Bright Mentors®

Android App Development

Training With Kotlin

Duration: 3 Months

www.brightmentors.in

Android + Kotlin

👉 Introduction to Android Development

- ✓ Understanding Android and Its Ecosystem
- ✓ Java Editions vs. Android: A Comparison
- ✓ Android Applications: Design, Vendors, and Behavioral Classification

👉 Fundamentals of Kotlin

- ✓ Variables and Data Types in Kotlin
- ✓ Control Flow Structures (if, when, loops)
- ✓ Functions and Lambda Expressions

👉 Object-Oriented Programming (OOP) in Kotlin

- ✓ Working with Classes and Objects
- ✓ Implementing Inheritance
- ✓ Using Interfaces
- ✓ Understanding Data Classes
- ✓ Exploring Sealed Classes

👉 Collections and Functional Programming in Kotlin

- ✓ Utilizing Standard Library Functions (map, filter, reduce)
- ✓ Working with Immutable Collections

👉 Handling Null Safety in Kotlin

- ✓ Nullable vs. Non-Nullable Types
- ✓ Using Safe Calls and the Elvis Operator
- ✓ Understanding the !! Operator

👉 Asynchronous Programming with Coroutines

- ✓ Introduction to Coroutines
- ✓ Using Suspend Functions
- ✓ Managing Coroutine Scopes and Contexts

Android Architecture and Development

- ✓ Overview of Android Architecture
- ✓ Understanding Application Frameworks
- ✓ Building Android Apps with Kotlin

Understanding Android Libraries and Runtime

- ✓ Overview of Android Libraries
- ✓ Android Runtime (ART) and Dalvik Virtual Machine

Setting Up the Android Development Environment

- ✓ System Requirements for Android Development
- ✓ Installing Java, Android Studio, and Android SDK
- ✓ Understanding Android SDK and Development Tools
- ✓ Setting Up Android Virtual Devices (AVD) and Device Definitions

Designing Your Android Application

- ✓ Fundamentals of Android App Design
- ✓ Using Figma for UI/UX Design
- ✓ Creating Wireframes for Android Screens

Building Your First Android App

- ✓ Setting Up a New Android Project
- ✓ Configuring the Application Settings
- ✓ Testing Your App on AVD and Real Devices
- ✓ Understanding Android Project Structure and the Manifest File

Working with Activities and UI Components

- ✓ Introduction to XML for Layout Design
- ✓ Exploring Views and Layout Structures
- ✓ Understanding View Properties
- ✓ Comparing Layouts: Linear, Relative, Frame, and Absolute Layouts
- ✓ Implementing UI Localization for Multilingual Support
- ✓ Best Practices for Optimizing UI Across Devices (Phones, Tablets, TVs)
- ✓ Essential UI Design Guidelines for Android Development

Working with Fragments in Android

- ✓ Designing and Implementing Fragments
- ✓ Understanding the Fragment Lifecycle
- ✓ Managing and Integrating Fragments

Using Intents for Navigation and Communication

- ✓ Introduction to Intents in Android
- ✓ Difference Between Explicit and Implicit Intents
- ✓ Using Intents for Message Passing Between Components
- ✓ Launching Components and Handling Results with Intents

Android Material Design Principles

- ✓ Understanding Material Design Concepts
- ✓ Applying Material Design Properties, Styling, and Animations
- ✓ Implementing Material Design Patterns in Apps

Managing Android Resources

- ✓ Overview of Android Resource Management
- ✓ Creating and Utilizing Various Resources
- ✓ Working with Drawable Resources
- ✓ Implementing Animation Resources

Handling Broadcast Receivers

- ✓ Understanding When and Why to Use Broadcast Receivers
- ✓ Implementing Broadcast Receivers in Android Apps
- ✓ Registering Broadcast Receivers via the Manifest File and Programmatically

Working with Background Services in Android

- ✓ Introduction to Android Services
- ✓ Understanding the Service Lifecycle
- ✓ Declaring and Registering a Service
- ✓ Starting and Stopping Services
- ✓ Managing Threads and Concurrency in Services
- ✓ Difference Between Bound and Unbound Services
- ✓ Local vs. Remote Services

Using Content Providers for Data Management

- ✓ Types of Content Providers in Android
- ✓ Retrieving and Searching for Content
- ✓ Adding, Updating, and Deleting Data
- ✓ Utilizing Native Android Content Providers
- ✓ Accessing Contacts, Calendar, and Other System Data

Building User Interfaces in Android

- ✓ Creating Activities and UI Layouts
- ✓ XML vs. Programmatic UI Design
- ✓ Implementing Custom Fonts in Apps
- ✓ Common UI Components and Widgets
- ✓ Handling UI Events with Listeners

