

# Advanced Android App Development (45 hrs)

## Module 1: Getting Started With Android

- Introduction to Android
  - What is Android?
  - History of Android
  - Comparison with other Mobile OS
  - Features of Android
- Setting up Development environment
  - Downloading & Updating Android SDK
  - How to do Plug-in with eclipse
  - Creating AVD

## Module 2: Android Architecture

- Android Stack
  - Applications
  - Application Framework
  - Libraries
  - Android Runtime
  - Linux Kernel
- Introduction to DVM
- What is .apk file?

## Module 3:

- Creating First Android Application
- Project Structure
- Adding of external Libraries
- Introduction to AndroidManifest file
- **Module 4:** Android Application Components
  - Activities
    - Creating an Activity
    - Activity Life Cycle
  - Intents & Intent Filters
    - Introduction to Intents
    - Types of Intents
    - Classification of Intent Filters
  - Services
  - Content Providers
  - Broadcast Receiver

## Module 5: User Interface

- XML Layouts
  - Linear Layout
  - Relative layout
  - Table Layout
- Widgets
- Creating List View
- Menus
- Creating Toast & Dialogs

## Module 6: SQL Database

- Introduction to SQLite
- SQLiteOpenHelper and creating Database
- Working with Cursors, Insert, Update and Delete Operations

**Exercise:** Build an Application which keeps the record of total time of Activity displayed on the screen since it has been installed on the device.

## Module 7: Advanced Application Components

- Content Providers
  - Accessing Native Application Data
  - Creating your Own Content Provider
  - Content Provider MIME types
- Services
  - Overview of Services
  - Implementing a Service
  - Service Life cycle
  - Types of Services
- Broadcast Receiver
  - What is Broadcast Receiver
  - Implementation of Receiver
  - Creating your own receivers
- Notifications

## Module 8: Android Graphics and Multimedia

- Basic Graphics
- Playing Audio
- Playing video

## Project:

- Media Player
- Alarm Clock
- Call Log Manager

## Module 9: Advanced Topics

- Sensors
  - Introduction to Android Sensors
  - Types of Sensors
  - Accelerometer Sensor
  - Reading X,Y,Z Coordinates
- Bluetooth
  - Setting Up Bluetooth
  - Finding Devices
  - Connecting Devices
  - Establishing connection as a server
  - Connecting as a client
  - Creating RFCOMM Communication

## **Module 10: Location and Maps**

- Location Based App
  - Locate User Location
  - Obtaining user location using GPS
  - Obtaining user location using NPS
  - Get Latitude & Longitude
- Google Map
  - Generate MD5 Fingerprint
  - Use of MapView library
  - Set of Permissions for MapView
  - Entries in AndroidManifest file
  - How to register your fingerprint with Google Map
  - Generate API Key
  - Use of Google API

## **Training Kit Contents: (Individual Kits)**

- Comprehensive Study material covering all the discussed topics in a CD/DVD