

ANDROID BOOTCAMP TRAINING COURSE SYNOPSIS

Learn Android programming quickly in this comprehensive Android Bootcamp. This four day bootcamp is a discounted combination of our Introduction to Android Development and Android Development Advanced training classes.

PREREQUISITES FOR THIS ANDROID BOOTCAMP TRAINING COURSE

Knowledge of programming and object-oriented programming concepts. Java programming experience recommended.

WHAT YOU WILL LEARN IN ANDROID BOOTCAMP TRAINING COURSE



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| Your First Android Application | Android and Model-View-Controller |
| The Activity Lifecycle | Debugging Android Apps |
| Your Second Activity | Android SDK Versions and Compatibility |
| UI Fragments and the Fragment Manager | |
| Creating User Interfaces with Layouts and Widgets | |
| Displaying Lists with ListFragment | Using Fragment Arguments |
| Using ViewPager | Dialogs |
| Audio Playback Using MediaPlayer | Retained Fragments |
| Localization | The Action Bar |
| Saving and Loading Local Files | Context Menus and Contextual Action Mode |
| Camera | Implicit Intents |
| Two-Pane Master-Detail Interfaces | Styles And Includes |
| XML Drawables And 9-Patches | HTTP & Background Tasks |
| Loopers, Handlers, and HandlerThread | Search |
| Background Services | Browsing The Web & WebView |
| Custom Views and Touch Events | Tracking the Device's Location |
| Local Databases with SQLite | Loading Asynchronous Data With Loaders |
| Using Maps | |

ANDROID BOOTCAMP TRAINING COURSE LENGTH AND TIME

This class is 4 days long. Class time is 9:00 a.m.- 4:00 p.m. Breaks are scheduled throughout the day and lunch is typically scheduled 12-1. Students provide their own lunch.

ENROLLMENT IN ANDROID BOOTCAMP TRAINING COURSE

Please see our Enrollment Page (<http://www.ledet.com/enroll>) for our enrollment form.

ANDROID BOOTCAMP TRAINING COURSE LOCATIONS

We have training centers in Atlanta, Chicago, Denver, San Diego and Washington DC. We also offer classes at a network of rental facilities. We offer private onsite training and instructor-led, live online training. If coming to a rental facility, please double-check the location of your class with our office to make sure you get to the right location.

GOALS FOR ANDROID BOOTCAMP TRAINING COURSE

Sterling Ledet and Associates realizes the importance of education and we take pride in being able to offer you classes that are more custom fit to your needs. Call us at (877) 819-2665 if you have any special questions or e-mail us at sales@ledet.com.

MULTI-CLASS PACKAGES

This bundle/workshop provides a significant discount off of our regular pricing. Our standard policy for all bundled workshops is that once one of the classes in the bundle, package or workshop is attended, no refunds are available for unused portions of the bundle. Student rescheduling is available under our regular policies.

DISCLAIMER

Our goal is to make sure your class meets your objectives, not ours. Therefore, all of our outlines are treated as guides to help steer the workshop. This outline does not guarantee that all the topics listed will be covered in the time allowed. The amount of material covered is based on the skill level of the student audience. We may change or alter course topics to best suit the classroom situation.

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LESSON 1 - YOUR FIRST ANDROID APPLICATION

- App Basics
- Creating an Android Project
- Navigating in Eclipse
- Laying Out the User Interface
- The view hierarchy
- Widget attributes
- Creating string resources
- Previewing the layout
- From Layout XML to View Objects
- Resources and resource IDs
- Wiring Up Widgets
- Organizing imports
- Getting references to widgets
- Setting listeners
- Running on the Emulator
- For the More Curious: Android Build Process
- Android build tools

LESSON 2 - ANDROID AND MODEL-VIEW-CONTROLLER

- Creating a New Class
- Generating getters and setters
- Model-View-Controller and Android
- Benefits of MVC
- Updating the View Layer
- Updating the Controller Layer
- Running on a Device
- Connecting your device
- Configuring your device for development
- Adding an Icon
- Adding resources to a project
- Referencing resources in XML
- Challenge: Add a Listener to the TextView
- Challenge: Add a Previous Button
- Challenge: From Button to ImageButton

