

# ***Android Mobile App Development***

**Objective:** To design the mobile based application using android for the real world.

**Pre-requisites:** To learn the basic fundamentals of the Java Programming and Object Oriented Programming Concepts

## **Session 1 (About Android and Its Installation)**

- What is Android?
- History of Android
- Why Android?
- Environment Setup
- Features of Android
- Installation Android Studio

## **Session 2 (Android Basics and First Project Creation)**

- Android Architecture
- Android Activity
- Android Services
- AndroidBroadCastReceiver
- Android Content Provider
- First Hello World Example

## **Session 3 (Project Structure)**

- Source Folder
- Generated Folder
- Assets Folder
- Resources Folder
- Android Manifest XML

## **Session 4 (XML and Layout Designing)**

- Layout XML Files
- Relative Layouts
- Linear Layouts
- Frame Layouts
- Tab Layouts
- Table Layouts

## **Session 5 (Java and Layout Designing)**

- Layout Java Files
- Relative Layouts
- Linear Layouts
- Frame Layouts
- Tab Layouts
- Table Layouts

## **Session 6 (Event Handling)**

- Event Listeners and Event Handlers
- Event Listeners Registration
- Event Handling Examples

## **Session 7 (Activities and Intents)**

- Activity Life Cycle
- Implicit Intent
- Explicit Intent
- StartActivityForResult

## **Session 8 (Advanced Views – List and Spinner – Simple and Custom)**

- Add Value in ListView
- Add Value in Spinner
- Create Custom ListView

## **Session 9 (Adapting Screen Orientation)**

- What is Screen Orientation
- How to use screen orientation
- Example of Screen Orientation

## **Session 10 (Menus)**

- Adding Option Menus
- Adding Popup Menus
- Adding Context Menus

## **Session 11 (Thread, Handler, Asyn Task and Dialogs)**

- Main Application Threads and Worker Threads
- How to use handler class

- What is Asyn Task Class
- Why use Asyn Task Class

### **Session 12 (Fragments)**

- Fragments Life Cycle
- How to access fragments
- Adding Multiple Fragment in Activity

### **Session 13 (Shared Preferences)**

- What is Shared Preferences
- Saving Key-Value Set
- Get a Handle to a shared preferences
- Read and Write Shared Preferences

### **Session 14 (File Handling)**

- Reading Internal Storage
- Writing Internal Storage

### **Session 15 (Room Persistence Library)**

- Introduction to ROOM Persistent Library
- Working with DAO
- Opening and Closing Database in ROOM
- CRUD Operations with ROOM

### **Session 16 (Job Scheduler)**

- Introduction to Job Scheduler
- Working with Constants
- Working with Methods of Job Scheduler
- Types of Methods in Job Scheduler
- Working with Job Scheduler Public

### **Session 17 (Services, Notification, Alarm and Vibration)**

- Lifecycle of a Service
- When to use Services
- Intent Service

### **Session 18 (Firebase)**

- Introduction to Firebase

- Real Time Firebase Database

### **Session 19 (SMS Sending and Receiving)**

- Send SMS
- Receive SMS

### **Session 20 (Graphics and Drawing)**

- Introduction to OpenGL
- Scalable 2D/3D Graphics API
- Drawables
- Shape Drawables

### **Session 21 (SurfaceView and Sensors)**

- What is Sensor and Surface View
- Types of Sensors
- Introducing Sensor Manager

### **Session 22 (Location and GPS)**

- Maps and Geocoding
- Location Based Services

### **Session 23 (Web Services, JSON Parsing, RxJava and Retrofit)**

- Introduction to JSON File Formats
- Using Web Services to connect to remote DB
- Significance of AsyncTask class
- Use JSON for data communication to Web Services
- Fetching data from JSON and Loading into Activities
- Introduction to Retrofit Library with CRUD Operation
- Introduction to RxJava (RxAndroid) in Android

### **Session 24 (Widgets)**

- Button, EditText, TextView
- ImageView, Spinner and other widgets

### **Session 25 (Android Application)**

- Introduction to Animation, Animation Types
- Tween Animation, Frame Animation

## **Session 26 (Android Material Designing, Styles and Themes)**

- What is Material Design
- How to Access Material Design in our project
- Creating Custom Themes

## **Session 27 (Social Login – Facebook)**

- Prerequisites, Add the Facebook Login Button
- Register a Callback to Handle the Login Result
- Enable Chrome Custom Tabs
- Check Login Status

## **Session 28 (Social Login – Google)**

- Prerequisites, Get a Configuration File
- Add the Configuration File to Your Project
- Add the Google Services Plugin
- Add Google Play Services
- Get your backend server's OAuth 2.0 Client ID
- Add the Google Login Button

## **Session 29 (Web Services – File Uploading and Downloading)**

- How to upload image using web services
- How to download image using web services

## **Session 30 (Firebase Cloud Messaging – Simple Chat App)**

- What is Firebase?
- How to use Firebase in our project
- Create Firebase Console Project
- Run the Starter App
- Enable Authentication
- Activate Firebase Real-time Database
- Sent Messages
- Receive Re-engagement Notifications

## **Session 31 (Android Media – Music Player)**

- Designing the Audio Player Layout
- Writing XML for PlayList ListView
- Writing Class for Reading MP3 files from SDCard

- Writing Class for PlayList ListView
- Forward/Backward Button Click Events
- Updating SeekBar Progress and Timer

### **Session 32 (Android Camera and Gallery)**

- Understanding Camera Intent and API
- How to access image click by camera
- How to access image from the gallery

### **Session 33 (Android Graphics – Simple Game)**

- What is Graphics?
- How to access 2D Graphics?

### **Session 34 (Android Project Development Guidelines and Design Patterns)**

- Android Project and Its Understanding
- What are the design patterns and its use

### **Session 35 (Advance Material Design)**

- Introducing Material Design
- How to access material design in our project

### **Session 36 (GitHub Integration in Android Studio)**

- What is GitHub?
- How to Integrate GitHub in Android Studio

### **Session 37 (Location and Google Maps)**

- How to access GPS
- Add Google Map in our project
- How to get Latitude and Longitude

### **Session 38 (Data Binding and Project)**

- Introduction to Data Binding
- Android Projects Developments