

Project Mini: Full Workflow Guide

Tech Stack Review (Finalized)

React Native: [OK] Ideal for cross-platform mobile development.

PlanetScale: [OK] Free MySQL-compatible serverless DB with schema branches.

Flask + SQLAlchemy + MySQL Connection: [OK] Works well with pymysql connector.

React Native Paper: [OK] UI framework following Material Design principles.

Axios: [OK] For RESTful API communication.

AsyncStorage: [OK] Used for secure local storage (e.g., tokens).

Phase 0: Setup (Day 1-2)

- Design ER Diagram and finalize it.
- Convert ERD into SQL schema (tables, FKs, attributes).
- Set up PlanetScale DB via CLI and connect using a secure passwordless connection.
- Scaffold backend and frontend repo structure.

Phase 1: Backend with Flask (Day 3-6)

- Set up virtual environment and install Flask, SQLAlchemy, pymysql, flask-cors, flask-jwt-extended.
- Define SQLAlchemy models for each table.
- Implement RESTful CRUD endpoints.
- Add JWT-based login/register auth.
- Test all routes using Postman or Thunder Client.
- Deploy backend to Render or Railway with environment variables.

Phase 2: React Native Initialization (Day 7-9)

- Initialize React Native project using CLI.
- Install dependencies: axios, @react-navigation/native, react-native-paper, async-storage.

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- Build folder structure with `screens/`, `components/`, `services/`, and `context/` folders.
- Configure navigation and theming with Paper and Navigation.

Phase 3: Core Features (Day 10-16)

- Create CRUD screens for each entity (List, Detail, Create/Edit).
- Integrate Axios services to communicate with Flask API.
- Implement login/register functionality with token storage via AsyncStorage.
- Ensure proper loading, error handling, and validation.
- Use Paper components for all UI elements.

Phase 4: Testing & Polish (Day 17-20)

- Test on emulator and real device.
- Finalize navigation flows and conditional UI (e.g., show/hide if logged in).
- Build signed APK via Gradle for Android release.
- Ensure responsiveness and UX consistency.

Phase 5: Submission (Day 21)

- Final checklist: test flows, ensure error-free experience, verify authentication.
- Submit signed APK/AAB, full source code, and documentation.
- You're done.