

Syllabus for Android App Development



Course Duration for Android App Development Course

- 12 weeks

Objective for Android App Development Course

- To become a Professional Android Developer
- To enable the students to become employable

Eligibility for Android App Development Course

- Students must have basic knowledge of core JAVA or any other programming language basics and should have an analytical blend of mind and logic reasoning.

Course overview For Android Development

Android

Introduction Android

- Overview of Android
- Android Apps-Design, 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

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 application

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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 while designing Android UI

Android Testing

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

Fragments

- Designing Fragments
- Fragments life-cycle
- Fragment management and Integration

User Interfaces

- Creating the activity
- XML Vs JAVA UI
- Selection widgets, using fonts
- Common UI Components
- Handling UI events

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

- Usage Pattern
- Implementing a Broadcast Receiver
- Registering a broadcast receiver via manifest life
- 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 Vs Unbound services
- Remote Vs 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 & created files, tools

SQLite Database

- Introduction to SQLite
- SQLite Open Helper & creating database
- Opening & Closing a database
- Working with Cursors
- Inserts, updates & 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 Service
- Web Services Architecture
- Building server side components
- Publishing Web Services
- REST based Web Services
- Accessing Web Services
- Integrating Web Services with mobile clients
- Overview of networking
- Checking the network status
- Checking the web service status
- Working with HTTP to access the web service.

Parsers

- Document Object Model (DOM)
- Simple API from 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 file
- Simulation of the location on the active device
- Location Listeners and Proximity Alerts

Integrating Google Maps

- API Version 2 of Google maps
- User Interface-Map Fragments
- API key generation
- Registrations in the manifest file
- Google Map, camera Positions
- Adding markers, circles, polylines
- Google maps direction APIs

Telephony

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

Bluetooth & Social Network Integration

- Controlling local Bluetooth device
- Managing Bluetooth connections
- Communicating with Bluetooth
- Facebook Integration

Debugging and Testing Android Apps

- Logcat
- Debugger
- Traceview
- HierarchyViewer
- Monkey Runner
- UI Automator