



A social media platform for music lovers to connect and interact!

INTRODUCTION





Music plays a significant role in our daily lives. There are many platforms for streaming music like Spotify, Wynk, etc. but there are no dedicated social media platforms for users to connect and share music with each other. The main objective of the proposed social platform is to fulfill the very same purpose and access a wide range of other features. It will be integrated with Spotify, enabling users to stream music in real-time while also syncing their user profile information. Spotify was chosen as it is the world's most popular audio streaming subscription service with more than 500 million users.

The web-based social platform being proposed will heavily rely on data provided by Spotify, such as user profile information and music streaming capabilities. In addition to this, it will incorporate AI-based features like recommendation systems, tagline generator and voice bot to enhance the user experience. The main target audience for this project is young adults who make up a significant portion of the user base on the music streaming platform, Spotify.

PROJECT PLANS

Project Plan for Rewind:

- Timeline:
 - 20 Days: Project planning, feasibility study
 - 20 Days: Systems and requirements analysis
 - 20 Days: Design and Development of the Platform
 - 5 Days: Testing and Deployment

- Milestones:
 - Completion of Project planning, feasibility study (As planned )
 - Completion of Systems and requirements analysis (As planned )
 - Completion of Design and Development of the Platform (As planned )
 - Completion of Testing and Deployment (As planned )
- Deliverables:
 - Detailed Feasibility Report: Submitted
 - Requirements elicitation and Development Plan: Done
 - Developed and Tested Platform: Done
 - Deployed the Social Platform: Done

REQUIREMENTS

Through brainstorming sessions done by team members and the overwhelming response we got through the google form survey we understood user requirements better and were able to decide on the following requirement specifications.

Project Requirements:

1. Integration with Spotify: The social platform should be able to connect with Spotify to provide real-time music streaming capabilities.
2. User Profile Information: The platform should be able to retrieve user profile information from Spotify and sync it with the social platform.
3. AI-based Features: The platform should incorporate AI-based features like voice bot and tagline generator to enhance the user experience.
4. User-Friendly Interface: The platform should have an intuitive and easy-to-use interface to encourage user engagement.
5. Compatibility: The platform should be compatible with a wide range of devices and browsers.
6. Security: The platform should be secure and protect user data from unauthorized access.

Changes to the Requirements:

During the project, there were some changes to the initial requirements. For example, the team decided to add an additional feature to the platform where users can dedicate songs to each other, which was not initially included in the requirements.

This change was made after research showed that the feature would be beneficial as it will increase user engagement in the platform. All changes were made to ensure that the platform met the evolving needs of users.

DESIGN

Software Design:

The software design for the social platform was carefully crafted to ensure that it met the project requirements while also providing an excellent user experience. The design included a robust core backend server, a separate server for AI, a scalable database, and an intuitive front-end user interface working on a client server.

Architecture:

The architecture of the social platform was designed with scalability in mind. The core server was responsible for handling the majority of the workload, while the Flask server was used for handling specific tasks or features related to AI. The client-side server was responsible for handling the user interface and client-side logic. The use of three servers allowed for better load balancing and improved performance.

Technology Choices:

The technology choices for the social platform were made after careful consideration of several factors, including scalability, performance, security, and user experience. Here are some of the technology choices that were made:

1. **Core Server:** The backend system was built using TypeScript which extends JavaScript and improves the developer experience. It enables developers to add type safety to their projects. Moreover, TypeScript provides various other features, like interfaces, type aliases, abstract classes, function overloading, tuple, generics, etc.

2. **AI Server:** The AI server was built using Python and the Flask web framework, which are popular choices for building web applications. Flask was chosen for its simplicity and flexibility, which made it ideal for handling specific tasks related to AI.
3. **Client Server:** The user interface was designed using Next.js, a React framework that gives you building blocks to create web applications. Next.js was chosen as it can handle the tooling and configuration needed for React, and provides additional structure, features, and optimizations for your application.

Design Decisions:

The design decisions for the social platform were made after careful consideration of several factors, including performance and user experience. The team also considered the project requirements, budget, and timeline when making design decisions.