LESSON 3 - THE ACTIVITY LIFECYCLE

- Logging the Activity Lifecycle
- Making log messages
- Using LogCat
- Rotation and the Activity Lifecycle
- Device configurations and alternative resources
- Saving Data Across Rotation
- Overriding onSaveInstanceState(Bundle)
- The Activity Lifecycle, Revisited
- For the More Curious: Testing onSaveInstanceState(Bundle)
- For the More Curious: Logging Levels and Methods

LESSON 4 - DEBUGGING ANDROID APPS

- The DDMS Perspective
- Exceptions and Stack Traces
- Diagnosing misbehaviors
- Logging stack traces
- Setting breakpoints
- Using exception breakpoints
- File Explorer
- Android-Specific Debugging
- Using Android Lint
- Issues with the R class

LESSON 5 - YOUR SECOND ACTIVITY

- Setting Up a Second Activity
- Creating a new layout
- Creating a new activity subclass
- Declaring activities in the manifest
- Adding a Cheat button to QuizActivity
- Starting an Activity
- Communicating with intents
- Passing Data Between Activities
- Using intent extras
- Getting a result back from a child activity
- How Android Sees Your Activities
- Challenge

LESSON 6 - ANDROID SDK VERSIONS AND COMPATIBILITY

- Android SDK Versions
- Compatibility and Android Programming
- Honeycomb was big
- Minimum SDK version
- Target SDK version
- Build SDK version
- Adding code from later APIs safely
- Using the Android Developer Documentation
- Challenge: Reporting the Build Version

LESSON 7 - UI FRAGMENTS AND THE FRAGMENT MANAGER

- The Need for UI Flexibility
- Introducing Fragments
- Starting CriminalIntent
- Creating a new project
- Fragments and the support library
- Creating the Crime class
- Hosting a UI Fragment
- The fragment lifecycle
- Two approaches to hosting
- Defining a container view
- Creating a UI Fragment
- Defining CrimeFragment's layout
- Creating the CrimeFragment class

- Adding a UI Fragment to the FragmentManager
- Fragment transactions
- The FragmentManager and the fragment lifecycle
- The Reason All Our Activities Will Use Fragments
- For the More Curious: Developing for Honeycomb, ICS, Jelly Bean, and Beyond

LESSON 8 - CREATING USER INTERFACES WITH LAYOUTS AND WIDGETS

- Upgrading Crime
- Updating the Layout
- Wiring Widgets
- More on XML Layout Attributes
- Styles, themes, and theme attributes
- Screen pixel densities and dp and sp
- Android's design guidelines
- Layout parameters
- Margins vs padding
- Using the Graphical Layout Tool
- Adding a new widget
- Editing attributes in properties
- Reorganizing widgets in the outline view
- Updating child layout parameters
- How android:layout_weight works
- Summary of graphical layout tool
- Widget IDs and multiple layouts
- Challenge: Formatting the Date

LESSON 9 - DISPLAYING LISTS WITH LISTFRAGMENT

- Updating CriminalIntent's Model Layer
- Singletons and centralized data storage
- Creating a ListFragment
- An Abstract Activity for Hosting a Fragment
- A generic fragment-hosting layout
- An abstract Activity class
- ListFragment, ListView, and ArrayAdapter
- Creating an ArrayAdapter
- Responding to list item clicks
- Customizing List Items
- Creating the list item layout
- Creating an adapter subclass

LESSON 10 - USING FRAGMENT ARGUMENTS

- Starting an Activity from a Fragment
- Putting an extra
- Retrieving an extra
- Updating CrimeFragment's view with Crime data
- The downside to direct retrieval

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Fragment Arguments
Attaching arguments to a fragment
Retrieving arguments
Reloading the List
Getting Results with Fragments

LESSON 11 - USING VIEWPAGER

Creating CrimePagerActivity
Laying out views in code
ViewPager and PagerAdapter
Integrating CrimePagerActivity
FragmentManagerAdapter vs
FragmentPagerAdapter
For the More Curious: How ViewPager Really Works

LESSON 12 - DIALOGS

Creating a DialogFragment
Showing a DialogFragment
Setting a dialog's contents
Passing Data Between Two Fragments
Passing data to DatePickerFragment
Returning data to CrimeFragment
Challenge: More Dialogs

