NEXT GEN EMPLOYABILITY PROGRAM

Creating a future-ready workforce

Team Members

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CAPSTONE PROJECT SHOWCASE

Project Title

MUSIC WEB APPLICATION USING DJANGO FRAMEWORK

Abstract | Problem Statement | Project Overview | Proposed Solution | Technology Used | Modelling & Results | Conclusion

Abstract

Musix is a cutting-edge music player app crafted to enhance your listening journey by adapting to your ever-changing musical tastes. By seamlessly blending trend analysis with personalized recommendations, it empowers you to explore fresh music that not only reflects your current preferences but also embraces the latest cultural movements.

Driven by Trends: Musix keeps a close eye on music trends, suggesting artists and genres that sync with your evolving interests and introducing you to captivating new sounds.

Tailored Discovery: Through continuous learning of your musical inclinations, Musix customizes its recommendations to perfectly match your individual listening habits.

Integrated Experience: With its intuitive music player interface, Musix makes it effortless to delve into new musical finds right within the app.

Source :

Problem Statement

Music enthusiasts often face challenges in discovering new music that resonates with their evolving preferences and the broader shifts in the music industry. Traditional music streaming platforms often rely solely on past listening data for personalized recommendations, potentially limiting users' exploration of new musical territories.

In response to these issues, Musix is designed to revolutionize the music listening experience by:
1. Analyzing Music Trends: By meticulously examining data and user behaviors, Musix captures the fluidity of popular music, identifying emerging genres, artists, and styles.
2. Providing Personalized Recommendations: Musix utilizes trend analysis to offer tailored music suggestions that not only match individual tastes but also reflect the current cultural zeitgeist.
3. Delivering a Seamless Listening Experience: Through its intuitive music player interface, Musix seamlessly integrates music discovery, allowing users to explore new musical avenues directly within the app.

By addressing these challenges, Musix aims to become an indispensable tool for music enthusiasts, fostering a sense of exploration and connection with the ever-evolving music landscape.

Source :

Project Overview

Musix isn't your average music player app - it's a game-changer! By tapping into music trends, it elevates your listening experience to a whole new level.

Tailored Recommendations: Musix uses trend analysis to suggest music that matches your current taste, while also introducing you to fresh new sounds. Say goodbye to musical monotony!

Seamless Experience: Explore and play new music directly within the app's integrated music player. No more switching between different platforms.

Who's it for?
Musix is ideal for music aficionados who:
Crave new discoveries: Break free from routine playlists and uncover hidden musical treasures.
Stay ahead of the curve: Dive into upcoming artists and trending genres before they hit the mainstream.

Source :

Proposed Solution

- 1. Trend Analysis Engine:
  Data Sources:
  Music Streaming Services: Musix has the capability to access anonymized listening data (with user consent) from leading platforms such as Spotify, Apple Music, and YouTube Music. This data unveils trends in popular genres, artists, playlists, and the specific popularity of songs.
  Social Media Analysis: By monitoring platforms like Twitter and TikTok, Musix can observe trending hashtags, discussions on emerging artists, and reactions to new music releases. This offers valuable insights into the cultural dialogue surrounding music.
  Music Blogs and Publications: Musix scans industry publications, blogs, and contributions from music journalists, extracting information about emerging stars and trends. This allows Musix to identify buzzworthy artists and genres before they achieve mainstream recognition.
  Music Charts and Awards Shows: Musix keeps track of music charts and award ceremonies to discern what's commercially successful and gain insights into shifting popular tastes.
  By aggregating data from these diverse sources, Musix builds a comprehensive understanding of music trends, enabling it to offer tailored recommendations that reflect the dynamic landscape of music consumption and culture.

Data Analysis Techniques:

Sentiment Analysis: By scrutinizing social media posts and reviews, Musix can discern the positive and negative sentiments surrounding specific artists, genres, and songs. This aids in identifying music that resonates with listeners.

Popularity Tracking: Musix monitors streaming data and social media mentions to track the rise of artists and genres, identifying emerging trends before they reach their peak.

