PROJECT REPORT

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TABLE OF CONTENTS

1. Introduction

This document provides a comprehensive overview of *MusicEasy*, an innovative online music streaming platform designed to cater to the needs of music enthusiasts by offering seamless access to a vast music library. *MusicEasy* focuses on user engagement, allowing individuals to not only explore and stream music but also discover new artists and create personalized playlists based on individual music tastes. Through this document, we aim to define the specifications, functionalities, and requirements essential for developing a user-friendly, feature-rich, and scalable music platform.

The primary purpose of this document is to serve as a reference point for all stakeholders, including the development team, project managers, and administrative staff, ensuring a shared understanding of the project's goals, scope, and expectations. This SRS document will guide the development process from initial phases through final deployment, helping to maintain alignment between technical requirements and user experience goals.

1.1 Purpose

- **Goal**: The primary goal of this document is to outline the functional and non-functional specifications of *MusicEasy*. This includes detailed descriptions of the features and functionalities, user interactions, and backend requirements necessary to deliver a seamless music streaming experience.
- **Objectives**:
    - To provide a formal agreement between stakeholders, including developers, project managers, and end-users, by detailing the required specifications and design considerations.
    - To act as a blueprint for the development team, allowing them to understand the expected features, interface designs, and functionalities that *MusicEasy* must support.
    - To support efficient project management by clearly defining objectives, timelines, and key deliverables, ensuring the project is executed within budget and scope.

1.2 Scope

The scope of *MusicEasy* encompasses the development of a web-based music streaming platform that aims to offer an engaging user experience across various devices. The applicatio is intended for music enthusiasts of all backgrounds, allowing them to explore a diverse catalo of music genres, create personalized playlists, follow favorite artists, and receive tailored music recommendations. In addition to user-centric features, the platform will incorporate admin functionalities for managing music content, user accounts, and updates to the music library.

- **Primary Features**:
    - **User-Friendly Website**: *MusicEasy* will be built with a focus on usability, enabling users to intuitively browse, search, and play music.

    - **Music Exploration**: Users will have access to curated playlists, personalized recommendations, and options to discover new music by genre, mood, or popularity.
    - **Playlist Management**: Users can create, customize, and share playlists, providing a highly personalized music experience.
    - **Personalized Recommendations**: Based on users' listening patterns and preferences, *MusicEasy* will utilize recommendation algorithms to suggest songs and artists that align with individual tastes.
- **Admin Controls**:
    - **Content Management**: Admins will have access to tools for managing the music library, allowing them to update song lists, artist information, and genre classifications.
    - **User Management**: Administrative tools will enable admins to manage user accounts, including privileges, account suspensions, and monitoring for content-related issues.
    - **Analytics and Reporting**: Admins will be able to access analytics related to user engagement, music trends, and website performance, providing insights that inform content decisions and user experience improvements.

1.3 Definitions, Acronyms, and Abbreviations

This section introduces essential terms and acronyms used throughout this document, which will aid in understanding the specific technical requirements and functionalities of the project.

- **SRS**: Software Requirement Specification - A document detailing the requirements and expectations for the development of the *MusicEasy* project.
- **UI**: User Interface - The part of the application that users interact with, including web pages, buttons, menus, and other elements.
- **API**: Application Programming Interface - A set of protocols and tools for building and integrating application software. *MusicEasy* will use APIs to connect to external services like payment gateways and recommendation engines.
- **DFD**: Data Flow Diagram - A visual representation that outlines the flow of information within the system, from user input to data processing and output.
- **UX**: User Experience - Encompasses the overall experience a user has when interacting with the platform, including ease of use, design, and functionality.

1.4 Overview

The *MusicEasy* platform is being designed with a central focus on user engagement, usability, and personalization. The core objective is to make music streaming accessible, enjoyable, and interactive, creating an ecosystem that appeals to both casual listeners and dedicated music aficionados. This section provides an overview of *MusicEasy*'s primary purpose, intended user base, and main objectives.

- **Primary Purpose**:

- The primary objective of *MusicEasy* is to simplify music access for users while creating an engaging, feature-rich experience. It serves as an online hub where users can discover music across various genres, explore curated playlists, and follow trending songs or artists.
- *MusicEasy* aims to bridge the gap between traditional music listening and modern streaming by offering an accessible platform with real-time recommendations, playlist management, and social sharing features.

- **User Interface**:
  - The UI will be designed to provide a smooth and intuitive experience, allowing users to quickly search, explore, and play music. Special attention will be given to responsive design, ensuring seamless access across desktops, tablets, and mobile devices.
  - The design will focus on easy navigation, minimalistic layouts, and interactive elements, creating an experience that is both visually appealing and functionally efficient.

- **Objectives and Vision**:
  - *MusicEasy* envisions becoming a go-to platform for music discovery, encouraging users to explore new music and connect with artists across various genres and styles.
  - The project aims to harness the power of data analytics and recommendation algorithms to curate a personalized experience, adapting to users' unique preferences and engagement patterns.

