



## **Android Application Development Training**

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Android is a Linux-based operating system designed primarily for touch screen mobile devices such as smart phones and tablet computers. It is currently developed by Google in conjunction with the Open Handset Alliance. Initially developed by Android Inc, whom Google financially backed and later purchased in 2005, Android was unveiled in 2007 along with the founding of the Open Handset Alliance, a consortium of 86 hardware, software, and telecommunication companies devoted to advancing open standards for mobile devices.

Google releases the Android code as open source, under the Apache License. The Android Open Source Project (AOSP), led by Google, is tasked with the maintenance and further development of Android.

Since 2008, Android has seen numerous updates which have incrementally improved the operating system, adding new features and fixing bugs in previous releases. Each major release is named in alphabetical order after a dessert or sugary treat; for example, version 1.5 Cupcake was followed by 1.6 Donut. The latest release is 4.4.4 Kit Kat. In 2010, Google launched its Nexus series of devices - a line of smart phones and tablets running the Android operating system, and built by a manufacturer partner. HTC collaborated with Google to release the first Nexus Smartphone, the Nexus One. The series has since been updated with newer devices, such as the Galaxy Nexus phone and Nexus 7 tablet, made by Samsung and Asus respectively. Google releases the Nexus phones and tablets to act as their flagship Android devices, demonstrating Android's latest software and hardware features.

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|--------------------------|--------------------------------|
| <b>TRAINING DURATION</b> | 80 Hrs / 2 Months / Customized |
| <b>TRAINING CHARGE</b>   | 12,000+ Service Tax            |



## **Details of Android Application Training Modules**

### **1. Introduction to Android**

- Introduction to Android
- Brief history of Android
- What is Android?
- Why is Android important?
- What benefits does Android have?
- What is OHA?
- Why to choose Android?
- Software architecture of Android
- Advantages of Android
- Android features
- Android market
- Comparing Android with other platform
- Terms and acronyms

### **2. Installation and Configuration of Android**

- Details about the software requirement
- Download and installation process of eclipse
- Download and installation process of JDK
- Installation of ADT plugin for eclipse
- Download and installation process of Android SDK
- Configuration of ADT plug-in for eclipse
- How to select Android version?
- Step to create new project?



- Running your application
- Creation of new AVD

### **3. Getting Started**

- How to select Android version?
- Step to create new project
- Running Your Application
- Creation of New AVD
- Creating run configuration
- Creating your first Android activity
- List of basic sample programs

### **4. Introductions to Application Components Activities**

- Services
- Broadcast receivers
- Content providers
- Intents
- Notifications
- Activating and shutting down components
- Brief idea about manifest file
- Brief idea about activities and Task

### **5. Android Component Life Cycle**

- Activity Life Cycle with sample program
- Service Life Cycle with sample program

### **6. Android Layouts**

- What are the views, Layouts and classification?



- How Android Draws views and Layout?
- Classification
- Table Layout in detail with Example
- Tab Layout in detail with Example
- Frame Layout in detail with Example
- Absolute Layout in detail with Example
- Linear Layout in detail with Example

### 7. Android Views

- Grid View In detail With Example
- Map View In detail with Example
- Cont. Sub Topical Views
- Web View In detail with Example
- Spinner In detail with Example
- Gallery In detail with Example
- Google Map View In detail with Example
- Introduction to creating activity user with views
- Different ways of creating views Using xml

### 8. Styles and Themes

- Providing resources
- Different resource file location
- Providing alternative resources
- Android finds the best matching resource
- Accessing resources
- Accessing platform resources
- Handling runtime changes
- Introduction to JQuery
- JQuery work in Android



## **9. What are Fragments?**

- Multipane & Singlepane
- Fragment Life Cycle
- Addition of Fragments
- Fragments Working without UI

## **10. Introduction to Menus**

- How to create menus?
- Types of Android Application Menus
- Option Menu
- Expanded - In detail with Example
- Context Menu In detail with example
- Sub Menu-In detail with example

## **11. Introduction to Drawers**

- Navigation Drawer
- Simple Side Drawer
- Tab Drawer
- Extra Drawer

## **12. Handling User Interaction Events**

- Handling user events
- Different types of event listener
- OnClickO
- OnLongClickO
- onFocusChangeO
- OnKeyO
- onTouchO
- onCreateContextMenuO



- Different types of event handler
- OnKeyDown (int, KeyEvent)
- OnKeyUp (int, KeyEvent)
- OnTrackballEvent (MotionEvent)
- OnTouchEvent (MotionEvent)
- OnFocusChanged (boolean,int,Rect)

### 13. Notifications

- Notifying Users
- Status bar Notification
- Toast Notification
- Dialog Notification

### 14. Intents, Broadcast Receivers, Adapters and Internet

- Different types of intent?
- Launching sub-activities
- What is intent filter
- Intent objects---In detail with example
- Using intents to take pictures
- Handling sub activity results

### 15. Data Storage

- Android techniques for data storage
- Creating and saving shared preferences
- Retrieving shared preferences
- Storing in files
- Loading from files.
- Storing in databases

