



## 3. Mobile App Development

### 3.1 Android

#### Prerequisites:

1. Java Programming
2. OOPs Concept

**Duration:** 60 Lectures

#### Course Content:

##### 1. Introduction

- 1.1. OOPs Concepts o Inheritance in detail
- 1.2. Exception handling
- 1.3. Packages & interfaces
- 1.4. JVM & .jar file extension
- 1.5. Multi threading (Thread class & Runnable Interface)

##### 2. SQL

- 2.1. DML & DDL Queries in brief

##### 3. Introduction to Android

- 3.1. What is Android?
- 3.2. Setting up development environment
- 3.3. Dalvik Virtual Machine & .apk file extension
- 3.4. Fundamentals: Basic Building blocks, UI Components, Components for communication
- 3.5. Android API levels (versions & version names)

##### 4. Application Structure

- 4.1. AndroidManifest.xml
- 4.2. Uses-permission & uses-sdk
- 4.3. Resources & R.java



- 4.4. Assets
- 4.5. Layouts & Drawable Resources
- 4.6. Activities and Activity lifecycle
- 4.7. First sample Application
- 4.8. Launching emulator
- 4.9. Editing emulator settings
- 4.10. Emulator shortcuts
- 4.11. Logcat usage
- 4.12. Introduction to DDMS
- 4.13. Switching between Activities

## 5. Basic UI Design

- 5.1. Form widgets
- 5.2. Text Fields
- 5.3. Layouts
- 5.4. [dip, dp, sip, sp] versus px
- 5.5. Examples
- 5.6. Types of layouts including Constraint Layout

## 6. Preferences

- 6.1. Shared Preferences
- 6.2. Preferences from xml
- 6.3. Examples

## 7. Menu

- 7.1. Option menu
- 7.2. Context menu
- 7.3. Sub menu
- 7.4. Menu from xml
- 7.5. Menu via code
- 7.6. Examples

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## 8. Intents

- 8.1. Explicit Intents
- 8.2. Implicit intents
- 8.3. Examples

## 9. UI design

- 9.1. Time and Date
- 9.2. Images and media
- 9.3. Composite
- 9.4. Alert Dialogs & Toast
- 9.5. Popup
- 9.6. Examples

## 10. Styles & Themes

- 10.1. styles.xml
- 10.2. Drawable resources for shapes, gradients (selectors)
- 10.3. style attribute in layout file
- 10.4. Applying themes via code and manifest file
- 10.5. Examples
- 10.6. Sliding Drawers
- 10.7. View Pager

## 11. Content Providers

- 11.1. SQLite Programming
- 11.2. SQLite Open Helper
- 11.3. SQLite Database
- 11.4. Cursor
- 11.5. Reading and updating Contacts
- 11.6. Reading bookmarks
- 11.7. Example

## 12. Importance and use of ADB

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## 13. Links and Connectivity

- 13.1. Web URLs, Email address, text, map address, phone numbers
- 13.2. Match Filter & Transform Filter
- 13.3. Examples

## 14. Adapters and Widgets

- 14.1. Adapters, Array Adapters, Base Adapters
- 14.2. List View and List Activity
- 14.3. Custom list view
- 14.4. Grid View using adapters
- 14.5. Gallery using adapters
- 14.6. Examples
- 14.7. Expandable List view
- 14.8. Recycle view
- 14.9. Card view

## 15. Notifications

- 15.1. Broadcast Receivers
- 15.2. Services and notifications
- 15.3. Toast
- 15.4. Alarms
- 15.5. Examples Chapter

## 16. Custom components

- 16.1. Custom Tabs
- 16.2. Custom animated popup panels
- 16.3. Other components
- 16.4. Examples

## 17. Threads

- 17.1. Threads running on UI thread (runOnUiThread)
- 17.2. Worker thread
- 17.3. Handlers & Runnable
- 17.4. AsyncTask (in detail)



17.5. Examples

## 18. Advanced

- 18.1. Live Folders
- 18.2. Using sd cards
- 18.3. XML Parsing
- 18.4. JSON Parsing
- 18.5. Maps, GPS, Location based Services
- 18.6. Accessing Phone services (Call, SMS, MMS)
- 18.7. Network connectivity services o Sensors
- 18.8. Types of integration like FB, Twitter, G+ etc.

## 19. Media Controllers

- 19.1 Media Player
- 19.2 Video View
- 19.3 Video Controller

## 20. Application Launching overview

- 20.1 Play console

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