1.4.1 Target Audience

- **End Users**:
  - Music enthusiasts of all ages, including casual listeners, students, professionals, and anyone interested in streaming or discovering music.
  - Users who seek a personalized and interactive experience, such as playlist creation, music sharing, and receiving tailored song recommendations.

- **Administrative Users**:
  - *MusicEasy* administrators, who are responsible for maintaining the platform, managing content, monitoring user accounts, and ensuring compliance with industry regulations.

1.4.2 Platform Goals and Key Benefits

- **Goals**:
  - To offer a highly accessible and user-friendly platform that encourages music exploration and discovery.
  - To enable users to manage personal playlists, access real-time recommendations, and enjoy an ad-free experience (for premium users).

- To build a secure and scalable system that supports a growing user base and an expanding music library.

- **Key Benefits**:
  - **Convenience**: Easy-to-use interface with advanced search filters and recommendations that enhance music discovery.
  - **Personalization**: Tailored music recommendations that evolve based on users' listening habits and preferences.
  - **Community Engagement**: Playlist sharing and following options that allow users to connect over shared music tastes.
  - **Scalability**: A robust backend that supports high traffic volumes and frequent content updates, ensuring a reliable and consistent user experience.

1.5 Document Organization

This document is structured to provide a logical flow of information, from high-level project goals and scope to detailed functional and technical requirements.

1. **Introduction**: Outlines the purpose, scope, and objectives of *MusicEasy*, establishing the project's goals and providing context for the development team and stakeholders.
2. **General Description**: Provides an overview of the system, including user personas, product perspectives, and assumptions that may impact the project.
3. **Specific Requirements**: Details the functional and non-functional requirements for the system, covering aspects such as user registration, music exploration, playlist management, and admin controls.
4. **External Interface Requirements**: Describes interfaces with external systems, including hardware, software, and communication protocols necessary for the system's operation.
5. **Performance Requirements**: Outlines the expected performance metrics, including load times, uptime, and response rates for critical system functions.
6. **Design Constraints**: Specifies any limitations or constraints on the design, such as accessibility requirements, regulatory compliance, and scalability.
7. **Appendices**: Includes additional information such as glossary terms, acronyms, and references to supporting documents.

2. General Description

2.1 Product Perspective

MusicEasy is designed as a comprehensive, standalone web-based music streaming service that is accessible on multiple devices, including desktops, tablets, and smartphones. This cross-platform functionality ensures a seamless music experience for users regardless of their preferred device, offering them flexibility to enjoy music anywhere, at any time. The platform's core objective is to provide a high-quality, personalized user experience, allowing users to

easily discover, stream, and enjoy music from a vast library across different genres. It will also provide tools for managing playlists, favoriting tracks, and exploring artist profiles.

Unlike traditional music download services, *MusicEasy* focuses on streaming as its core feature. By offering streaming, users can instantly access and enjoy music without the need to download files, which significantly enhances convenience and minimizes concerns about device storage. This feature also facilitates real-time music access, as users are not restricted by the storage limitations of their devices.

Additionally, *MusicEasy* will incorporate integration with social media platforms, allowing users to share their favorite tracks and playlists with their friends and followers. The platform will als offer real-time notifications for new releases and updates, keeping users engaged with the latest trends and music from their favorite artists. Personalized music recommendations will be a core feature of the platform, leveraging algorithms to suggest new songs, albums, and artists based on individual listening preferences and behaviors.

2.2 Product Functions

The *MusicEasy* website will be equipped with a variety of functions to enhance user engagement and provide a rich, interactive music streaming experience. Key functions will include:

- **Music Search and Discovery**: Users can search for their favorite songs, albums, or artists. They can also explore music through different discovery modes, including trending tracks, genre-based suggestions, and curated playlists. A smart search feature will allow users to find music easily by typing keywords, genres, or even song lyrics.
- **Personalized Recommendations**: *MusicEasy* will feature intelligent algorithms that track user activity, including songs listened to, time spent on particular genres, and favorite tracks. Based on this data, the platform will generate tailored recommendations for users, making it easier to discover new music that aligns with their tastes and listening habits.
- **Playlist Management**: Users will have the ability to create, customize, and share playlists with others. Playlists can be public or private, allowing users to either share them with the community or keep them personal. They can add, remove, reorder songs, and organize playlists based on mood, genre, or personal preference.
- **User Registration and Authentication**: *MusicEasy* will provide a secure registration and login process for users, ensuring that they can access personalized features, including saved playlists, listening history, and account settings. This will involve basic authentication options, such as email and password, or integration with third-party login systems (Google, Facebook, etc.).
- **Audio Quality Settings**: The platform will offer audio quality options that users can adjust based on their preferences and network conditions. For instance, mobile users may choose a lower audio quality to save data, while users with strong internet connections (Wi-Fi) can opt for higher-quality streaming.
- **Administrative Tools**: Administrators will have the ability to manage the platform’s content and user base. Admin features will include tools for updating the music library, adding new releases, managing artist profiles, and monitoring platform analytics.

Admins will also have the authority to manage user accounts, handle content moderation, and ensure compliance with regulations.

