KOENIG SOLUTIONS · COURSE OUTLINE

Advanced React Native: Reanimated 2 & FCM Push

Learn to optimise React Native app performance and build advanced animations, device integrations, real-time features and secure push notifications.

3 Days	6	33
DURATION	MODULES	TOPICS

COURSE OVERVIEW

This course covers optimising React Native performance, including list rendering, memoization, thread management and profiling with Flipper and Hermes. It then moves into advanced animations with Reanimated 2 and Gesture Handler, and accessing device features such as camera, GPS, biometrics, sensors and background tasks. The final part addresses real-time data strategies using Firebase and WebSockets, push notifications with FCM, secure storage, app hardening and CI/CD deployment practices.

WHO THIS COURSE IS FOR

- **React Native Developers**
- **Mobile App Developers**
- **Front-End Developers**
- **Application Performance Engineers**

PREREQUISITES

- Working Knowledge of React Native

LEARNING OBJECTIVES

- Optimise list rendering with FlatList, SectionList and VirtualizedList
- Apply memoization techniques such as React.memo and useCallback
- Compare JS Thread, UI Thread and Native Thread behaviour
- Profile and debug apps using Flipper and Hermes
- Build fluid animations with Reanimated 2 and Gesture Handler
- Access device features such as camera, GPS and biometrics
- Implement real-time data strategies using Firebase and WebSockets
- Configure push notifications and secure storage for production apps

COURSE SYLLABUS

6 Modules, 33 Topics

DAY 1 App Performance Optimization & Memory Management

01 — 2.5 hours

Theory

TOPICS

- Optimizing FlatList, SectionList, VirtualizedList
- Avoiding unnecessary re-renders (React.memo, useCallback, useMemo)
- JS Thread vs UI Thread vs Native Thread
- Debugging and profiling using Flipper & Hermes
- Memory leaks and garbage collection

02 — 5.5 hours

Hands-on

TOPICS

- Optimize list rendering using memoization
- Use react-native-fast-image for optimized image rendering
- **Profile app using Flipper:** memory, CPU, network
- Compare Hermes on/off performance

DAY 2 Animations, Gestures, and Device Feature Access

03 — 2.5 hours

Theory

TOPICS

- **Advanced Animations:** Reanimated 2 and Gesture Handler
- Building fluid UIs with shared values and animations

ACCESSING DEVICE FEATURES

- Camera, GPS, Microphone
- Biometric Authentication
- Permissions (Android/iOS differences)
- Sensors (Accelerometer, Gyroscope)
- Background tasks (with react-native-background-fetch)

04

5.5 hours

Hands-on

TOPICS

- Build a fluid card swipe animation using Reanimated 2
- Use react-native-maps + react-native-geolocation for GPS tracking
- Integrate Biometric Auth with react-native-keychain
- Access Camera using react-native-image-picker or expo-camera
- Request and manage runtime permissions
- Record motion data using react-native-sensors
- Set up background fetch task for polling updates

DAY 3

Real-time Features, Notifications & Security

05

3.0 hours

Theory

TOPICS

- **Real-time data strategies:** Firebase vs WebSockets
- Push Notification workflows (Local + Remote with FCM)
- Secure storage practices (tokens, secrets)
- App hardening & code obfuscation techniques
- CI/CD overview for production-grade deployments

06

5.0 hours

Hands-on

TOPICS

- Implement real-time chat or alerts using Firebase or Socket.IO
- Setup and test push notifications using FCM / Expo
- Secure sensitive data using react-native-encrypted-storage
- Configure OTA (over-the-air) updates using CodePush
- Deploy app via CI pipeline using GitHub Actions + Fastlane

WHAT IS INCLUDED

Everything You Need to Succeed

- Koenig course material for every module
- Delivery by certified instructors and subject matter experts
- Hands-on exercises throughout the course
- Course completion certificate from Koenig

ABOUT KOENIG

Who We Are

Established in 1993, Koenig Solutions is a globally recognised training provider with 35+ technology partnerships, 5,000+ training programmes and a network of certified instructors and subject matter experts, supporting individuals and enterprise teams worldwide.

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