**PROJECT PROPOSAL**

Real Time Chat App

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1. User Registration and Login: Users will be required to register for the application by providing their basic details like name, email, and password. After registration, users will be able to log in to the application using their registered email and password.
2. Chat Rooms: Users will be able to create or join chat rooms to communicate with other users. Each chat room will have a unique name, and users can join multiple chat rooms at the same time.
3. Socket Programming: The server will use socket programming to create a connection between the client and the server. Each user's client-side application will establish a connection with the server using a socket.
4. Real-time Messaging: Users will be able to send and receive messages in real-time through the chat rooms. The server will receive the message from the client's socket and broadcast it to all the users who are currently in the chat room.
5. End-to-End Encryption: To ensure the privacy and security of the conversations, the chat messages will be encrypted using end-to-end encryption. Only the sender and the receiver of the messages will be able to decrypt the messages using a secret key, which will be generated and shared between them.
6. Notifications: Users will be notified when they receive new messages or when someone joins or leaves the chat room.
7. File Sharing: Users will also be able to share files with other users in the chat rooms. The server will allow users to upload and download files to and from the server.
8. React: The front-end of the application will be built using React, which is a popular JavaScript library for building user interfaces. React will allow us to create a fast and responsive user interface.
9. Socket IO: Socket IO will be used to handle the real-time communication between the client and the server. Socket IO is a library that provides real-time, bidirectional, and event-based communication between the client and the server.

Deployment: The application will be deployed on a cloud server like AWS or Heroku to make it accessible to users from anywhere.

Overall, this Real Time Chat App using React and Socket IO with E2E Encryption will provide a secure and private platform for users to communicate in real-time while also ensuring their data privacy.