DTI-MAD-101
Android Programming

Program Information

Android Beginners : Level I

Nature of the Course
Theory + Practical

Total Hours per Day
2 hours

Course Duration
4 Weeks

Course Summary

The DTC - Android 1 course is targeted for beginners who want to learn how to think and write meaningful pieces of codes or read codes written by someone else in ANDROID. This course teaches how to map literary description of a problem (requirement) to an application/library coded in Android. This is a core basic level course that is essential for anyone who has no prior programming experience but wishes to be a professional Android engineer in future.

Completion Criteria

After fulfilling all of the following criteria, the student will be deemed to have finished the Module:
- Has attended 90% of all classes held.
- Has received an average grade of 80% on all assignments
- Has received an average of 60% in assessments.
- The tutor believes the student has grasped all of the concepts and is ready to go on to the next module.

Required Textbooks

- Dawn Griffiths and David Griffiths, "Head First Android Development", O'Reilly.
- Barry Burd, "Java Development for Android Developers for Dummies", Wiley.

Prerequisites

- Basic knowledge of programming, bits/bytes, procedures, classes, computer architecture, etc. If you just have theoretical knowledge that is perfectly okay but you should have strong convictions on what programming is, and what you hope to achieve from this class.
- Willing and eager to spend at least 10-20 hours (varying from student-to-student) per week outside of the training class to read/write codes in ANDROID (self-study and practice).
- There is no prior educational level requirement for this course. Anyone from 10+2 student to someone who is doing her PHD in Genetic Engineering is welcome to take this course.
- If you are only interested in theory and have no interest/patience in spending at least 10 hours every week throughout the duration of the course, then this course might not be for you.
- If you have absolutely no idea about programming or do not see yourself doing programming in the next six -odd months, then this class may not be for you.

Course Details

📅 **Week 1**

Lesson 1

Basic Java

- Introduction
- Examples: Looping, Decision, Exception Handling, Lists, Maps, Arrays
- Installation of JDK

Lesson 2

Overview Of Android

- Introduction
- Hardware/Software Requirements
- Dalvik Virtual Machine and .apk File Extension

📅 **Week 2**

Lesson 1

Application Structure

- Androidmanifest.xml
- Uses-Permission & Uses-SDK
- Assets, Layouts & Drawable Resources
- Values – strings.xml
- Activities & Activity Lifecycle

Lesson 2

Emulator – Android Virtual Device

- Introduction & Available Emulators
- Launching Emulator
- Editing Emulator Settings
- Emulator Shortcuts
- Logcat Usage

📅 Week 3

Layout Design

- Form Widgets (Button, Spinner, Checkbox, Edit Text)
- Text Fields
- Layouts (Relative Layout, Table Layout, Frame Layout, Linear Layout)
- Nested Layouts
- [dip, dp, sip, sp] Vs. px

UI Design

- Time and Date
- Images and Media
- Composites
- Alert Dialogues and Toast
- Popups
- Web-View

📅 Week 4

Preferences

- Shared Preferences
- Preferences from XML

Menu And Intent

- Option Menu
- Context Menu
- Sub Menu
- Implicit Intents
- Switching Activities
- Menu from XML
- Menu via Code
- Explicit Intents
- Put Extras

Labs

Lab assignments will focus on the practice and mastery of contents covered in the lectures; and introduce critical and fundamental problem-solving techniques to the students.

Program Information

Intermediate Android : Level II

Nature of the Course Theory + Practical	**Total Hours per Day** 2 hours	**Course Duration** 4 Weeks

Course Summary

This course expands on the DTC – ANDROID – Level 2 foundation and offers advanced subjects to equip learners for a career as an Android software engineer.

Completion Criteria

After fulfilling all of the following criteria, the student will be deemed to have finished the Module:

- Has attended 90% of all classes held.
- Has received an average grade of 80% on all assignments
- Has received an average of 60% in assessments.
- The tutor believes the student has grasped all of the concepts and is ready to go on to the next module.

Required Textbooks

- Mark Murphy, "The Busy Coder's Guide to Advanced Android Development", CommonsWare.
- Greg Nudelman, "Android Design Patterns", Wiley.
- Erik Hellman, "Android Programming: Pushing the Limits", Wiley.

Prerequisites

- Successfully completed the DWIT Training - ANDROID – Level 2 or obtained at least 40% score on the entrance exam.
- The latter case applies for new students that are directly attempting this training.
- Successfully complete the interview.
- Willing and eager to spend at least 10-20 hours (varying from student-to-student) per week outside of the training class to read/write codes in ANDROID (self-study and practice).
- Please note that this is a lab intensive course where the students will be expected to work on lab exercises for approximately half the duration of the session.

Course Details

📅 Week 1

Lesson 1

Sqlite Programming

- SQLite Programming
- SQLite Open Helper
- SQLite Database
- Cursor

- Content Providers
- Defining and Using Content Providers
- Providers
- Reading and Updating Contacts Reading Bookmarks

📅 Week 2

Lesson 1

Others

- Creating Own Separate Project Module
- Integrating Project Module in Own Apps
- Including External Libraries in our Application

- Push Notification
- Facebook API Notification

📅 Week 3

Lesson 1

Game Development

- Introduction to Game Engine in Android

Week 4

Labs

- Hands-on learning experience
- Application of theoretical knowledge
- Developing critical thinking and problem-solving skills

- Fostering teamwork and collaboration
- Advancing scientific research and discoveries
- Enhancing practical skills and techniques

Learning Outcomes

- Ability to understand the major dynamics and restrictions that affect mobile devices and how to account for them while planning and developing Android apps.
- Ability to understand and solve Android-related difficulties by knowing where to look for extra sources of knowledge.
- Become familiar with the organization, patterns, and programming techniques of the Android platform and be able to use them to create their own Android applications