

# **iOS Application development with SwiftUI**

## **Module 1: Introduction to iOS App Development and Swift Basics**

- Introduction to iOS development and the Xcode IDE.
- Setting up Xcode and creating your first iOS project.
- A tour of XCODE panel
- MVVM and Architectural Patterns

## **Module 2: Understanding the Swift programming language basics.**

- Variables, constants, data types, and optional
- Control flow in Swift: if statements, switch statements, for, while, repeat-while
- Functions and methods in Swift.
- Structs and classes in Swift.
- Swift Protocols : Designing and Adapting Protocol, Implement Delegates
- Advanced data types: Enums, Tuples, and Pattern Matching.
- Generics in Swift: Writing reusable, type-safe code.
- Swift Concurrency : Defining and Calling Async Functions, Parallel, Task and Task groups
- Functional Programming : Map, Filter, Reduce, flat map, compact Map

## **Module 3: User Interface Design with Swift UI**

- What is SwiftUI?
- Benefits and advantages
- Environment, State, and Data Flow
- Creating a new SwiftUI project
- ContentView and Scene
- Preview canvas

## **Module 4: Building User Interfaces in Swift UI**

- Text, Image, Button, and more
- Modifiers for styling
- Creating Lists
- NavigationView and NavigationLink
- Navigation stacks
- HStack, VStack, ZStack
- Spacer and Alignment
- Text formatting
- Fonts and type styles
- Working with images
- Asset catalog
- TextFields, Picker, and Toggle

- Form styling

#### **Module 5: Work with Remote Data ( Sync with Server)**

- Implementing user defaults for data persistence.
- Networking and REST API consumption.
- Making network requests using URLSession.
- Parsing JSON data.
- Displaying data from a remote source in your app.
- Advanced networking: URLSession with Codable.

#### **Module 6: SwiftUI Instruments.**

- Overview
- How to launch Instruments from Xcode.
- Selecting the target SwiftUI application for profiling.
- Introduction to the Instruments interface, including various panels and instruments.
- Navigating the user interface effectively.
- Setting up a basic recording session.
- Initiating the trace and understanding the initial insights.
- Identifying and analyzing crashes and exceptions.
- Using the Memory Graph and Leaks instruments to detect and fix memory issues.
- Profiling app performance in real-time.