**(COP3650) Mobile Application Development – Final Project Guidelines**

Final Project Guidelines for Mobile Application Course

Students will build a complete mobile application using an Expo-managed workflow, incorporating key features such as data handling, real-time communication, and responsive navigation.

Core Requirements

**1. React Native Core & Hooks**

o Use React hooks such as useState, useEffect, and useContext.

o Build custom hooks for reusable logic, like server communication or form handling.

o Make use of Expo APIs to simplify development (e.g., for permissions and media

access).

**2. Navigation with React Navigation Native**

o Set up React Navigation Native to manage nested navigation, including stack and

tab navigators.

o Use a drawer navigator if the application design requires it.

o Structure navigation for easy access and smooth transitions between screens.

**3. File Uploads & Downloads**

o Enable file uploads and downloads using expo-document-picker and expo-file-

system.

o Allow users to select files and view download progress or status within the app.

**4. Server Communication**

o Fetch data from a remote server using the Fetch API or axios.

o Manage loading and error states gracefully to improve user experience.

o Integrate with React Query (optional) for handling frequent server requests and

caching.

**5. Real-Time Data with Socket.IO**

o Implement real-time communication using Socket.IO to support features like

notifications or chat.

o Configure real-time updates so data changes are displayed instantly without

manual refresh.

**6. Form Validation with react-hook-form**

o Use react-hook-form to build and manage forms, applying validation on input

fields.

o Integrate validation messages for real-time feedback on user input errors.

o Customize form fields for easy entry and accessibility.

**7. Local Data Storage with SQLite**

o Use expo-sqlite to store and manage local data, enabling offline access.

o Allow users to save data locally and synchronize with the server when online.

o Implement CRUD functionality for full control over stored data.

**8. Push Notifications with Expo Notifications**

o Configure push notifications using expo-notifications for both foreground and background events.

o Set permissions, handle user interactions, and ensure notifications are

customizable in settings.

**9. File and Picture Handling**

o Integrate expo-image-picker to enable image selection or capture with the device’s

camera.

o Include options for basic editing (e.g., cropping) before upload.

o Manage storage and display of images using expo-file-system.