Privacy-Focused Secure Notes App

Abstract

This project focuses on building a secure, privacy-focused notes application with client-side encryption. The application ensures that user data remains private and encrypted before storage, providing an offline-first experience using modern web technologies.

Introduction

The increasing reliance on digital note-taking applications raises privacy concerns, as sensitive information may be stored in plain text or on external servers. To address this issue, we developed a notes application where data is encrypted on the client side using AES encryption. This ensures that user information remains confidential, even if accessed from storage.

Tools Used

- ReactJS (Frontend Framework)
- Vite (Development Environment)
- Tailwind CSS (Styling)
- CryptoJS (AES Encryption Library)
- IndexedDB (Client-side Database)

Steps Involved in Building the Project

1. Initialized a React project with Vite and set up Tailwind CSS for styling.
2. Configured CryptoJS to handle AES-based text encryption and decryption.
3. Implemented IndexedDB to securely store encrypted notes on the client-side.
4. Built CRUD functionalities for creating, reading, updating, and deleting notes.
5. Added search, pinning, and archiving features for efficient note management.
6. Ensured offline-first functionality with persistent data storage.

Conclusion

The Privacy-Focused Secure Notes App successfully demonstrates how encryption and client-side storage can enhance user privacy in note-taking applications. By leveraging modern web tools, the project delivers a lightweight, secure, and offline-capable solution. Future extensions may include optional cloud synchronization with authentication for cross-device access.