2.3 User Characteristics

The *MusicEasy* platform is designed to serve multiple types of users, each with distinct needs and interactions with the system. The key user groups are:

- **Listeners**: This includes both casual and avid music listeners who seek a simple and efficient platform for discovering, playing, and organizing music. Listeners can access all features such as music streaming, playlist creation, and personalized recommendations. They may also follow artists and share music with others on social platforms.
- **Artists and Music Creators**: Musicians, bands, and other music creators who want to upload, promote, and distribute their work to a wider audience. This group will be able to manage their artist profiles, upload their songs and albums, and monitor the performance of their tracks through insights provided by the platform.
- **Admin Staff**: The platform administrators are responsible for maintaining the overall operation of the system, including managing user accounts, moderating content, and ensuring that the website's functions are working smoothly. Admins will also oversee compliance with licensing and copyright regulations, as well as managing backend data such as user engagement and platform performance.
- **Guests**: Non-registered visitors to the website will be able to preview a limited selection of music and browse artist profiles. Registration will be required to access advanced features such as playlist creation, personalized recommendations, and the ability to save favorite tracks.

2.4 General Constraints

Several constraints must be considered during the development and operation of *MusicEasy* to ensure the platform operates efficiently and within legal and technical boundaries:

- **Budget and Timeline**: The platform must be developed within an allocated budget and timeline, with careful planning to ensure resource allocation is effective. The project will prioritize core features first, while additional features and enhancements can be added in future iterations.
- **Copyright and Licensing**: The platform must adhere to international copyright laws and licensing agreements. All music content provided on *MusicEasy* will be legally licensed, ensuring that artists and creators receive fair compensation for their work. *MusicEasy* will need to collaborate with record labels, independent artists, and content aggregators to secure the necessary rights.
- **Data Privacy**: The platform must comply with global data privacy regulations, such as GDPR in Europe or CCPA in California, to protect user data and ensure that personal information is handled securely. This includes ensuring that user data is encrypted during transmission and that appropriate data storage and management practices are followed.

- **Scalability**: The platform must be scalable to accommodate increasing numbers of users and content. As user traffic grows, the platform will need to handle larger music libraries, more user accounts, and potentially higher streaming demands without sacrificing performance or reliability.

2.5 Assumptions and Dependencies

Several assumptions and dependencies must be considered for the successful development and operation of *MusicEasy*:

- **Assumptions**:
  - Users will have access to a stable internet connection, which is necessary to stream music effectively.
  - Users are familiar with basic web applications and are comfortable with online music streaming services.
  - A critical assumption is that users will be willing to register for an account to access personalized features such as playlists, recommendations, and saved preferences.
- **Dependencies**:
  - *MusicEasy* will rely on third-party services for secure payment processing, especially if there is a premium subscription model.
  - Content licensing agreements are a dependency, as the platform will need rights to stream music legally.
  - Integration with social media platforms (e.g., Facebook, Twitter) will be essential to enable content sharing and engagement with users outside of the platform.
  - The platform’s performance will depend on reliable cloud hosting services to support large-scale user engagement and ensure high availability and uptime.

2. General Description

2.1 Product Perspective

The *MusicEasy* website is designed as a robust, web-based music streaming platform aimed at providing an immersive, user-centric music experience. Unlike traditional music download platforms, *MusicEasy* will focus entirely on providing high-quality streaming services, allowing users to access music instantly without the need to download files. This approach not only saves users' device storage space but also facilitates a seamless listening experience across devices without the need for large music files to be downloaded onto their devices. The platform will support a variety of devices, including desktops, tablets, and smartphones, ensuring that users can enjoy their music on the go or at home, depending on their convenience.

The design philosophy of *MusicEasy* emphasizes accessibility, ease of use, and personalization. The platform will incorporate a high-quality music library that spans multiple

genres, artists, and albums, with an advanced music recommendation system powered by algorithms that learn from user behavior. Users will be able to explore music based on genre, mood, and recommendations tailored to their listening history.

Streaming vs. Downloading

While downloading has been a key feature in many music services, *MusicEasy*'s focus on streaming marks a shift toward a more flexible, real-time experience. Users will no longer be constrained by storage limits and can access a vast array of music without worrying about having enough space. Streaming technology allows *MusicEasy* to offer a vast library of tracks without burdening the user with the necessity to download or manage individual files.

For instance, users who enjoy listening to a variety of genres or want access to the latest releases can stream their favorite songs instantly, while those who prefer offline listening can take advantage of features such as caching music locally for short periods (i.e., downloading for temporary offline listening). This flexibility offers users the best of both worlds.

Cross-Platform Support

The *MusicEasy* platform will be accessible across a range of devices, ensuring that users can easily transition between desktop, tablet, and smartphone experiences. The website will be designed with responsive web design principles to ensure optimal user experiences regardless of screen size or device capabilities. For example, desktop users may benefit from enhanced features like a larger music library display and more detailed artist profiles, while mobile users may have access to features tailored for convenience on the go, such as a simplified playlist interface or data-saving options.