IMPLEMENTATION

During the development of our social media platform, we utilized the Feature Driven Development (FDD) methodology, which allowed for flexibility and adaptability throughout the project's lifecycle. The coding, testing, and debugging were iterative processes that occurred throughout the project's lifecycle.

In the coding phase, we implemented the features in the backend, along with all necessary database relations and API endpoints for the client server. We used the tool POSTMAN to test and document the endpoints and functionality. Alongside the backend development, we started developing the frontend for the same functionality. After both functionalities were developed, we connected them through APIs. One important task that we accomplished was understanding what data to provide through the API and optimizing the code. We implemented the features in small, manageable chunks, which allowed us to ensure that each feature worked correctly before moving on to the next one. We also adhered to industry best practices and coding standards, such as commenting the code, using meaningful variable names, and ensuring code readability.

Testing was also an essential part of our software development process. We tested the software with various test cases, which included testing the software under different conditions and scenarios, testing for edge cases, and testing for scalability. Since we have a social media app, we could log in through multiple accounts and see how the changes were

reflected for all users. We also made sure to automate our testing as much as possible and integrated the testing into our CI/CD workflow, which helped to identify and resolve issues more efficiently. We tested each feature thoroughly to ensure the software was of high quality and met the needs of its users.

Debugging was a crucial aspect of our software development process, as it allowed us to identify and fix errors and bugs in our software. We made sure to debug the software regularly to ensure that it was functioning correctly and met the needs of our users. As we hosted our server on our private IP address, we were able to identify and fix any issues quickly.

Lastly, we also made sure to prioritize security throughout the software development process. We implemented various security measures, such as encryption, authentication, and access control, to ensure that our users' data was secure and protected from potential threats. Overall, the software development process for our social media platform involved multiple stages, including coding, testing, and debugging. We ensured that we followed best practices, optimized the code, and thoroughly tested the software to ensure it was of high quality and met the needs of our users.

During the implementation process, the team faced several challenges, including performance issues and bugs in the code. These issues were resolved through various methods.

Challenges:

One of the main challenges faced during implementation was ensuring the scalability and performance of the software. The team resolved this issue by adopting a three-server architecture that allowed for better load balancing and improved performance.

Another challenge was debugging and resolving issues related to AI capabilities. The team resolved this issue by conducting rigorous testing and debugging to identify and fix any issues. The team had to conduct an extensive study on prompt engineering to fetch required details. Also, various errors which had been expected during the testing were efficiently resolved through error handling measures.

Overall, the implementation process was successful, and the team was able to deliver a high-quality social platform that met the requirements and provided an excellent user experience.

RESULTS

The social platform project was a success, meeting the original goals and objectives set by the team. The following are some of the key results of the project:

1. Performance Measures: The platform was able to handle traffic without any significant performance issues, thanks to the use of a three-server architecture. The platform was also able to provide a seamless experience.
2. User Feedback: User feedback for the platform was overwhelmingly positive, with users praising the platform for its ease of use, music streaming capabilities for Spotify premium users, and AI-based voice bot. Users also appreciated the social features of the platform, including the ability to connect with other users and discover new people.
3. Goals and Objectives: The project met its original goals and objectives, which were to create a social platform that leverages Spotify's data and provides real-time music streaming and AI-based voice bot.

CONCLUSION

In conclusion, the social platform project was a success, meeting the original goals and objectives set by the team. The platform was distributed among few users and received overwhelmingly positive feedback from them. The project's success can be attributed to the team's commitment to a rigorous development process, including testing, debugging, and continuous improvement, as well as the use of cutting-edge technologies and software design.

REFERENCES

Survey form -

https://drive.google.com/file/d/1YL019Cc3GDmtPGTq8PhE3B-YZyQTiQHO/view?usp=share_link

Prototype -

<https://framer.com/projects/rewind--zGww1RNL9zi2EvBMaFvA-f30rS?node=b2PWT79TK>

Full Demo -

https://drive.google.com/file/d/1fG7VgfZv1AXZhIUMfjal32-VR7jZrWid/view?usp=share_link