LESSON 13 - AUDIO PLAYBACK USING MEDIAPLAYER

Adding Resources
Defining the layout for HelloMoonFragment
Manually resetting the app theme
Creating HelloMoonFragment
Using a Layout Fragment
Audio Playback
Wiring buttons to play and stop
Challenge: Pausing Audio Playback
For the More Curious: Playing Video
Challenge: Playing Video in HelloMoon

LESSON 14 - RETAINED FRAGMENTS

Retaining a Fragment
Rotation and Retained Fragments
Retained Fragments: As Nice as All That?
Rotation Handling and
onSaveInstanceState(Bundle)
For the More Curious: Rotation Before Fragments

LESSON 15 - LOCALIZATION

Localizing Resources
Default resources
Configuration Qualifiers
Prioritizing alternative resources
Multiple qualifiers
Finding the best-matching resources
More Resource Rules and Regulations

Resource naming
Resource directory structure
Testing Alternative Resources

LESSON 16 - THE ACTION BAR

Options Menu
Defining an options menu in XML
Creating the options menu
Responding to options menu selections
Enabling Ancestral Navigation
Enabling the app icon
Responding to the Up button
An Alternative Menu Item
Creating an alternative menu file
Toggling the menu item title
"Just one more thing"
Challenge: An Empty View for the List

LESSON 17 - SAVING AND LOADING LOCAL FILES

Saving and Loading Data in CriminalIntent
Saving crime data to a JSON file
Loading crimes from the filesystem
Challenge: Use External Storage
For the More Curious: The Android Filesystem and Java I/O
Accessing files and directories

LESSON 18 - CONTEXT MENUS AND CONTEXTUAL ACTION MODE

Defining a Context Menu Resource
Implementing a Floating Context Menu
Creating the context menu
Registering for the context menu
Responding to an action
Implementing Contextual Action Mode
Enabling multiple selection
Action mode callbacks in a list view
Changing activated item backgrounds
Implementing contextual action mode in other views
Compatibility: Fallback or Duplicate?
Challenge: Deleting from CrimeFragment
For the More Curious: ActionBarSherlock
Challenge: Using ActionBarSherlock
Basic ABS integration in CriminalIntent
More advanced integration
Even more advanced integration

LESSON 19 - CAMERA I: VIEWFINDER

Creating the Fragment Layout
Creating CrimeCameraFragment
Creating CrimeCameraActivity
Adding activity and camera permissions to the manifest
Using the Camera API

Opening and releasing the camera
SurfaceView, SurfaceHolder, and Surface
Determining preview size
Starting CrimeCameraActivity from CrimeFragment
For the More Curious: Running Activities from the Command Line

LESSON 20 - CAMERA II: TAKING PICTURES AND HANDLING IMAGES

Taking a Picture
Implementing Camera callbacks
Setting the picture size
Passing Data Back to CrimeFragment
Starting CrimeCameraActivity for a result
Setting a result in CrimeCameraFragment
Retrieving filename in CrimeFragment
Updating the Model Layer
Adding a Photo class
Giving Crime a photo property
Setting the photo property
Updating CrimeFragment's View
Adding an ImageView
Image handling
Showing Larger Image in a DialogFragment
Challenge: Crime Image Orientation
Challenge: Deleting Photos
For the More Curious: Deprecation in Android

LESSON 21 - IMPLICIT INTENTS

Adding Buttons
Adding a Suspect to the Model Layer
Using a Format String
Using Implicit Intents
Parts of an implicit intent
Sending a crime report
Asking Android for a contact
Checking for responding activities
Challenge: Another Implicit Intent

LESSON 22 - TWO-PANE MASTER-DETAIL INTERFACES

Adding Layout Flexibility
Modifying SingleFragmentActivity
Creating a layout with two fragment containers
Using an alias resource
Activity: Fragment Boss
Fragment callback interfaces
For the More Curious: More on Determining Device Size

LESSON 23 - MORE ABOUT INTENTS AND TASKS

Setting Up NerdLauncher

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Resolving an Implicit Intent
Creating Explicit Intents at Runtime
Tasks and the Back Stack
Using NerdLauncher as a Home Screen
Challenge: Icons, Reordering Tasks
For the More Curious: Processes vs Tasks