By supporting both mobile and desktop platforms, *MusicEasy* will ensure that it reaches users at every point in their daily lives, whether they are at work, at home, or on the move.

2.2 Product Functions

The *MusicEasy* platform is equipped with a rich set of features aimed at delivering an immersive and engaging music experience for a diverse audience. These features not only enable users t listen to and manage their music but also facilitate social interaction, discovery, and personalization.

Music Search and Discovery

One of the cornerstone features of *MusicEasy* is its powerful search engine. The search functionality will allow users to easily find their favorite songs, albums, artists, or tracks by typing relevant keywords. Additionally, the platform will offer discovery options that help users explore new content based on their musical tastes and listening habits. Whether it's through trending charts, genre-based recommendations, or curated playlists, users will be able to find music they might not have initially sought out but will enjoy nonetheless.

Music discovery will also be enhanced through collaborative filtering and machine learning techniques, which allow the platform to make intelligent suggestions based on user preferences, play history, and music interactions. These suggestions will not only include individual songs but also curated playlists, user-generated content, and new releases that align with the user's unique musical preferences.

Personalized Recommendations

The core of *MusicEasy*'s recommendation system lies in its ability to adapt to each user's tastes. By tracking the music a user listens to, the platform will continuously refine its suggestions, providing personalized recommendations for albums, songs, and playlists. The more a user interacts with the system—by playing songs, creating playlists, or liking tracks—th smarter the platform will become at offering them the music they will enjoy.

Additionally, the system will recommend new and emerging artists based on the user's listenir history, promoting music discovery and supporting independent and lesser-known musicians. These recommendations could be generated using both collaborative filtering (i.e., similar users with similar tastes) and content-based filtering (i.e., songs with similar attributes such as genre, tempo, or mood).

Playlist Management

Playlists are at the heart of *MusicEasy*'s user interaction model. Users will be able to create playlists from any song in the library, customize their lists by adding or removing songs, and reorder them as needed. Playlists can be kept private or shared publicly with other users, allowing for social interactions on the platform. Music lovers can share their playlists with friends, follow other users' playlists, and explore new music based on these shared lists.

Users can also create themed playlists—whether based on their favorite genres, moods, or activities—and receive playlist suggestions based on similar themes. This makes the platform highly interactive and adds a social element to the music experience.

Audio Quality Settings

One of the unique features of *MusicEasy* is its ability to allow users to adjust audio quality based on their internet connection. Users can choose lower-quality audio streaming if they are on mobile data or a slower connection, thus saving on data usage. Conversely, users with fast internet connections can opt for high-definition audio streaming to enjoy the best possible listening experience.

This flexible audio setting ensures that the platform is adaptable to various user needs, providing options that optimize both user experience and data consumption.

Administrative Tools

For administrators, *MusicEasy* offers a set of powerful tools to manage the platform's content and user experience. These tools will allow admins to upload new music, manage artist profiles, and ensure that content is kept up to date. Admins will also monitor user activity, ensuring that all interactions are legitimate and that the platform is not misused.

Additionally, administrators will have access to detailed analytics to track engagement metrics such as song plays, user demographics, and peak usage times. This will enable them to make data-driven decisions about platform improvements, promotions, and content curation.

2.3 User Characteristics

The *MusicEasy* platform caters to a wide variety of user groups, each with distinct needs and expectations. Understanding these user characteristics helps ensure that the platform's features are designed to meet the needs of all types of users.

Listeners

The primary user group for *MusicEasy* consists of music listeners—both casual and avid—who are looking for an easy-to-use platform to explore, discover, and organize their music. Casual listeners may use the platform to casually browse through popular tracks and genres, while dedicated music lovers may take advantage of features like playlist curation, artist discovery, and the ability to track listening history.

Artists and Music Creators

Another key user group is artists and music creators who want to showcase their work to a global audience. *MusicEasy* will allow artists to create profiles, upload their music, and gain insights into how their content is performing on the platform. Artists will be able to interact wit fans, share updates, and promote new releases. This opens up opportunities for independent musicians to reach new listeners and gain recognition.

Admin Staff

Admin staff will have full control over the platform’s operation, including managing user accounts, updating music libraries, and monitoring platform performance. Admins will be responsible for ensuring compliance with copyright laws, monitoring content uploads, and addressing any user concerns. Their role is critical to the smooth running of the platform.

Guests

Guests will be able to access some basic functionality on *MusicEasy*, such as browsing through artist profiles and previewing certain tracks, but they will need to register an account to enjoy full features like playlist creation, personal recommendations, and saving favorite tracks.

2.4 General Constraints

The development and operation of *MusicEasy* will be subject to several important constraints that will shape the platform’s capabilities and performance.

Budget and Timeline

The platform must be developed within a specified budget and timeline to ensure that resources are used efficiently. Key milestones will include the completion of the platform’s core features, user testing, and the launch of the service. Future updates and feature expansions will be planned based on user feedback and market demands.

Copyright and Licensing

Given that *MusicEasy* is a music streaming service, copyright and licensing considerations are paramount. The platform will need to enter into agreements with record labels, music publishers, and independent artists to ensure that all music content is legally licensed. These agreements will also dictate the availability of certain tracks and albums on the platform.

