■ BioQR Project Outline

The BioQR project is a secure file-sharing system that integrates biometric authentication with QR code-based file access. It leverages both mobile and web technologies to provide a seamless experience for users.

■ Key Components:

- ■ **Android App**: Built with Java/Kotlin. Handles biometric authentication (fingerprint). After authentication, the user can generate QR codes for file access.
- ■ **Web Application**: Developed using **HTML5, CSS3, JavaScript, and Vite** for the frontend. Provides dashboards for file management, viewing demos, and file downloads.
- ■ **Backend (Node.js + Express)**: Provides APIs for user authentication, file upload/download, QR code generation, and validation.
- ■ **Database (MySQL)**: Stores user details, uploaded files metadata, and QR tokens with expiration times.
- ■ **File Storage**: Uploaded files are stored locally in the server's `uploads/` directory and referenced in the database.

■■ Workflow:

- 1. User registers or logs in via the web or Android app.
- 2. Files are uploaded using the web dashboard and stored on the backend server.
- 3. On the Android app, the user selects a file and duration, then authenticates via fingerprint.
- 4. The server generates a unique, time-limited QR code for that file.
- 5. The QR code can be shared with others, who can scan it to access/download the file.
- 6. The QR token is validated against the database, ensuring it is not expired or reused.

■ Features:

- Biometric authentication for security.
- Time-limited QR codes to prevent misuse.
- Cross-platform: Android app + web app.
- File management (upload, view, download).
- Frontend built using modern tools (HTML5, CSS3, JS, Vite).

■ Future Improvements:

- Cloud storage integration (AWS S3, Google Drive).
- Role-based access control.
- Push notifications when a file is accessed.
- Support for additional biometric methods (face recognition).