KOENIG
step forward

ATC
Advanced Training Consultants

ATC Android Application Development

1. **Android Framework and Android Studio**
    a. Introduction
    b. Android Platform Architecture
        i. Linux Kernel
        ii. Hardware Abstraction Layer(HAL)
        iii. Android runtime
        iv. Native C/C++ Libraries
        v. Java API Framework
        vi. System Apps
    c. Android libraries
    d. Components of Android Studio
    e. Types of Android Processes and their priorities
    f. Pre- requisites for Android Application Development
    g. Android Studio
    h. Gradle
    i. Instant Run
    j. LAB: Creating Your First Application

2. **Android SDK tools and activity Class**
    a. Android Project Structure
    b. The Android Manifest File
        i. Structure of the Manifest File
    c. Android SDK Tools
    d. Android Device Monitor
    e. Android Debug Bridge (ADB)
    f. Batterystats and Battery Historian
    g. Performance Profiling Tools
    h. Emulator Controls
        i. Send/ Receive SMS
        ii. Make Calls
        iii. Updating Location
    i. Building Backward-Compatible Android Applications
    j. Activity
        i. Activity Life-Cycle Through Java
        ii. Create an Activity
    k. LAB: Studying Activity Life Cycle

3. **Fragments , Views and List View**
    a. Introduction
    b. Fragments
        i. Fragment Life –Cycle
        ii. Creating Fragment Sub class
        iii. Adding Fragments in Applications
        iv. Backward Compatibility of Fragments
    c. Views
        i. Using Views
        ii. Adding a View to your Application
    d. List View and List Activity
        i. Using a List Activity
        ii. Adding List View
        iii. Add Event to List Items
    e. Recycler View
        i. Recycler View as List View
        ii. Adding Recycler View
    f. Card View
    g. Runtime Permissions
    h. LAB: Views and Runtime Permissions

4. **Intents, Intent Filters and Deep Linking**
    a. Introduction
    b. Intents
        i. Explicit Intents
        ii. Implicit Intents
    c. Native Android Actions
    d. Data Transfer
    e. Intent to Call Activities
        i. Direct Calls
        ii. Sub Activities : Calling Activities for Result
    f. Register and IntentFilter
    g. Deep Linking
        i. Testing Deep Linking
    h. LAB: Creating constants Selections Application and Testing Deep Linking

5. **Android Layouts and Custom Views**
    a. Introduction
    b. Views
    c. Layouts
        i. Layout Properties

ii. Loading the Layout From Code
iii. Loading Layout in an Activity
iv. Loading Layout in a Fragments
v. Creating and Editing Layouts in Android Studio

d. Customized Views
e. Modify Existing Vies
    i. Step by Step
    ii. What is onDraw()
    iii. The Full Picture
f. Constraint Layout
g. LAB: Custom view, Drawer Layout and Fragment Applications

6. Android Resource, Themes and Material Design

a. Introduction
b. Android Resources
    i. Why using Resources>
    ii. Adding resources to your applications
    iii. Using Resources
    iv. Types of Resources
c. Android Themes and Styles
    i. Creating Themes
d. Android Material Design
    i. Using the Material theme
    ii. Color Palette
e. Activity Transition and Shared Element transitions
f. LAB: A To-Do-List Application in Material Design

7. Android UI Dialogs, Menus and Web View

a. Introduction
b. User Interaction through Messages
c. Dialogs
    i. Dialog Sub Classes
    ii. Creating Dialogs and user Defined Layout
    iii. Creating an Alert Dialog
    iv. Creating a Progress Dialog
d. Activity with Dialog Theme
e. Toasts
    i. Customizing Toasts
f. Snack bar
    i. Simple Snack bar

        ii. Custom Snack bar
    g. Menus
        i. Building a menu from Java Code
        ii. Building a menu from a resource files
        iii. Sub Menus
        iv. Context Menus
        v. Additional Menu Item Options
        vi. Popup Menus
    h. Web View
    i. LAB: Wallpaper Application

8. Android Storage and Background Processing

- a. Android Storage Options
- b. File I/O
    - i. Including Files as resources
- c. Shared Preferences
    - i. Retrieving Shared Preferences
    - ii. Save Activity State
- d. Connecting to the Internet
- e. Background Processing
    - i. Android Threading
    - ii. Java Threads
    - iii. Async Task
    - iv. Android Services
    - v. Background Fragments
    - vi. Background Receivers
- f. LAB: Quotes Provider Application

9. Android Storage : SQLite and Content Providers

- a. Introduction
    - i. SQLite Database in your application
    - ii. SQLite Library
    - iii. SQLite Open Helper
    - iv. SQLite Database
    - v. Cursors
- b. Database in Android
- c. Content Providers
- d. Native Android Content Providers
- e. Custom Content Provider
- f. Sync Adapters
    - i. Introduction

    ii. How Sync Adapter Work
g. ORMLite
h. LAB: SQLite Databases and Content Providers

10. Android Notifications

a. Introduction
b. Creating a Notification
c. Notification Actions
    i. Notification Manager
    ii. Steps to Create a simple Notification
d. Expandable Notifications
    i. Big Picture Style Notifications
    ii. Big Text Style Notifications
    iii. Inbox Style Notifications
e. Notification Layout
    i. Base Layout
    ii. Expanded Layouts
f. Notification Priority
g. Notification with Android System
    i. Lock Screen Notifications
    ii. Visibility Options in Lock Screen Notifications
    iii. Heads up Notifications
h. New Notification Features of Android 7
i. LAB: Implementing Android Notifications

11. Location Aware Apps using GPS and other Providers

a. Introduction
b. What is GPS and how it works
c. Other Location service providers
d. Methods to capture user location
e. Using google maps
f. Setting Geolocation
g. Pins, Layers and custom drawing
h. Revers Geo Location and Geocoder Class
i. Requesting user permission for Location Access
j. Testing GPS on Android Emulator
k. Mocking Location on an Emulator
l. LAB: Location Aware Apps using the GPS and google maps