Data Privacy

MusicEasy must comply with data privacy regulations, such as GDPR and CCPA, to ensure that user data is handled responsibly and securely. The platform will employ encryption, secure authentication, and regular audits to protect users' personal information and prevent unauthorized access.

2.5 Assumptions and Dependencies

Several assumptions underpin the successful operation of *MusicEasy*, and the platform will depend on several key services and technologies to function optimally.

Assumptions

- Users will have access to reliable internet connections to ensure smooth streaming experiences.
- Users will be willing to register for accounts to take full advantage of personalized features and recommendations.

Dependencies

- *MusicEasy* will depend on third-party services for payment processing, music licensing, and hosting. These dependencies will be managed through contracts and service level agreements (SLAs).
- The platform will also rely on social media integration to enable sharing and interactions, as well as cloud hosting providers for scalability.

3. Specific Requirements

3.1 External Interface Requirements

3.1.1 User Interfaces

Home Page:

- The **Home Page** serves as the user's primary entry point to the platform. This page will feature an intuitive design showcasing key aspects of the platform, such as newly released music, trending songs, and curated playlists. A highly engaging **dynamic banner** will display music recommendations that evolve over time based on the user's interaction history. These recommendations will adapt based on users' previous listening behaviors and preferences, ensuring that they receive personalized content tailored to their tastes. Additionally, users will have the option to manually personalize these recommendations by setting preferences such as preferred **location**, **genre**, or **artists**.
- **Personalized Recommendations** will not only consider listening history but can also adapt to users' mood or daily activity. For instance, if a user typically listens to upbeat music during the day and relaxing tunes at night, the system will automatically adjust recommendations to reflect these preferences. The Home Page can include **featured playlists** curated by expert curators or AI algorithms, ensuring a fresh experience each time the user logs in.

User Dashboard:

- The **User Dashboard** will be the main interface where users interact with their music content. The dashboard will feature a **Recent Activity Section**, displaying the user's most recently played songs, albums, and playlists. This section offers easy access to previously enjoyed content, minimizing the need for repetitive searching.

- In the **Following Updates** section, users will receive real-time updates from artists or users they follow, such as notifications about new song releases or playlist updates. This section will keep users engaged and ensure that they stay updated with their favorite artists or music-related activity.

- **Listening Stats** will give the user an overview of their music consumption habits, such as total listening time, most-played tracks, and the top genres. This feature can be gamified, providing users with badges or rewards based on milestones like "Most Played Artist" or "Top Genre of the Month."

Music Player Interface:

- The **Music Player Interface** will feature intuitive playback controls. In addition to basic controls like play, pause, skip, and volume adjustments, the player will offer advanced features such as **crossfade** for smoother transitions between songs, and **audio effects** like bass boost for enhanced audio experience (exclusive for premium users).

- A **Mini Player** will be available on all pages, allowing users to control music playback without navigating away from their current screen. The mini player can expand to show **full lyrics**, **song details**, and **suggestions for similar tracks**, ensuring an immersive music experience while users browse through different parts of the platform.

Explore Page:

- The **Explore Page** will be a content discovery hub, where users can explore curated playlists by genre, mood, or activity type. The platform will use AI to suggest mood-based playlists (e.g., "Workout Energy," "Chill Vibes," "Focus & Study") and time-based playlists (e.g., "Throwback Thursdays," "Summer Hits").

- Users will also be able to browse by **time period**, offering a nostalgia-driven exploration of past decades like “80s Hits” or “90s Classics.” This section will also include a **Discover Weekly** feature that provides users with new music based on their listening habits. It will encourage users to discover new artists and songs they might not have otherwise encountered.

Artist and Album Pages:

- **Artist Pages** will be highly detailed, showcasing the artist’s biography, discography, and links to their social media accounts. They will also include information about upcoming events, such as live concerts or virtual shows. Additionally, each artist page will feature **related artists**, offering users a gateway to explore similar or up-and-coming talent.

- **Album Pages** will list all the tracks on an album, along with the release date, genre tags, and user reviews or ratings. This gives users a deeper understanding of the album’s context and allows them to engage with the content through reviews and comments.

3.1.2 Hardware Interfaces

Device Compatibility:

- MusicEasy will support playback on a wide range of devices, from desktops to mobile phones, tablets, and wearables. For **Bluetooth speakers** and **smart home systems** like Alexa and Google Home, the platform will provide seamless integration, allowing users to control their music with voice commands or through connected devices.

Wearables and In-Car Systems:

- Integration with **smartwatches** and **car entertainment systems** will offer users convenience and flexibility. For instance, users can play/pause music, skip tracks, or adjust volume directly from their smartwatch or car dashboard.

3.1.3 Software Interfaces

Integration with Social Platforms:

- The platform will allow users to connect their **social media accounts** (Facebook, Instagram, Twitter) directly with their MusicEasy account. This enables users to **share playlists, tracks**, and updates with their followers, encouraging social engagement and word-of-mouth promotion.

