

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. Packages, 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).

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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 ContentProvider;
 - user notifications;
 - custom Services and Intents;
 - custom BroadcastReceiver.
13. Background applications and threading:

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- managing locks;
- Alarm Manager, BroadcastReceiver;
- 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.

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