

Project Proposal: Advanced Functionality - Real-Time Chatroom and User Swapping Feature

1. Project Overview

For our project's advanced functionality, we plan to implement a key feature: a real-time chatroom system. This feature will enhance user engagement by allowing users to connect and communicate based on mutual interest in learning each other's skills. This feature will create a dynamic and interactive platform where users can seamlessly start real-time conversations.

2. Functionality and Design

Chatroom Feature:

- Chatroom Overview Page: Each user will have a dedicated page where they can see all their active chatrooms with other users. The chatrooms will be organized based on ongoing conversations, allowing users to easily navigate to any specific chat.
- Individual Chatroom View: When a user selects a chatroom, they will be able to view the entire conversation history. Messages will be ordered chronologically, with the newest messages appearing at the bottom.
- User Profile Integration: In each chat, users will be able to see whom they are talking to. By clicking on the other user's name, they will be directed to that user's profile page for more information.
- Message Input: A simple form with a text input box and a send button will be available, allowing users to compose and send messages. Messages will appear instantly within the chat after they are sent.
- Real-Time Messaging: Using Socket.IO, we will establish a WebSocket connection between the frontend and backend, ensuring that messages are delivered and displayed in real-time. Users will be able to communicate instantly without the need to refresh the page.
- Backend Integration: The backend will handle storing, retrieving, and delivering messages in real time. Each chatroom will store its messages in an array, and the backend will provide a paginated message history for large chatrooms to ensure smooth performance.

3. Conclusion

By integrating this advanced feature—real-time chatrooms—we aim to create an engaging, interactive experience that encourages users to connect and collaborate based on shared learning interests.