Streaming API:

- To ensure optimal performance, the platform will integrate with a **high-performance streaming API** capable of delivering real-time audio playback without buffering. This will allow users to enjoy seamless audio quality, even on fluctuating network connections.

3.1.4 Communications Interfaces

Streaming Protocol:

- The platform will utilize **HLS (HTTP Live Streaming)** to enable adaptive bitrate streaming. This ensures that the audio quality adjusts automatically based on the user's network speed, providing the best possible listening experience regardless of connection type.

Push Notifications:

- **Push notifications** will be used for alerts about new releases, updates from followed artists, and personalized recommendations. This will help keep users engaged and encourage them to return regularly to the platform.

3.2 Functional Requirements

3.2.1 User Registration and Authentication

Account Creation:

- Users will be able to sign up quickly using **social logins** like Google, Facebook, and Apple, streamlining the account creation process. Once registered, users can customize their **profiles** with a display name, avatar, and privacy settings.

Two-Factor Authentication (2FA):

- For enhanced security, users will have the option to enable **two-factor authentication (2FA)**. This adds an extra layer of protection by requiring users to verify their identity vi email or SMS.

3.2.2 Music Exploration and Search

Advanced Search Filters:

- Users can **filter search results** based on song duration, release date, genre, and artist popularity. This powerful search functionality will help users find specific songs, albums, or artists more efficiently.

Voice Search:

- Integration with **voice search** will enable users to find music without touching their device. This feature will be particularly useful for mobile users or those with smart speakers.

3.2.3 Playlist Creation and Management

Collaborative Playlists:

- Users will be able to create **collaborative playlists**, allowing multiple users to add, remove, and comment on tracks. This feature will enhance social interaction and make the platform more engaging.

Smart Playlists:

- The **Smart Playlist** feature will allow playlists to update automatically based on user-defined criteria, such as genre, release date, or even mood. This ensures the playlist remains fresh and relevant.

Playlist Folders:

- Users can organize their playlists into **folders** for better management, especially as their library grows. Folders can be categorized by activity, genre, or mood.

3.2.4 Music Playback and Controls

Offline Downloading:

- Premium users will have the ability to download tracks for offline listening. These downloads will be protected with **Digital Rights Management (DRM)** to prevent unauthorized sharing and copying.

Custom Equalizer Settings:

- Users can adjust the **equalizer settings** (bass, treble, etc.) to personalize their listening experience. Preset options like "Rock," "Jazz," and "Classical" will be available, or users can create their own custom settings.

Lyrics Display:

- A real-time **lyrics display** feature will allow users to follow along with the song lyrics. For users interested in singing along, the platform will offer a **karaoke mode**.

3.2.5 Admin Tools

Music Content Management:

- Admins will have a **music content management system** to upload, categorize, and ed metadata for songs, albums, and artist profiles. This will allow for seamless updates to the platform’s music library.

Analytics and Reporting:

- Admins will have access to **analytics tools** for tracking user engagement, music trends and financial performance. These insights will help drive decisions related to content and marketing.

3.2.6 Subscription and Payment Management

Subscription Plans:

- MusicEasy will offer a **free and premium subscription**. Premium users will enjoy additional features such as **ad-free streaming**, **offline downloads**, and **high-quality audio**.

Payment Processing:

- The platform will integrate secure payment systems like **Stripe** and **PayPal** to handle subscription payments and ensure users' data is kept secure.

