

Introduction to Android Mobile App Development (5 Days)

Audience Java and OO developers, and other technical professionals that will be developing mobile applications using Android.

Course Abstract This course will have a goal of introducing the student to the Android mobile app development environment. Topics discussed will include; Android overview, mobile app fundamentals, core components and lifecycles, manifest configurations, XML layout file, use of Activity and its patterns, role of Intents (explicit and implicit), use of Fragments for UI, navigation and transactions, use of foreground and background Services, Broadcast Receivers and their interaction with Intents, database access via Content Providers and persistent tier, use of XML layout to define UI and use of Adapters, Widgets in accordance to Material Design and define basic event handling architecture.

Objectives Upon conclusion, each participant will have acquired these skills:

- Understand the Android architecture and environment
- Illustrate the core components of Android apps: Activities, Services, Broadcast Receivers and Content Providers
- Depict the role of AndroidManifest file for configurations
- Define usage of XML layout file for UI aspects
- Depict Activity functionality: lifecycle, manifest updates, basic overridden methods, state changes and use of stacks
- Understand the use of Intents, implicit vs explicit and underlying messaging architecture of Android
- Illustrate the use of Fragments, UI components, role in transactions, lifecycle, communication and navigation
- Depict the use of Services, their lifecycle, manifest updates, starting and stopping and role of foreground and background
- Understand use of Broadcast Receivers, their interactions with Intents, permission restrictions and lifecycle events
- Illustrate role of Content Providers to access persistent tiers, generate list results and process transactions
- Design of user interface via XML Layouts, discussion of Material Design, use of Views and ViewGroups, Adapters and Widgets
- Depict creation of a responsive UI design via ConstraintLayout, Card-based and RecyclerView

Prerequisites Each student should have a basic understanding of programming, OO languages preferably. No knowledge of Android environment is needed.