LESSON 24 - STYLES AND INCLUDES

Setting Up the RemoteControl Project
Setting up RemoteControlActivity
Setting up RemoteControlFragment
Cleaning Up with Styles
Finishing the Layout
For the More Curious: include and merge
Challenge: Style Inheritance

LESSON 25 - XML DRAWABLES AND 9-PATCHES

XML Drawables
State List Drawables
Layer List and Inset Drawables
Using 9-Patch Images

LESSON 26 - HTTP & BACKGROUND TASKS

Creating PhotoGallery
Networking Basics
Asking permission to network
Using AsyncTask to Run on a Background Thread
You and Your Main Thread
Beyond the main thread
Fetching XML From Flickr
Using XmlPullParser
From AsyncTask Back to the Main Thread
For the More Curious: More on AsyncTask
Cleaning Up AsyncTasks
Challenge: Paging

LESSON 27 - LOOPERS, HANDLERS, AND HANDLERTHREAD

Preparing GridView for Displaying Images
Downloading Lots of Small Things
Communicating with the Main Thread
Assembling a Background Thread
Messages and Message Handlers
Message anatomy
Handler anatomy
Using handlers
Passing handlers
For the More Curious: AsyncTask vs Threads
Challenge: Preloading and Caching

LESSON 28 - SEARCH

Searching Flickr
The Search Dialog
Creating a search interface
Searchable activities
Hardware search button
How Search works
Launch modes and new intents
Simple persistence with shared preferences
Using SearchView on Post-Android 30
Challenges

LESSON 29 - BACKGROUND SERVICES

Creating an IntentService
What Services Are For
Safe background networking
Looking for New Results
Delayed Execution with AlarmManager
PendingIntent
Managing alarms with PendingIntent
Controlling Your Alarm
Updating options menu items
Notifications
For the More Curious: Service Details
What service does (and does not) do
A service's lifecycle
Non-sticky services
Sticky services
Bound services

LESSON 30 - BROADCAST INTENTS

Waking Up on Boot
Broadcast receivers in the manifest
How to use receivers
Filtering Foreground Notifications
Sending broadcast intents
Dynamic broadcast receivers
Using private permissions
Receiving results with ordered broadcasts
Receivers and Long-running Tasks

LESSON 31 - BROWSING THE WEB & WEBVIEW

One Last Bit of Flickr Data
The Easy Way: Implicit Intents
The Harder Way: WebView
Using WebChromeClient to spruce things up
Proper rotation with WebView
For the More Curious: Injecting JavaScript Objects

LESSON 32 - CUSTOM VIEWS AND TOUCH EVENTS

Setting Up the DragAndDraw Project
Setting up DragAndDrawActivity
Setting up DragAndDrawFragment
Creating a Custom View
Creating BoxDrawingView
Handling Touch Events
Tracking across motion events
Rendering Inside onDraw(...)
Challenge: Rotations

LESSON 33 - TRACKING THE DEVICE'S LOCATION

Getting Started with RunTracker
Setting up RunActivity
Setting up RunFragment
Locations and the LocationManager
Receiving Broadcast Location Updates
Updating the UI with Location Data
Faster Answers: the Last Known Location
Testing Locations on Real and Virtual Devices

LESSON 34 - LOCAL DATABASES WITH SQLITE

Storing Runs and Locations in a Database
Querying a List of Runs From the Database
Displaying a List of Runs Using CursorAdapter
Creating New Runs
Working with Existing Runs
Challenge: Identifying the Current Run

LESSON 35 - LOADING ASYNCHRONOUS DATA WITH LOADERS

Loaders and the LoaderManager
Using Loaders in RunTracker
Loading the List of Runs
Loading a Single Run
Loading the Last Location for a Run

LESSON 36 - USING MAPS

Adding the Maps API to RunTracker
Use a real device to test maps
Install and use the Google Play services SDK
Obtain a Google Maps API key
Update RunTracker's manifest
Showing the User's Location on a Map
Displaying a Run's Path
Adding Markers for Run Start and Finish
Challenge: Live Updates