Genre Classification: Leveraging advanced algorithms, Musix categorizes music based on various musical features. This enables the identification of trends within specific genres and facilitates recommendations of related artists within those styles.

2. Personalized Recommendation System:

Integration of User Interaction:

Feedback Mechanism: Musix provides users with the ability to express their preferences by liking or disliking recommendations. This feedback loop supplies valuable data for the recommendation engine, enhancing its accuracy over time.

Playlists and Saved Songs: Musix analyzes user-generated playlists and saved songs to discern specific tastes and favored genres.

Explorative Listening: By tracking user behavior during the exploration of new recommendations, Musix gains insights into their openness to different styles, refining future suggestions accordingly.

By integrating these user-centric interaction features, Musix ensures that its recommendations are finely tuned to each individual's unique preferences and listening habits.

3. Recommendation Delivery and Refinement:

Personalized Playlists: Musix generates playlists curated with suggested songs, taking into account both user preferences and current music trends.

New Release Recommendations: Musix highlights trending new releases from artists or genres that align with the user's musical tastes.

"Discover Weekly" Style Recommendations: Musix regularly generates personalized recommendations, akin to the popular "Discover Weekly" feature, based on the user's evolving listening habits and the latest music trends.

A/B Testing: Musix continuously conducts A/B testing to assess and refine different recommendation strategies, ensuring optimal user engagement.

4. Additional Considerations:

Privacy: Maintaining user privacy is a top priority. Musix must implement measures for anonymized data collection and obtain transparent user consent for data usage.

Scalability: The system should be designed to accommodate a potentially large user base and manage the ever-growing volumes of data effectively.

Real-Time Updates: Musix aims to deliver recommendations in real-time or near real-time to keep users informed about the latest trends in the music world.

User Interface: Musix prioritizes the design of a user-friendly interface for seamless exploration of recommendations, effortless playlist management, and easy provision of feedback.

Source :

Technology Used

Front-end

Back-end

Source :

Modelling & Results

Modeling Techniques and Expected Outcomes for Musix:
Trend Analysis Modeling:
Model Type: Time Series Analysis with Anomaly Detection
Data Input: Historical and real-time data from music streaming services, social media, etc.
Expected Outcome: Detection of statistically significant spikes in popularity for artists, genres, or songs.
Personalized Recommendation Modeling:
Model Type: Hybrid Recommendation System (Combining Collaborative Filtering & Content-Based Filtering)
Data Input: User's listening history (liked songs, playlists), feedback on recommendations, attributes of artists/genres.
Expected Outcome: Generation of personalized recommendations for songs and artists that reflect both the user's established preferences and current music trends.
Evaluation Metrics:
For Trend Analysis: Precision (accuracy in identifying rising trends), Recall (capturing a significant portion of emerging trends).
For Recommendation System: Click-through rate (measure of user engagement with recommendations), Normalized Discounted Cumulative Gain (NDCG) (assessment of the ranking quality of recommendations).

