Android application development

Objectives

Bring a practical understanding of:

- Using application development tools for Android
- Programming with the Android SDK
- Android application development using Java

Prerequisites

Minimum prerequisites:

- Knowledge of Java coding
- Experience with OOP concepts
- Linux, Mac or Windows PC
  - +8GB of RAM
  - +5GB of HDD space
- An Android device and installed drivers

3 days Core Training Content: Android Application Development

Day 1 |

Android overview

- *Platform versions*
- *Android architecture*
- *Presentation of the IDE, SDK and Gradle*
- *Setup of the full environment*
- *Creation of a Device Emulator*
- *Application fundamentals*
- *Profiling/Debug tools*
- *Introduction to native application development: NDK*

Lab 1 | Create your first ‘’Hello, World’’ application

Android App Development Basics

- *Activities / Fragments / App Lifecycle*
- *Menus Management*
- *User Experience*
- *Event Listeners*
- *Introduction to ADB (Android Debug Bridge)*
- *Broadcast Receiver and internal events*
- *App Notifications*

Lab 2 | Create an alarm clock with notifications reminder

Android User Interface

- *Layouts for Phones and Tablets support*
- *UI Controls*
- *View Hierarchy*
- *Manifest*
- *Styles and themes*
- *Animations*
- *Design your own widgets*
- *Localization and Internationalization*
- *Use Material Design*

Lab 3 | Create a money converter application implementing different screen sizes

Android application development

Day 2 |

Services

- *Threads, Handlers and Asynctasks*
- *Remote, Local and Intent Services*
- *Introduction to DDMS*
- *Monitoring and debug your application with Logcat*

Lab 4 | Create a multi-threading application, analyze it with DDMS and log user' actions

Network

- *Introduction to sockets and network communication*
- *HTTP requests*
- *WebServices with REST and JSON*
- *SMS and mails management*
- *Bluetooth & BLE*
- *Geolocation and Google Maps API*
- *Push notifications overview: Customs and GCM Based*

Lab 5 | Create a web service consumer application

Data access

- *Storage application*
- *UI and Adapters*
- *User preferences*
- *Files I/O*
- *Database SQLite access*
- *Access to contacts*

Lab 6 | Create an application for managing phone's contacts

Day 3 |

Multimedia

- *Components and animations*
- *SurfaceView*
- *Video*
- *Vocal recognition*
- *OpenGl overview*

Lab 7 | Create a photo's viewer application with animations

Lab 8 | Create an animated wallpaper

Lab 9 | Create an alarm clock with notifications reminder

Access to hardware

- *Touch events and gestures*
- *Camera*
- *Sensors*
- *GPS*
- *Audio recording and playback*
- *WiFi Management*

Data Access

- *Storage options*
- *Adapters*
- *User Preferences*
- *Files I/O*
- *Database SQLite access*
- *Access to contacts*

Lab X | And many other labs depending on your needs

Android App Development Best Practices and Tips

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