

Android

❖ **Android Overview and History**

- ❖ How it all get started.
- ❖ Why Android is different.

❖ **Android Stack**

- ❖ Overview of the stack.
- ❖ Linux kernel.
- ❖ Native libraries.
- ❖ Dalvik.
- ❖ App framework.
- ❖ Apps.

❖ **SDK Overview**

- ❖ Platforms.
- ❖ Tools & Versions.
- ❖ Hello World App.
- ❖ Creating your first project.
- ❖ The manifest file.
- ❖ Layout resource.
- ❖ Running your app on Emulator.

❖ **Main Building Blocks / Components**

- ❖ Activities.
- ❖ Activity lifecycle.
- ❖ Intents.
- ❖ Services.
- ❖ Content Providers.
- ❖ Broadcast Receivers.

❖ **Basic Android User Interface**

- ❖ XML versus Java UI.
- ❖ Pixels, dp and sp.
- ❖ Views and layouts.
- ❖ Common UI components.
- ❖ Handling user events.

❖ **Android System Overview**

- ❖ File System.
- ❖ Preferences.
- ❖ Notifications.

❖ **Advanced UI**

- ❖ Spinner.
- ❖ List View.
- ❖ Gallery.
- ❖ Autocomplete TextView.

- ❖ Selection components.
- ❖ Adapters.
- ❖ Complex UI components.
- ❖ Building UI for performance.
- ❖ Menus and Dialogs.
- ❖ Graphics & animations.
- ❖ WebView.
- ❖ Fragments.
- ❖ Custom Adapters.
- ❖ **Multimedia in Android**
 - ❖ Media Player.
 - ❖ Video View.
 - ❖ Audio Recording.
 - ❖ Video Recording.
 - ❖ Camera.
- ❖ **Android Telephony**
 - ❖ SMS.
 - ❖ Calls, Emails.
 - ❖ Email using JavaMailAPI.
 - ❖ SQL Database.
 - ❖ Introducing SQLite.
 - ❖ SQLite Open Helper and creating a database.
 - ❖ Opening and closing a database.
 - ❖ Working with cursors Inserts, Updates and Deletes.
- ❖ **Android Service**
 - ❖ Overview of services in Android.
 - ❖ Implementing aService.
 - ❖ Service lifecycle.
 - ❖ Bound versus unbound services.
- ❖ **WiFi Service**
 - ❖ Monitoring and managing Internet connectivity.
 - ❖ Managing active connections.
 - ❖ Managing WiFi.
- ❖ **Sensors**
 - ❖ How Sensors work.
 - ❖ Listening to Sensor readings.
- ❖ **Bluetooth**
 - ❖ Controlling local Bluetooth device.
 - ❖ Discovering and bonding with Bluetooth Devices.
 - ❖ Managing Bluetooth connections.
 - ❖ Communicating with Bluetooth.

❖ **Vibrator**

- ❖ How to get the Vibrator Service.
- ❖ How to Vibrate the device.

❖ **Notifications**

- ❖ About Notifications.
- ❖ How to get Notification Service.
- ❖ Pending Intent.

❖ **Broadcast Receivers**

- ❖ What are BroadcastReceivers.
- ❖ Implementing broadcastreceiver.
- ❖ System broadcasts and how to use them.

❖ **Basic Content Providers**

- ❖ Content provider MIMEtypes.
- ❖ Searching for content.
- ❖ Adding, changing, and removing content.
- ❖ Working with contentfiles.

❖ **Google Maps**

- ❖ Introduction to LocationBased Services in Android.
- ❖ Introduction to GoogleMaps.
- ❖ MapView.
- ❖ MapFragment.
- ❖ Markers.
- ❖ Changing theGoogleView.
- ❖ Android emulator and Google Maps.
- ❖ Install Google Playservices.
- ❖ Getting the Google Map key.