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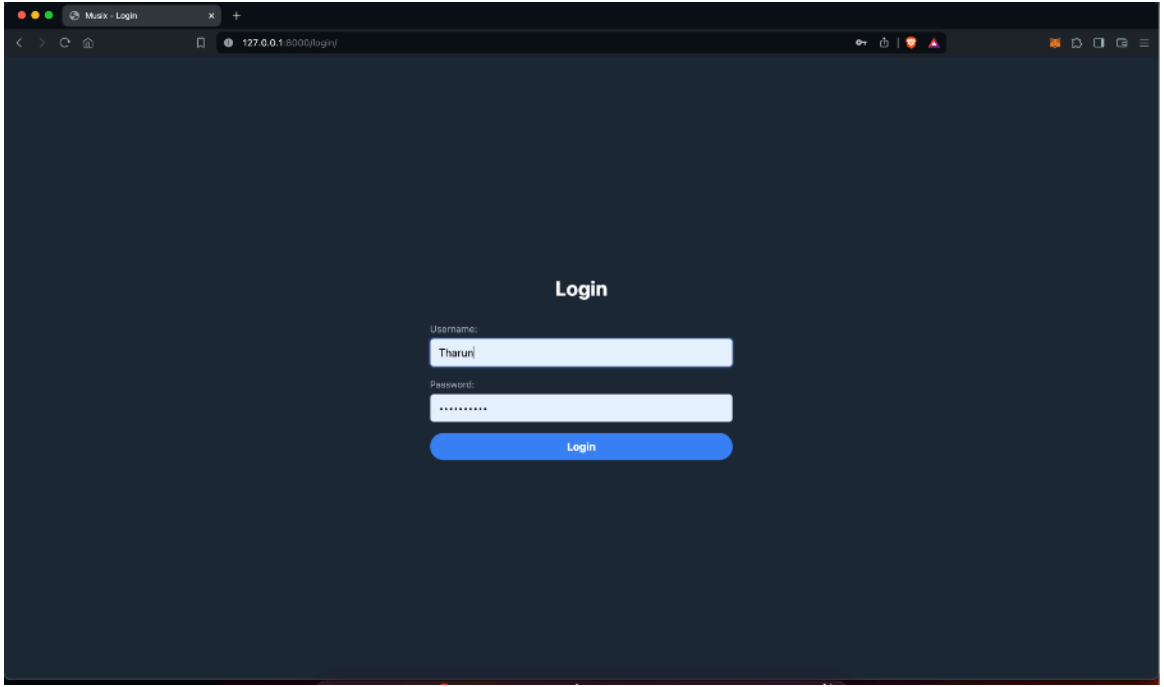
Login-Page



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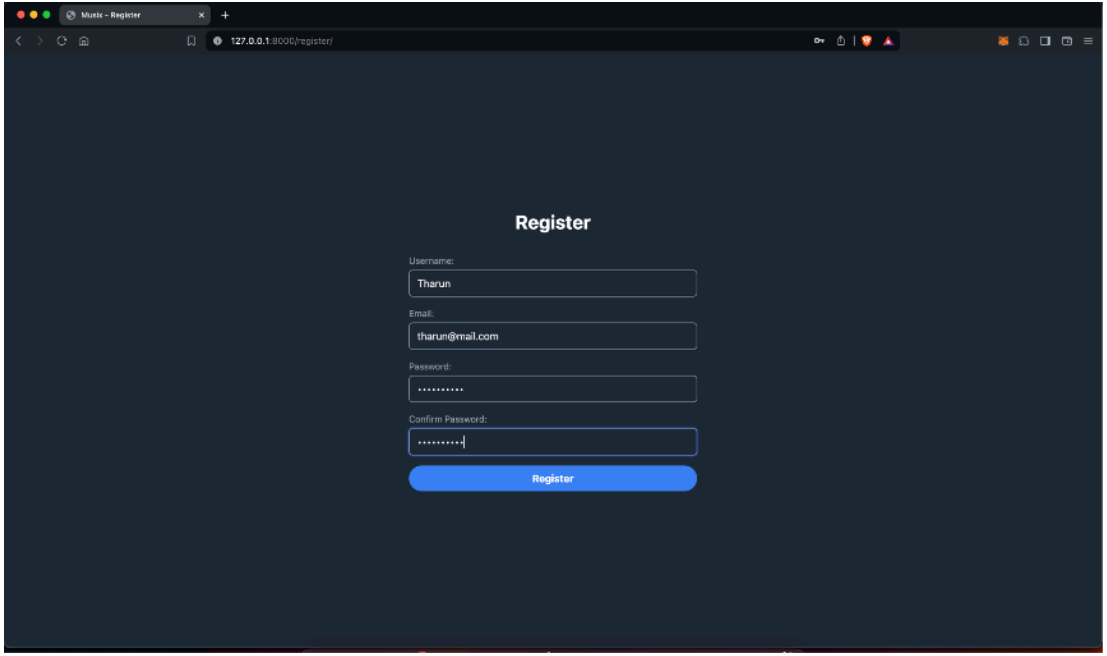
Register-Page



