

Android Training

Android Training Course Prerequisite

Development in Java Programming Language
Understanding of application development frameworks, environments, tools and processes

Android Training Course Duration

45 Working days, daily one and half hours

Android Training Course Overview

Introduction to Android

- Overview of Android
- Java Editions and comparison with Android
- Android Apps – Design, Vendor, Behavioral Classification

Android Architecture Overview

- Android Architecture
- Application Frameworks
- Android Libraries
- Android Runtime, Dalvik Virtual Machine

Setup of Android Development Environment

- System Requirements
- Java, Eclipse and Android SDK Installation
- Android SDK & Tools
- Android Virtual Devices & Device Definitions

Your Android Application

- Android Application Design
- Using PhotoShop for Graphic Designing
- Android Application Wireframes (screens)

Your First Android Application

- Creating Android Application
- Creating Configurations
- Testing the app : AVD, Active device
- Android Project Structure
- Android Manifest file

Publishing to the Play Store

- Release process & Release build of Android Application

- Signing the .apk file
- Preparing the Store Listing page
- Content Rating
- Distributing the Application
- Merchant Registration for Paid Applications

Activities

- About XML – approach to design layouts
- Views and Layouts
- View properties
- Linear Layout vs. Relative Layout vs. Frame Layout vs. Absolute Layout
- Localization of UI
- Best practices for targeting various form factors: phone, tablet, TV
- Best practices when working designing Android UI

Android Testing

- Creating a Test Project for Android project
- Working with Test Packages
- Writing test cases

Fragments

- Designing fragments
- Fragments lifecycle
- Fragment management and integration

User Interfaces

- Creating the Activity
- XML versus Java UI
- Selection Widgets, Using fonts
- Common UI components
- Handling UI events: a bit about listeners

Advanced UI

- Adapters
- Complex UI components
- Menus and Dialogs
- Tabbed Activities
- Navigation Drawer
- Animations
- Create activity layouts programmatically
- Testing and optimizing UI

Android Material Design

- What is material ?
- Material properties
- Material Styling / Animations
- Material Patterns

Resources

- Overview of Android Resources

- Creating Resources
- Using Resources
- Drawable Resources
- Animation Resources

Broadcast Receivers

- Broadcast receiver usage patterns: when and why to use them
- Implementing a broadcast receiver
- Registering a broadcast receiver via the manifest file
- Registering a broadcast receiver programmatically

Background Services

- Overview of Android services
- Service lifecycle
- Declaring a service
- Registering a service
- Starting and stopping a service
- Threads and other concurrency considerations with services
- Bound versus unbound services
- Remote versus local services

Intents

- Working with Intents
- Explicit and implicit intents
- Using Intents as messaging objects
- Intents to start components expecting results

Storing and Retrieving Data

- Storage Model selection criteria
- Shared preferences
- Internal Storage – Files
- External Storage – SD Card
- Testing the created files, tools

SQLite Database

- Introducing SQLite
- SQLiteOpenHelper and creating a database
- Opening and closing a database
- Working with cursors
- Inserts, updates, and deletes

Native Content Providers

- Content provider types
- Searching for content
- Adding, changing, and removing content
- Native Android Content Providers
- Accessing Contact Book, Calendar

Custom Content Providers

- Custom Content Provider classes

- Publishing content providers

Web Services

- Understanding Web Services
- Web Services Architecture
- Building Server side components
- Publishing web services
- REST based web services
- Accessing Web Services
- Integrating Web Services with mobile client
- Overview of networking
- Checking the network status
- Checking the web service status
- Working with HTTP to access the web services

Parsing, Parsers

- Document Object Model (DOM)
- Simple API for XML (SAX)
- JavaScript Object Notation (JSON)
- Parsing XML and JSON

Location Based Services

- Using Location Manager, Location Provider
- GPS and Network based tracking
- Testing the application using KML files
- Simulation of the locations on the active device
- Location Listeners and Proximity Alerts

Integrating Google Maps

- API Version 2 of Google Maps
- User Interface – MapFragments
- API key generation
- Registrations in the manifest file
- Google Map, Camera Positions
- Adding Markers, Circles, Polylines
- Google Maps Directions API

Telephony

- Telephony background
- Accessing telephony information
- Monitoring data activity and connectivity
- Working with messaging SMS

Multimedia in Android

- Playing Audio & Video
- Recording Audio & Video
- Customizing Camera & Capturing Photos
- Voice Recognition
- Text To Speech

Bluetooth

- Controlling local Bluetooth device
- Discovering and bonding with Bluetooth devices
- Managing Bluetooth connections
- Communicating with Bluetooth

Social Networking Integrations

- Facebook Integration

Debugging and Testing Android Apps

- Logcat
- Debugger
- Traceview
- HierarchyViewer
- Monkey Runner
- UIAutomator