

Android Fundamentals

Duration: 4 Days

Course Overview:

Android is an open source platform developed by Google for mobile development. Applications for the Android platform are developed in Java. The course overviews Android's fundamental topics where at every stage code samples with explanations are included.

Who should attend?

Anyone with Java experience who wishes to become familiar with the Android platform and be capable of developing applications for Android based mobile telephones.

Prerequisites:

Practical experience in Java applications development.

About the Lecturer: Mr.Haim Michael

Haim Michael is a lecturer with passion and a software developer in his heart. He has an experience of more than 15 years in software development and lecturing world wide both academic and professional courses about Java, .NET, Scala, PHP, HTML5, Android and many other related topics. His experience in software development training includes years of lecturing about Java topics in the IDF (Mamram\Basmach). He is one of the first software developers world wide who started to develop Java ME applications for mobile telephones in 2001 and has been developing applications applications for mobile telephones for Symbian, Black Berry and the Android platforms.

Course Content:

1. Introduction – Can minimize

- What is Android?
- Android development: SDK, JVM, Software Stack, Development Tools (ADT)
- User Interface: main components, views, menus and dialogs, data
- Building blocks: Content Providers, Services, Intents, Activities
- Configuration File
- Simple Hello World
- Application Artifacts
- Asset Packaging Tool
- SQLite Database
- System Management
- Separated Processes
- Component and Integration Architecture

2. Application Resources

- Resources: String, Layout
- Resource Reference Syntax
- Compiled Resources
- Compiled Animation Files, Bitmaps, UI View Definitions, Arrays, Colors, Strings, Styles
- Compiled Arbitrary Raw XML Files
- Uncompiled Resources
- The .apk File
- Assets

3. Intents

- Intent Filters
- Activities with intents
- Intent Categories
- Signing Android Applications
- Separated Processes
- Declarative Permission Model
- Location Based Services
- Working with SMS
- Telephony Manager

4. Content Providers – Need to undrestand

- Android Built-In Content Providers
- SQLite Database
- Content Providers: Architecture, Registration, REST Access, URL Structure, Mime Types
- Using Content Providers
- Search, add, update and remove content

5. User Interface Controls

- GUI Samples in Source Code and XML
- TextView and EditText
- AutoComplete and MultiAutoComplete TextView
- Buttons and controls: Image, Toggle, CheckBox, RadioButton, ListView, GridView, MapView, Gallery
- Date and Time Controls

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6. Layout Managers

- LinearLayout
- Weight and Gravity Properties
- TableLayout
- Padding Properties
- RelativeLayout
- AbsoluteLayout
- FrameLayout

7. Menus and Dialogs

- Menus, menu items, sub-menus, system, expanded
- Interfaces
- Group, Attributes, Container
- Items: System, Secondary, Alternative
- Creating a Menu. Using XML
- Overriding Callback Function
- Defining Listener
- Using Intents
- Icon Menus
- Context Menus
- Menu Events
- Dialog: Alert, Prompt

8. Services

- Creating and invoking Services
- Background Tasks
- Inter Process Communication
- Separated Implementation
- Local Service
- Remote Service

9. Android Security Model

- Deployment
- The keytool Utility
- The jarsigner Utility
- Deployment using Eclipse
- Separated Processes
- Declarative Permission Model

10. Graphics Animation

- Frame by Frame Animation
- Code Sample
- Tween Animation
- Code Sample

11. Basic Graphics

- Drawalbe Abstract Class
- ShapeDrable Abstract Class

12. OpenGL Graphics

- glVertex Pointer Method
- glDraw Elements Method

13. Android Threads

- UI Thread
- Single Thread Rule
- Methods: runOnUiThread, post, postDelayed
- Handler
- AsyncTask Utility

14. Application Life Cycle

- Activity Life Cycle Methods
- Methods: onStart, onResume, onPause, onStop, onDestroy, onCreate onPause
- Return Back to Previous Activity

15. Activity Data

- Intents
- Start Activity Methods
- Passing Data between Activities
- Coherent User Experience

16. SMS Messages

- SMSManager
- SEND_SMS Permission
- Sending and receiving an SMS

17. Telephony

- Initiate Phone Calls
- android.telephony Package
- CallLocation
- PhoneStateListener
- ServiceState
- TelephonyManager
- Limitations
- Android VoIP

18. Debugging

- Eclipse Java Editor
- Eclipse Java Debugger
- Logcat
- Android Debug Bridge
- Delvik Debug Monitor Service
- Traceview

19. Summary

