

Course description

This four-day course covers application development for Android devices. The first day provides an introduction to object-oriented programming in Java, concentrating on topics that are relevant to Android. During the following three days, a number of Android applications are assembled. Theory is combined with practical exercises, deploying monitoring and debugging the applications on real and virtual devices. By the end of the course, we expect students to be able to build and deploy their own Android apps.

Venue and fees

Course hours are 9:00 to 5:00 at Thames Valley Park in Reading, the fee is £990+VAT and each delegate has the use of a computer. As well as scheduled public courses, we can deliver the course as individual tuition, either at your offices or at our offices in Reading, for a fee of £1950+VAT. Customised on-site training can also be provided for up to 8 delegates, for a fee of £3900+VAT. This includes all expenses and the use of laptops, if required.

What you will learn

- Fundamentals of Java programming, as appropriate for Android
- Android architecture, application components, resources and the manifest
- User interfaces and the life cycle of an Activity
- Using fragments to optimise the UI for different device types
- Persisting data using the file system and the SQLite database
- Networking, web services and asynchronous tasks
- Using Content Providers to share data between apps
- Background Services and Broadcast Receivers
- Drawing shapes and images

Who should attend

Application developers who want to develop and deploy robust apps for the Android platform

Prerequisites

An introduction to Java is included on day one; previous use of a programming language such as Java, C#, C++, PHP or VB is recommended

Course instructor



Originally a Civil Engineer with a BSc from London University the course instructor, Simon Dineen, has 15 years' experience in object-oriented training and development with three years as an Android developer

Course content

1. [Java Programming for Android](#)

- Introduction to the IntelliJ development environment
- Classes and objects, including fields, methods and constructors
- Inheritance, method overriding and polymorphism
- Exception handling including throwing and catching exceptions
- Interfaces, generics and the collections framework

2. [Introduction to Android](#)

- Versions, devices and architecture
- Using Android Developer Tools and configuring an Android Virtual Device
- Anatomy of an Android application
- Overview of application components, resources and the manifest

3. [Activities](#)

- Understanding the lifecycle of an activity
- Overriding callback methods and using the Log class
- The back stack and saving instance state

4. [Intents](#)

- Using an explicit Intent to start an activity
- Understanding implicit intents and declaring intent filters
- Starting built in activities including contacts, web browser and phone dialler

5. [User Interfaces](#)

- Views and ViewGroups
- Using XML layouts to define the visual structure for a user interface
- Handling events
- Using an Adapter to bind data to a ListView
- Handling selections in a ListView

6. [Resources](#)

- Externalising application resources such as strings, layouts and images
- Accessing resources from code and XML
- Providing alternative resources for specific device configurations
- Assembling and inflating a menu
- Defining and applying Styles and Themes

7. [File streams](#)

- Using Shared Preferences to store user data
- Reading and writing from Internal Storage and using raw resources
- Using external storage and setting permissions

8. Using a database

- Setting up a SQLITE database
- Writing methods to interact with the database
- Displaying a result set as a list
- Writing an app that enables users to insert, update and delete records

9. Content Providers

- Content Provider Basics
- Building an app that retrieves contact details from the Contacts Provider
- Creating a Content Provider, using the database configured in the previous section
- Building an app that connects to the above content provider

10. Networking and web services

- Streaming files, including the database built previously, from a webserver
- Connecting to a network in a background thread
- Retrieving and displaying data from a JSON service

11. Services

- Building and controlling a service that performs a background task
- Comparing the Service and IntentService classes

12. Broadcast Receivers

- Broadcasting an Intent object
- Building an app that receives the above broadcast
- Receiving system broadcasts
- Sending and receiving SMS messages

13. Fragments

- Overview of Fragments and their life cycle
- Declaring a fragment in an activity's layout file
- Adding and removing fragments at runtime
- Building a fragment based app, customised for both smartphones and tablets

14. Graphics

- Drawing shapes, images and text onto a custom View
- Building the graphical part of a chess app
- Responding to touch events, enabling moving pieces on the board

15. Deployment

- Code Style Guidelines
- Packaging and deploying to the Google app store