❖ **Overview**

- ❖ Creating the SHA-1 for your signature key.
- ❖ Register with the Google APIs Console.
- ❖ Create key for your application.
- ❖ Google MapsExample.
- ❖ Create Project.
- ❖ Adjust layout file.
- ❖ Activity , Run and Test.
- ❖ Placing multiple position.
- ❖ How to track the location.
- ❖ How to find the distance between 2 points.

❖ **Google Places**

- ❖ Get Google Places API Access.
- ❖ List of search options to get data (like airports, cafes ...).
- ❖ Build a Places Search Query to select particular positions.
- ❖ Create an AsyncTask to Fetch Place JSON Data in the Background.
- ❖ How to place the places data on Google Maps.

❖ **XML**

- ❖ Introduction to XML.
- ❖ Advantages of XML.
- ❖ Rules to write an XML.
- ❖ XSD & DTD's.
- ❖ XML Parsers.
- ❖ JAXP [DOM , SAX].
- ❖ JAXB.

❖ **JSON**

- ❖ Introduction to JSON.
- ❖ Advantages of JSON over XML.
- ❖ Syntax & Structure of JSON.
- ❖ Why is JSON is preferred for mobile applications.
- ❖ different types JSON Parsers [simplejson, Jackson, GSON] to parse the JSON.

❖ **Web Services**

- ❖ Introduction to Web Service.
- ❖ Advantages of Web Services.
- ❖ Architecture of Web Service.
- ❖ Types of Web Services.
- ❖ Web Service Components.
- ❖ SOAP Based Web Service.
- ❖ How to Call SOAP Web Service.
- ❖ Detailed Explanation about WSDL , SOAP & UDDI.
- ❖ Why SOAP is not preferred for mobile Applications ?
- ❖ What are the disadvantages with SOAP.
- ❖ Working with REST.

❖ **Graphics Programing**

- ❖ Java Threads.
- ❖ Android Graphics Components.
- ❖ Surface View.
- ❖ Surface Holder.
- ❖ Canvas.
- ❖ Paint class.
- ❖ How to Different Shapes on Surface.
- ❖ How to draw different resources (images , videos , text) on surface.

- ❖ How to display animations.
- ❖ Sample Animations.
- ❖ Sample Game using Graphic components.
- ❖ What are the problems with built in graphics components.
- ❖ Introduction to different 3rd party libraries for displaying graphics , animations
- ❖ and game development.

❖ **COCOS – 2D**

- ❖ Introduction to COCOS-2D.
- ❖ How to setup the Environment for COCOS-2D.
- ❖ COCOS-2D Components.
- ❖ CCDirector.
- ❖ CCLayer.
- ❖ CCNode.
- ❖ CCSprite.
- ❖ CCMenus.
- ❖ Cocos-2D Actions(CCMoveTo , CCRotateTo, CCJumpTo, CCScale , CCRotate , CCBlendIn , CCFadeIn/Out).
- ❖ CCSequence & CCRepeat actions.

❖ **zJUNIT**

- ❖ Android automated testing.
- ❖ Android test strategy.
- ❖ How to test Android applications.
- ❖ What to test on Android applications.
- ❖ Testing preconditions.
- ❖ User interface tests.
- ❖ Which tests require an Android system to run?
- ❖ Testing standard Java classes.
- ❖ Testing Java classes which use the Android.
- ❖ Android test projects and running tests.
- ❖ Android test projects.
- ❖ Creating a test project & Running tests.

❖ **Google Cloud Messaging [GCM]**

- ❖ Introduction to Google Cloud Messaging.
- ❖ How to integrate GCM service into the SDK.
- ❖ How to get the GCM API Key.
- ❖ GCM Architecture.
- ❖ GCM components.
- ❖ How to develop GCM server application in java.
- ❖ How to develop the GCM Client application.
- ❖ GCM Client dependencies.

❖ **Volley Library**

- ❖ Introduction Volley Library.
- ❖ Volley Library Advantages.
- ❖ Volley Library Components.
- ❖ How to setup the Environment.
- ❖ Creating Volley singleton class.
- ❖ Different Types of Requests.
- ❖ Adding request headers.
- ❖ Handling Volley Cache.

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