Title: SecureChat: End-to-End Encrypted Chat Application with Blockchain Authentication

Abstract:

In an era of increasing digital communication, the need for secure and private messaging platforms is paramount. This project introduces "SecureChat," an advanced end-to-end encrypted chat application designed to prioritize user privacy and data security.

Key Features:

1. **End-to-End Encryption:** SecureChat ensures that messages are encrypted on the sender's device and can only be decrypted on the recipient's device, providing a high level of confidentiality.
2. **Blockchain Authentication:** The application utilizes blockchain technology for user authentication, enhancing security by eliminating centralized vulnerabilities. User identities are securely stored on a decentralized blockchain, reducing the risk of unauthorized access.
3. **Decentralized Storage:** SecureChat employs a decentralized storage mechanism, distributing encrypted message data across a network of nodes. This mitigates the risk of data loss and enhances the overall robustness of the system.
4. **Multi-Platform Compatibility:** The application supports multiple platforms, including web, desktop, and mobile, ensuring a seamless and secure communication experience across devices.
5. **Self-Destructing Messages:** Users can set a timer for messages, causing them to automatically self-destruct after a specified period. This feature enhances the ephemeral nature of communication, reducing the risk of sensitive information exposure.
6. **User-Friendly Interface:** SecureChat offers an intuitive and user-friendly interface, making it accessible to users with varying levels of technical expertise.

This project not only involves advanced programming in Python but also integrates blockchain technology and cryptography to address contemporary challenges in secure communication. By implementing Secu hat, users can enjoy a private and tamper-resistant messaging experience, aligning with the growing demand for secure digital communication Platform