure Scalability:**
  - Ensured robustness and scalability for growing data.
  - Implemented effective caching mechanisms.
  - Optimized database indexing for optimal performance.

These challenges, when addressed successfully, contributed to the creation of a seamless and user-friendly music streaming platform.

Conclusion

Our music streaming site, with features like user login, extensive track library, and artist information, ensures a personalized and diverse musical experience. The project prioritizes user-friendliness, performance optimization, and responsive design. Moving forward, we aim to continually improve and innovate, taking user feedback into account, and expanding features to create a vibrant music community. In essence, our platform harmoniously blends technology and artistry, fostering a universal love for music.

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