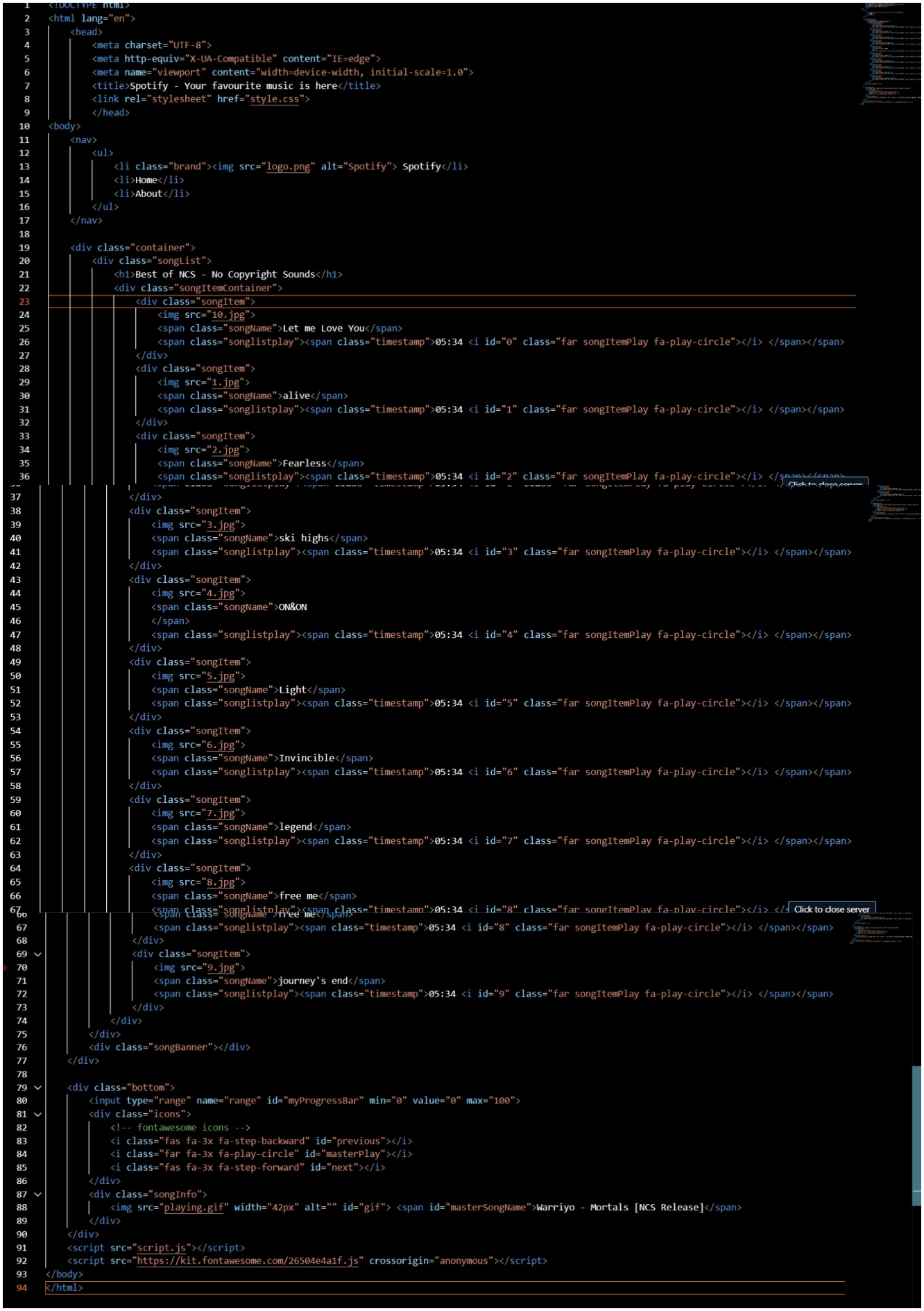
3.3 Non-Functional Requirements

3.3.1 Performance

- The platform must be highly responsive, loading pages in **under 2 seconds** and starting audio playback in **under 1 second**.

3.3.2 Reliability

- **Error logging** and **backup systems** will be



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            <li>Home</li>
            <li>About</li>
        </ul>
    </nav>