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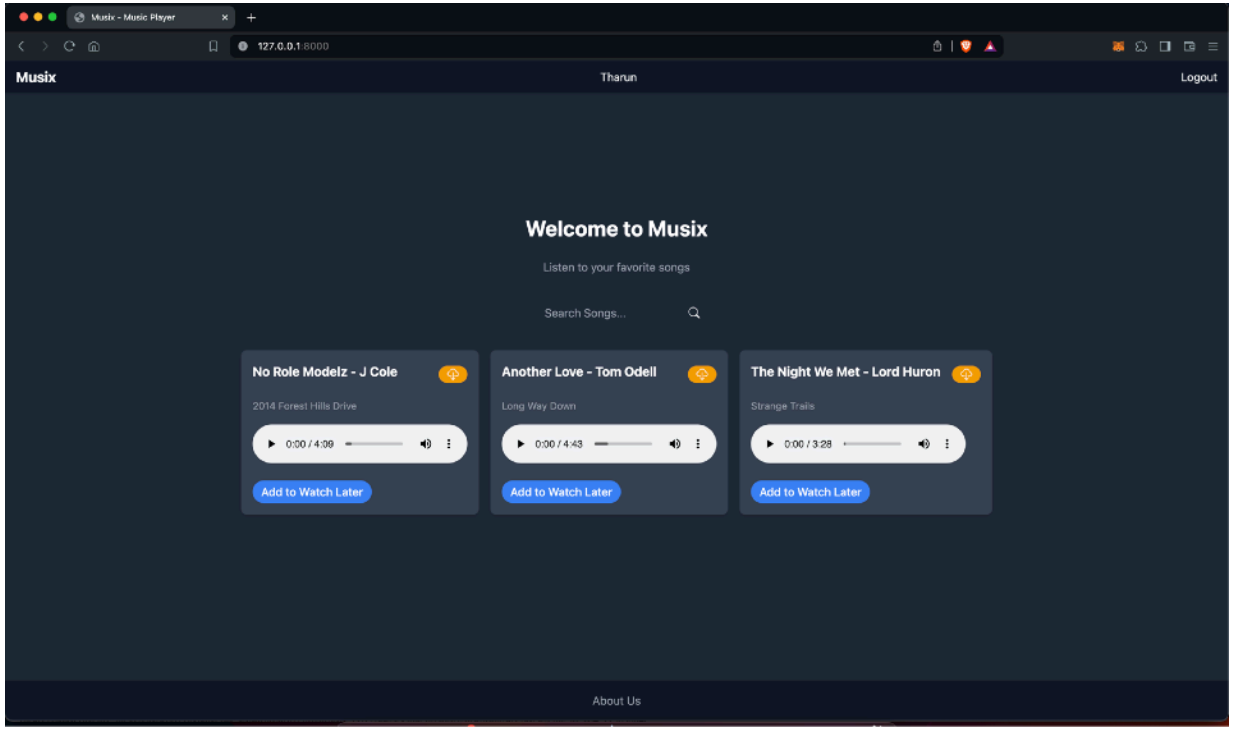
Home-Page



