



WINTER OF CODE 8.0



ENCRYPTIFY

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Encryptify Project Report

Description :

Encryptify is a secure file storage and management system designed to protect sensitive user data through encryption before it gets uploaded to the server. The system follows a client–server architecture where the backend handles authentication, encryption, file storage, and access control, while the frontend provides an intuitive dashboard for users to manage their files. By combining encryption, JWT authentication, and MFA, the project emphasizes security and user confidentiality for their respective files.

Features Implemented Till Now :

User Authentication & Authorization :

The system supports secure user signup and login using JWT-based authentication. Passwords are hashed before storage, ensuring that no plain-text credentials are ever saved in the database.

Multi-Factor Authentication (MFA):

MFA is implemented using Time-based One-Time Passwords (TOTP). Users can enable MFA, and authentication is validated using OTPs generated via authenticator applications.

Encrypted File Upload:

Users can upload files which are encrypted before being stored on the server. Each file is associated with the authenticated user and stored securely with unique filenames to prevent collisions.

User-Specific File Dashboard:

Logged-in users can view their uploaded files in a dashboard. Files are listed per user, ensuring isolation and data privacy.

MongoDB-Based Storage:

User data and file metadata are stored in MongoDB using well-defined schemas, enabling scalability and structured data management.

Possible Future Improvements:

Activity Log System

Maintain a detailed activity log showing login attempts, successful and failed authentications, file uploads, and downloads for better auditability.

File Sharing with Access Control

Allow users to share files with other users using temporary access links or role-based permissions.

File Preview & Metadata Analysis

Enable secure previews for supported file types and display advanced metadata such as encryption algorithm, checksum, and upload source.

Admin Dashboard

Introduce an admin panel to monitor users, storage usage, and suspicious activities.

Conclusion

The project successfully demonstrates the implementation of a secure file management platform using modern web technologies. Core security principles such as encryption, authentication and authorization have been effectively applied. Encryptify provides a strong foundation for a real-world secure storage system and can be further enhanced with advanced monitoring, sharing, and administrative features in future.