Advanced UI Design and Navigation

- ✓ Using Adapters for Dynamic Data Binding
- ✓ Implementing Complex UI Components
- ✓ Creating Menus and Dialogs
- ✓ Building Tabbed Activities
- ✓ Implementing Navigation Drawer for App Navigation
- ✓ Adding Animations for a Smooth User Experience
- ✓ Programmatically Creating Activity Layouts

Data Storage and Retrieval in Android

- ✓ Choosing the Right Storage Model
- ✓ Using Shared Preferences for Lightweight Data Storage
- ✓ Storing Data in Internal Storage (Files)
- ✓ Managing External Storage (SD Card)
- ✓ Testing and Debugging Stored Files

Working with SQLite and Room Database

- ✓ Introduction to SQLite in Android
- ✓ Using SQLiteOpenHelper to Create and Manage Databases
- ✓ Opening and Closing Database Connections
- ✓ Handling Cursors for Data Retrieval

- ✓ Performing CRUD (Create, Read, Update, Delete) Operations with SQLite
- ✓ Integrating Room Database for Efficient Data Management
- ✓ Creating DAO (Data Access Object) and Model Classes
- ✓ Performing CRUD Operations Using RoomDB

Implementing Bluetooth Connectivity

- ✓ Controlling the Device's Bluetooth Settings
- ✓ Discovering and Pairing with Bluetooth Devices
- ✓ Establishing and Managing Bluetooth Connections
- ✓ Sending and Receiving Data Over Bluetooth

Working with Multimedia in Android

- ✓ Playing Audio and Video Files
- ✓ Recording Audio and Video Content
- ✓ Customizing Camera Features and Capturing Photos
- ✓ Implementing Voice Recognition for User Interaction
- ✓ Converting Text to Speech for Accessibility

Telephony and Sensor Integration in Android

- ✓ Overview of Telephony Services
- ✓ Accessing and Retrieving Telephony Information
- ✓ Monitoring Data Connectivity and Network Activity
- ✓ Sending and Receiving SMS Messages
- ✓ Understanding Sensors and Their Types
- ✓ Implementing and Managing Sensors in Android

Working with Web Services in Android

- ✓ Introduction to Web Services and Their Importance
- ✓ Understanding Web Service Architecture
- ✓ Developing Server-Side Components for Web Services
- ✓ Publishing and Deploying Web Services
- ✓ Implementing RESTful Web Services
- ✓ Accessing Web Services Using Volley and Retrofit

- ✓ Integrating Web Services with Mobile Applications
- ✓ Basics of Networking in Android
- ✓ Checking Network Availability and Web Service Status
- ✓ Using HTTP Requests to Interact with Web Services

Data Parsing and Handling Formats

- ✓ Understanding JSON (JavaScript Object Notation)
- ✓ Parsing JSON and XML Data in Android

Location-Based Services in Android

- ✓ Utilizing Location Manager and Location Provider
- ✓ Implementing GPS and Network-Based Location Tracking
- ✓ Testing Location-Based Features Using KML Files
- ✓ Simulating Locations on an Active Device
- ✓ Using Location Listeners and Setting Proximity Alerts

Integrating Google Maps in Android

- ✓ Using Google Maps API (Version 2)
- ✓ Implementing MapFragments for UI Display
- ✓ Generating and Configuring API Keys
- ✓ Registering Google Maps in the Manifest File
- ✓ Working with Maps: Camera Positions, Markers, Circles, and Polylines
- ✓ Implementing Google Maps Directions API

Integrating Social Media and Payment Gateways

- ✓ Connecting Android Apps with Facebook
- ✓ Implementing Payment Gateway Integration

Working with Firebase Services

- ✓ Implementing Cloud Messaging for Notifications
- ✓ Enabling Google Sign-In and OTP-Based Authentication
- ✓ Using Firebase Realtime Database for Data Storage
- ✓ Integrating Google AdMob for Monetization

Debugging and Testing Android Applications

- ✓ Using Logcat for Debugging
- ✓ Working with the Android Debugger

Deploying an Android App to the Play Store

- ✓ Understanding the Release Process and Creating a Release Build
- ✓ Signing the APK File for Distribution
- ✓ Setting Up the Store Listing Page
- ✓ Assigning a Content Rating for the App

Android Development Project Examples

- ✓ Building a Social Media Feed Application
- ✓ Developing an Expense Tracker App

Learning Management System

Key Features Learning Management System

Live Sessions with Class Recordings

Gain access to interactive live training sessions along with recorded classes to reinforce learning at your own pace.

Expert-Led Training Sessions

Learn from industry experts through structured training sessions designed to enhance your skills and practical knowledge.

Earn Your Training Certificate

Receive an official training certification upon successful course completion to validate your learning and expertise.

Experience Certificate for Professionals

Get an experience certificate based on your hands-on project work and practical assessments.