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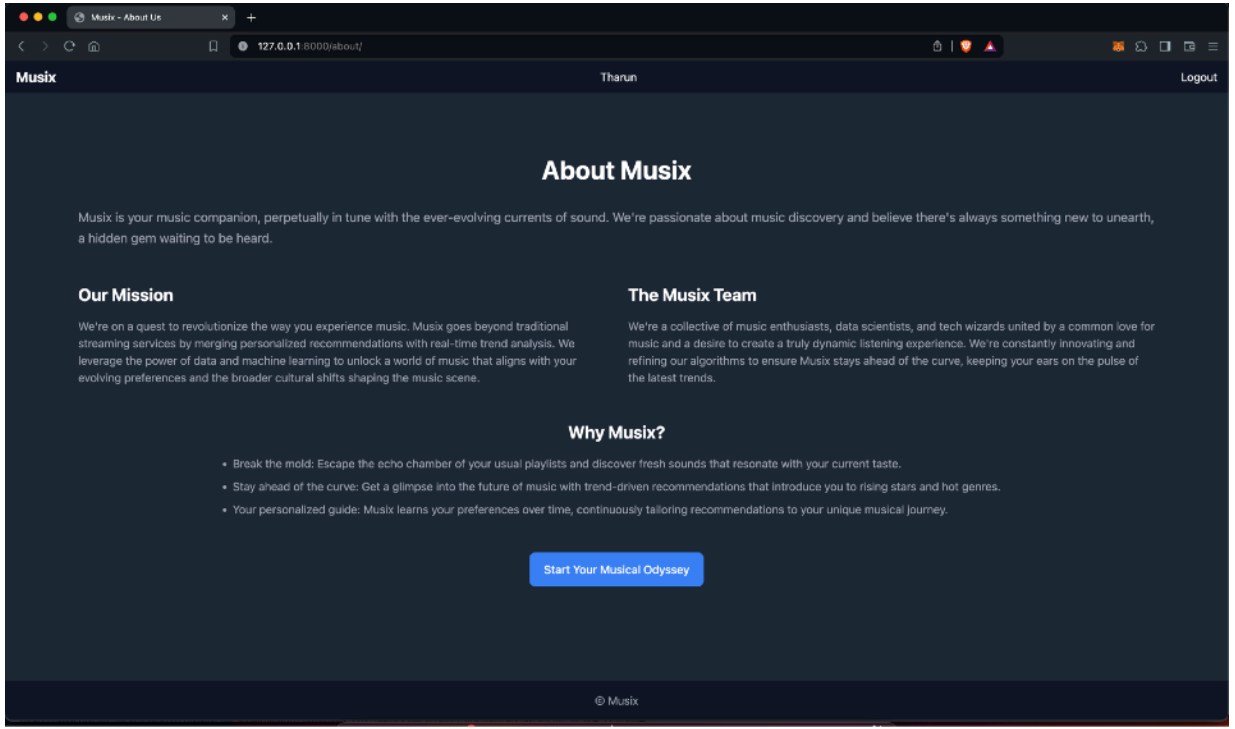
About-Us-Page



Future Enhancements:

Musix Feature Breakdown:

Song Uploads:

Enable authenticated users to upload their own songs to Musix, considering storage constraints.

Social Features:

Incorporate social functionalities such as user following, playlist sharing, and visibility into friends' listening activity.

Advanced Playback Features:

Implement advanced playback functionalities including queue management, volume control, and audio seeking within the player.

Song Recommendations:

Develop a recommendation system suggesting songs based on user listening history or preferences, employing techniques like collaborative filtering or content-based filtering.

Lyrics Integration:

Display song lyrics alongside the audio player, enabling users to sing along seamlessly.

Mobile App Development:

Create a mobile application for Musix, allowing users to access their music on the go. Development may involve utilizing frameworks like React Native or Flutter.

Genre and Mood Classification:

Integrate music genre and mood classification, enabling users to browse songs by genre or mood. This may entail employing machine learning models trained on music datasets.

Conclusion

Musix is a music streaming platform constructed using Django, offering fundamental features like song playback, downloads, and a watch later list. This project serves as a testament to the effective utilization of a Django back-end for an audio streaming application. Looking ahead, potential enhancements encompass user authentication, playlist creation, search capabilities, and potentially user-generated content (subject to storage and copyright regulations). Musix holds promise in evolving into a feature-rich and personalized music streaming service.

Beyond its core functionalities, Musix aims to address diverse user preferences and cultivate a sense of community. The roadmap envisages the integration of social aspects, enabling users to share playlists, follow friends, and explore new music collaboratively. Additionally, advanced music analysis could facilitate genre and mood classification, empowering users to tailor their listening experience based on specific atmospheres or styles. Ultimately, Musix endeavors to emerge as a comprehensive music platform seamlessly combining individual enjoyment with the collective power of musical discovery.

Source :

Thank You!