

# iOS Development

## 1. Introduction to iOS App Development

- A. Overview of mobile application development
- B. Introduction to iOS ecosystem
- C. Apple devices and platforms (iPhone, iPad, Watch)
- D. iOS application architecture
- E. Native vs cross-platform apps
- F. Career opportunities in iOS development

## 2. iOS Development Environment

- A. Introduction to Xcode IDE
- B. Setting up Xcode and iOS Simulator
- C. Creating first iOS project
- D. Understanding project structure
- E. Swift Playgrounds overview

## 3. Swift Programming Fundamentals

- A. Introduction to Swift language
- B. Variables, constants, and data types
- C. Operators and control flow
- D. Functions and closures
- E. Optionals and type safety

## 4. Object-Oriented & Protocol-Oriented Programming

- A. Classes and structures
- B. Inheritance and polymorphism
- C. Protocols and protocol extensions
- D. Enumerations and value types
- E. Memory management (ARC basics)

## 5. iOS App UI Design

- A. Introduction to UIKit and SwiftUI
- B. Views and view controllers
- C. Storyboard and Interface Builder
- D. Auto Layout and constraints
- E. Human Interface Guidelines (HIG)

## **6. Navigation & App Lifecycle**

- A. View controller lifecycle
- B. Navigation controllers
- C. Tab bar controllers
- D. Scene delegate and app delegate
- E. Managing app states

## **7. Data Handling & Persistence**

- A. UserDefaults for lightweight storage
- B. Core Data basics
- C. SQLite overview
- D. File handling in iOS
- E. Data modeling concepts

## **8. Networking & API Integration**

- A. Introduction to REST APIs
- B. URLSession and networking
- C. JSON parsing and Codable
- D. Error handling in networking
- E. Async and background tasks

## **9. Device Features & Sensors**

- A. Camera and photo library integration
- B. Location services (GPS)
- C. Push notifications
- D. Biometrics (Face ID / Touch ID)
- E. Accessing device hardware

## **10. Security & Performance**

- A. iOS security fundamentals
- B. App sandboxing and permissions
- C. Secure storage (Keychain)
- D. Performance optimization techniques
- E. Battery and memory management

## **11. Testing & Debugging**

- A. Debugging tools in Xcode
- B. Unit testing with XCTest
- C. UI testing basics
- D. Crash handling and logs
- E. TestFlight overview

## **12. App Deployment & App Store**

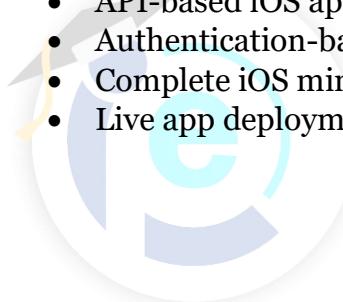
- A. App signing and provisioning profiles
- B. Preparing app for App Store
- C. Publishing apps on Apple App Store
- D. App versioning and updates
- E. App maintenance and monitoring

## **13. Apple Ecosystem Integration**

- A. iCloud basics
- B. Integration with Apple services
- C. Intro to Apple Watch & widgets
- D. Universal apps overview
- E. Accessibility features

### **Mini Projects:**

- iOS utility application
- API-based iOS app
- Authentication-based mobile app
- Complete iOS mini project
- Live app deployment



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