### 16. Working with SQL Lite



- Introducing SQLite database.
- Working with Android databases.
- Using SQLiteOpenHelper.
- Cursors and content values.
- Opening and closing Database

### 17. Working in Background

- Introducing services
- Creating and controlling services
- Registering a service in the manifest
- Starting, controlling, and interacting with a service

### 18. Using the Camera, Taking Pictures and the Media API

- Controlling the camera and taking pictures
- Playing audio and video
- Introducing the media player
- Preparing audio for playback
- Packaging audio as an application resource
- Initializing audio content for playback
- Preparing for video playback
- Playing video using the video view
- Setting up a surface for video playback
- Initializing video content for playback
- Supported video formats
- Controlling playback
- Managing media playback output
- Multimedia supported audio formats
- Recording audio and video
- Using Intents to Record Video



- Configuring and Controlling Video Recording
- Previewing Video Recording
- Reading and Writing JPEG EXIF Image Details
- Adding new media to media storage
- Using the Media Scanner
- Inserting Media into the Media Store
- Raw video manipulation
- Recording Sound with Audio Record
- Playing Sound with Audio Track
- Speech recognition
- Creating and Running and Testing

### **19. Maps, GEO coding and Location Based Services**

- Using Location Based Services
- Working with the location manager
- Configuring the Emulator to Test Location Based Services

### **20. About ADB (Android Debug Bridge)**

- DDMS: Dalvik debug monitor Service
- Trace View

### **21. Data Security and Permission**

- Security Architecture
- User Ids and File Access
- Using Permissions
- Declaring and Enforcing Permissions

### **22. Drawing 2D and 3D Graphics**

- Rolling your own Widgets





- Drawables
- Bitmaps
- Paint

### **23. Using Bluetooth and Managing and Monitoring Wi-Fi**

- Accessing the Local Bluetooth Device
- Adapter
- Managing Bluetooth Properties and State
- Managing Device Discoverability
- Discovering Remote Devices
- Monitoring Active Connection Details
- Scanning for Hotspots
- Managing Wi-Fi Configurations
- Creating Wi-Fi Network Configurations
- Device Vibration
- Controlling device vibration

### **24. Introduction SMS and MMS**

- Using SMS and MMS in Your Application
- Sending SMS and MMS from your Application
- Using Intents and the Native Client
- Sending SMS Messages Manually
- Tracking and Conforming SMS Message
- Delivery
- Conforming to the Maximum SMS
- Message Size Sending DAT Messages

### **25. P2P Communication**



- Introduction Android Instant Messaging
- Using the GTalk Service
- Binding the the GTalk Service
- Making a GTalk Connection and Starting an IM Session
- Handling Subscription Rausts
- Removing and Blocking Contacts
- Managing the User's Presence
- Managing Chat Session
- Sending Instant Text Messages
- Receiving Instant Text Messages
- Chat Rooms and Group Chats
- Managing Group Chat Sessions
- Sending an receiving Data Messages
- Transmitting Data Messages
- Receiving Data Messages

### **26. Content Providers**

- What is content provider
- How to access build in Content provider
- Retrieving build - in Content provider data

### **27. Android Telephony**

- Lanching the Dialer to Initiate Phone
- Calls Replacing the Native Dialer
- Accessing phone and Network Properties & Status
- Reading Phone Device Details
- Reading Data Connection and Transfer State
- Reading Network Details



## 27. Sensor Device

- Using sensors and the sensor manager
- Introducing Sensors
- Supported Android Sensors
- Finding Sensors
- Using Sensors
- Interpreting the sensor values
- Using the compass , accelerometer and orientation sensors
- Introducing Accelerometers
- Detecting Acceleration Changes
- Creating a G-Forceometer

## 28. Further Advanced Topics

- Binding Activities to services
- Prioritizing Background services
- Binding data with service

## 29. Web Services with Architecture

- What are web Services
- Web service Architecture
- REST & SOAP
- Parsing Techniques JSON, XML
- Consuming Web Services
- CRUD Operations over Server

## 30. Google Cloud Messaging

- What is GCM ?
- GCM Architecture
- GCM Services



- Instant Messaging
- TTL (Time to Live)
- Group Messaging
- Server Communication

### **31. Introduction to NDK**

- What is NDK
- Need of NDK
- Memory Management
- Machine Architecture

### **32. Introduction to Gaming**

- Sensors with Canvas & Bitmap
- Introduction to Open GLes
- Making figures
- Provide figure Transformation



**TRAINING SCHEDULE** - Please contact us for latest training schedule

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**CONTACT DETAILS**

DP Project Development Pvt. Ltd.

**Address** 572, Sec-4, Vaishali, Ghaziabad, Uttar Pradesh-201010, INDIA

**Mobile** +91-8586890684, +91-120-4375244

**Email** [training@projectdevelopment.co.in](mailto:training@projectdevelopment.co.in)

**Website** <http://www.projectdevelopment.co.in>

**Skype** dp.trainer