

Full Stack Mobile Application Development with Advanced React Native

Duration:8 days

Prerequisites: Working Knowledge of React Native and JavaScript

Technologies Used: Node and Express, React Native, Firebase

Day 1: Node.js & Express – REST API Foundations

- **Theory (2.5 hrs):**
 - Node.js architecture, non-blocking I/O
 - RESTful concepts, HTTP methods, Express intro
 - **Hands-on (5.5 hrs):**
 - Create a REST API using Express
 - Setup basic routes (GET, POST)
 - Use middleware, Postman testing
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Day 2: Routing, Middleware, and Stateless Auth

- **Theory (3.0 hrs):**
 - Express Router, middleware, request lifecycle
 - API validation, parsing JSON/form data
 - **Hands-on (5.0 hrs):**
 - Modularize routes (/users, /auth)
 - Implement middleware (logger, validator)
 - Build a basic login/signup flow (no DB)
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Day 3: MongoDB Integration & Secure Authentication

- **Theory (3.0 hrs):**
 - Mongoose schemas, MongoDB Atlas
 - JWT Authentication, CORS, Helmet
 - **Hands-on (5.0 hrs):**
 - Register/login with hashed password
 - Protect /dashboard with token middleware
 - Store users in MongoDB with Mongoose
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Day 4: Advanced Backend Features & Deployment

- **Theory (2.5 hrs):**
 - Pagination, filtering, sorting for mobile APIs
 - Env variables, API versioning, deployment options
- **Hands-on (5.5 hrs):**
 - Filtered tasks endpoint
 - Deploy to Render/Railway
 - Final Backend Project: CRUD + JWT + filtering

Day 5: Firebase for Mobile Integration

- **Theory (3.0 hrs):**
 - Firebase overview (Auth, Firestore, Storage)
 - Firebase Functions, CLI, Hosting
- **Hands-on (5.0 hrs):**
 - Firebase Auth (Email/Password)
 - Firestore CRUD integration with mobile app
 - Upload images, setup Firestore security
 - Deploy a Firebase Cloud Function

Day 6: Advanced React Native – Performance & Memory

- **Theory (2.5 hrs):**
 - Performance bottlenecks, FlatList optimization
 - Memory profiling, Hermes, Flipper
- **Hands-on (5.5 hrs):**
 - Use FastImage, Flipper, optimize re-renders
 - Compare Hermes on/off performance
 - Improve responsiveness in large lists

Day 7: Native Device Features, Animations & Gestures

- **Theory (2.5 hrs):**
 - Reanimated 2, Gesture Handler
 - Device APIs: Camera, GPS, Biometrics, Background tasks
- **Hands-on (5.5 hrs):**
 - Build gesture-based UI
 - Use react-native-keychain, react-native-maps, expo-camera
 - Implement background fetch and permission handling

Day 8: Real-time Features, Notifications & Security

- **Theory (3.0 hrs):**
 - WebSocket vs Firebase real-time
 - Push notifications (FCM), secure storage, CI/CD overview
- **Hands-on (5.0 hrs):**
 - Real-time chat with Firebase/Socket.IO
 - Setup FCM push notifications
 - Secure local data with react-native-encrypted-storage
 - Configure GitHub Actions + OTA updates via CodePush