

## Advanced Android App Development (60 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 Plugin 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

### **Projects:**

- Bluetooth chat
- Audio Recorder
- Control Robots using Android Device

## **Module 11: Advanced User Interface**

- XML Layouts
  - Frame Layout
  - Tab Layout
  - Scroll view
- Drawer
- Designing app for multiple screens

## **Module 12: Database**

- Shared Preferences
  - Access database from assets
  - Perform CRUD operation with the database

## **Module 13: Android Graphics and Animations**

- Basic Graphics
  - Font
    - Draw text with custom font
    - Use of different types of fonts
- Use of Android Themes
- Animation

Animation fade in, fade out  
Animation Interpolator  
Alpha Animation

#### **Module 14: Hardware**

- External Storage
- SD Card
  - Create a file in SD Card
  - Read a file from SD Card
  - Get Image from SD Card
- System Information
  - Get Disk Information
  - Get System Information
  - Get Telephone Information
- User Events
  - Touch
  - Single Touch Test
  - Use your finger to Draw
- Camera
  - Rendering Previews
  - Taking picture

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

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

