#!/ ALX

Android Developer (code: LC-ANDROID-COMPLETE)

Overview

The participants will learn how to create advanced applications for the immensely popular - and constantly growing in popularity - phones and devices with Android.

This course combines the material covered in J-PRE-ANDROID, Android 101 and Android 201 trainings.

Duration

50h

Agenda

Programming in Java

1. Fundamentals
   — a review of the object-oriented programming paradigm: classes, interfaces, inheritance;
   — a complete Java syntax and instruction reference guide (excluding inner classes);
   — naming conventions (Sun conventions);
   — practical consequences of duck typing and static typing:
      — using factories,
   — application structure and compilation; loading classes, Classloaders and CLASSPATH. Packets, code organization.
   — IDE: using Eclipse
2. Advanced Java topics
   — generic types;
   — handling exceptions;
   — inner classes;
   — overloading, autoboxing, wrappers;
   — class initialization, constructors, static and non-static initialization blocks;
   — enumeration;
   — annotations;
3. Multithreaded programming:
   — basic concepts: Thread, Runnable;
   — blocking, synchronization;
   — an introduction to java.util.concurrent;
4. The standard library:
   — collections in Java:
      — all collection interfaces,
      — common implementations,
      — algorithms;
   — input and output:
      — streams, readers/writers, decorators;
      — communicating via HTTP, URLs.

Programming for Android

1. Necessary information about Android programming environment, compatibility issues between versions (API levels) and deploying/publishing of applications.
2. Development kit configuration (device emulator and an actual device).

3. The structure of an android application:
   — Activities, Intents, Services;
   — Content Provider;
   — Broadcast Receiver;
   — application context;
   — data: where and how to store which data;
4. Creating UI:
   — object-oriented GUI architecture: View, Group, Layout, Widget;
   — Dynamic GUI rendering;
   — GUI as a static resource;
   — events and event handling;
   — options and context menu;
5. Resources:
   — adding resource to an application;
   — drawable resources: density and resolution, scaling;
6. Data handling
   — web services and HTTP;
   — parsing well-structured text, text-parsing API (for XML, JSON);
   — adapters (Adapter, AdapterView), GUI binding to data;
7. Dynamic graphics - canvas:
   — SurfaceView, SurfaceHolder;
   — graphics, animations and multithreading.
8. Using phone capabilities:
   — sound;
   — permissions, manifest;
   — accelerometer;
   — accessing local files.
9. Using all of the phone's capabilities:
   — camera, video camera;
   — sound recording;
   — GPS, compass;
   — filesystem and SD card handling;
   — texting.
10. Data handling:
    — Internal SQL database:
      — SQlite peculiarities;
      — using cursors;
      — binding database data to GUI.
    — preferences
    — serializing context.
11. Advanced graphics topics:
    — using mapcontroller (including own layers);
    — introduction to 3D graphics (OpenGL ES):
      — handling hardware, declarations in the manifest (including, e.g., texture compression);
      — fundamentals of 3D graphical processing: matrices, surfaces, vertices;
      — projection, scene, initial configuration;
      — shaders;
12. System integration:
    — custom ContentProvier;
    — user notifications;
    — custom Services and Intents;
    — custom BroadcastReceiver.
13. Background applications and threading:

— managing locks;
— Alarm Manager, BootReceiver;
— Handlers, inter-thread communication.

Target audience and prerequisites

Previous Java programming experience is not required - the course begins with an intense training in Java programming, for which the only requirement is having some programming skills in any programming language.

Those who do not need a prep training in Java itself (syntax, fundamentals, most important parts of the standard library, programming conventions, using IDE, building applications) can, instead of buying the whole course, purchase only the *Android part itself*, that is, Android 101 and Android 201 trainings. These trainings constitute one four-day block.

Separate Android 101 and Android 201 trainings are also available.

Certificates

Course participants receive completion certificates signed by ALX.

Locations

— Warsaw (English) – Jasna 14/16A
— Online (English) – your home, office or wherever you want
— any other location (London, UK, EU) on request

Price

1190 EUR

The price includes:

— course materials,
— snacks, coffee, tea and soft drinks,
— course completion certificate,
— one-time consultation with the instructor after course completion.