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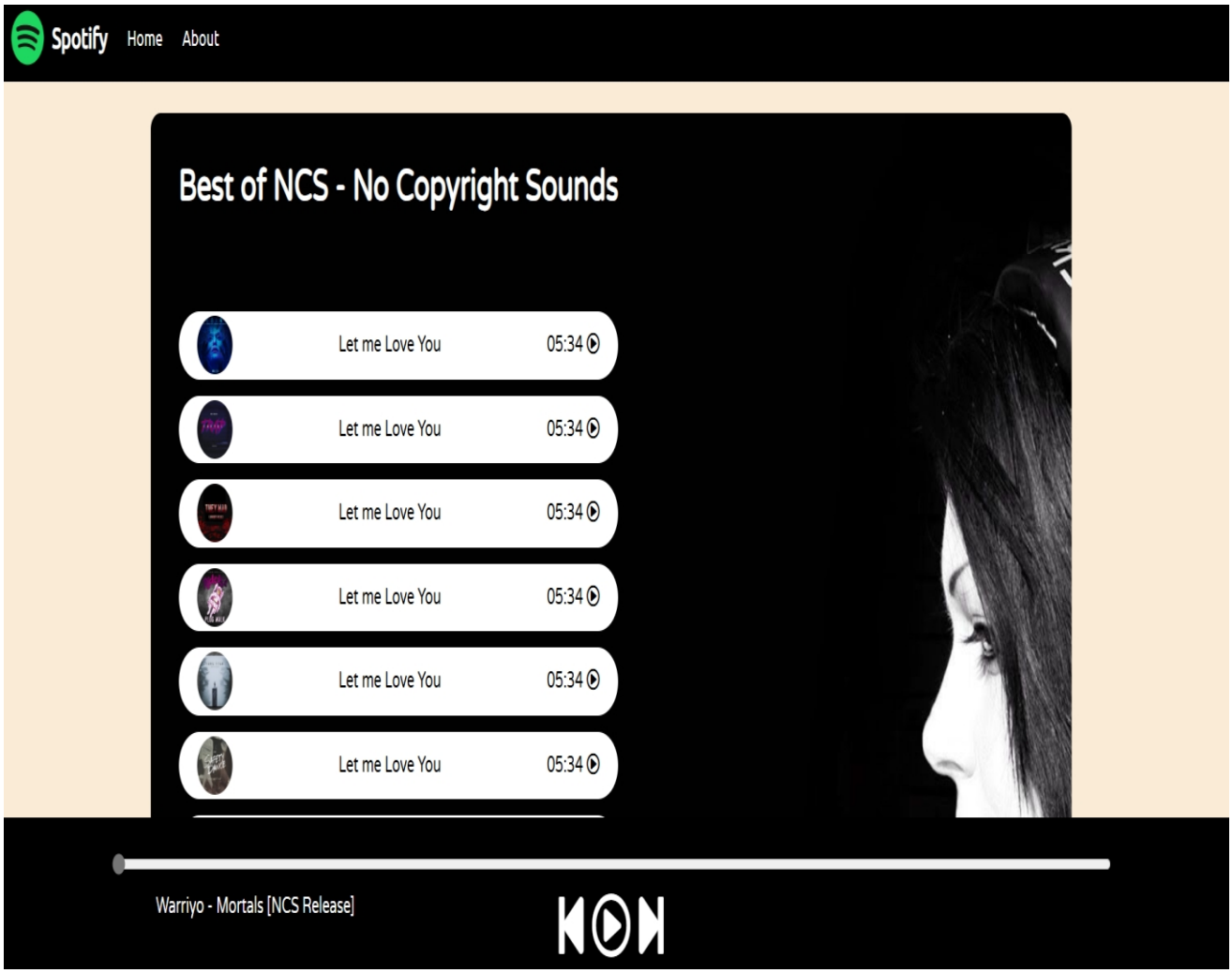
                    <img src="10.jpg">
                    <span class="songName">Let me Love You</span>
                    <span class="songlistplay"><span class="timestamp">05:34 <i id="0" class="far songItemPlay fa-play-circle"></i> </span></span>
                </div>
                <div class="songItem">
                    <img src="1.jpg">
                    <span class="songName">alive</span>
                    <span class="songlistplay"><span class="timestamp">05:34 <i id="1" class="far songItemPlay fa-play-circle"></i> </span></span>
                </div>
                <div class="songItem">
                    <img src="2.jpg">
                    <span class="songName">Fearless</span>
                    <span class="songlistplay"><span class="timestamp">05:34 <i id="2" class="far songItemPlay fa-play-circle"></i> </span></span>
                </div>
                <div class="songItem">
                    <img src="3.jpg">
                    <span class="songName">ski highs</span>
                    <span class="songlistplay"><span class="timestamp">05:34 <i id="3" class="far songItemPlay fa-play-circle"></i> </span></span>
                </div>
                <div class="songItem">
                    <img src="4.jpg">
                    <span class="songName">ON&ON
                    </span>
                    <span class="songlistplay"><span class="timestamp">05:34 <i id="4" class="far songItemPlay fa-play-circle"></i> </span></span>
                </div>
                <div class="songItem">
                    <img src="5.jpg">
                    <span class="songName">Light</span>
                    <span class="songlistplay"><span class="timestamp">05:34 <i id="5" class="far songItemPlay fa-play-circle"></i> </span></span>
                </div>
                <div class="songItem">
                    <img src="6.jpg">
                    <span class="songName">Invincible</span>
                    <span class="songlistplay"><span class="timestamp">05:34 <i id="6" class="far songItemPlay fa-play-circle"></i> </span></span>
                </div>
                <div class="songItem">
                    <img src="7.jpg">
                    <span class="songName">legend</span>
                    <span class="songlistplay"><span class="timestamp">05:34 <i id="7" class="far songItemPlay fa-play-circle"></i> </span></span>
                </div>
                <div class="songItem">
                    <img src="8.jpg">
                    <span class="songName">free me</span>
                    <span class="songlistplay"><span class="timestamp">05:34 <i id="8" class="far songItemPlay fa-play-circle"></i> </span></span>
                </div>
                <div class="songItem">
                    <img src="9.jpg">
                    <span class="songName">journey's end</span>
                    <span class="songlistplay"><span class="timestamp">05:34 <i id="9" class="far songItemPlay fa-play-circle"></i> </span></span>
                </div>
            </div>
        </div>
        <div class="songBanner"></div>
    </div>

    <div class="bottom">
        <input type="range" name="range" id="myProgressBar" min="0" value="0" max="100">
        <div class="icons">
            <!-- fontawesome icons -->
            <i class="fas fa-3x fa-step-backward" id="previous"></i>
            <i class="far fa-3x fa-play-circle" id="masterPlay"></i>
            <i class="fas fa-3x fa-step-forward" id="next"></i>
        </div>
        <div class="songInfo">
            <img src="playing.gif" width="42px" alt="" id="gif"> <span id="masterSongName">Warriyo - Mortals [NCS Release]</span>
        </div>
    </div>
    <script src="script.js"></script>
    <script src="https://kit.fontawesome.com/26504e4a1f.js" crossorigin="anonymous"></script>
</body>
</html>
```


Spotify
Home
About
Best of NCS - No Copyright Sounds
Let me Love You 05:34
Let me Love You 05:34
Let me Love You 05:34
Let me Love You 05:34
Let me Love You 05:34
Let me Love You 05:34
Warriyo - Mortals [NCS Release]