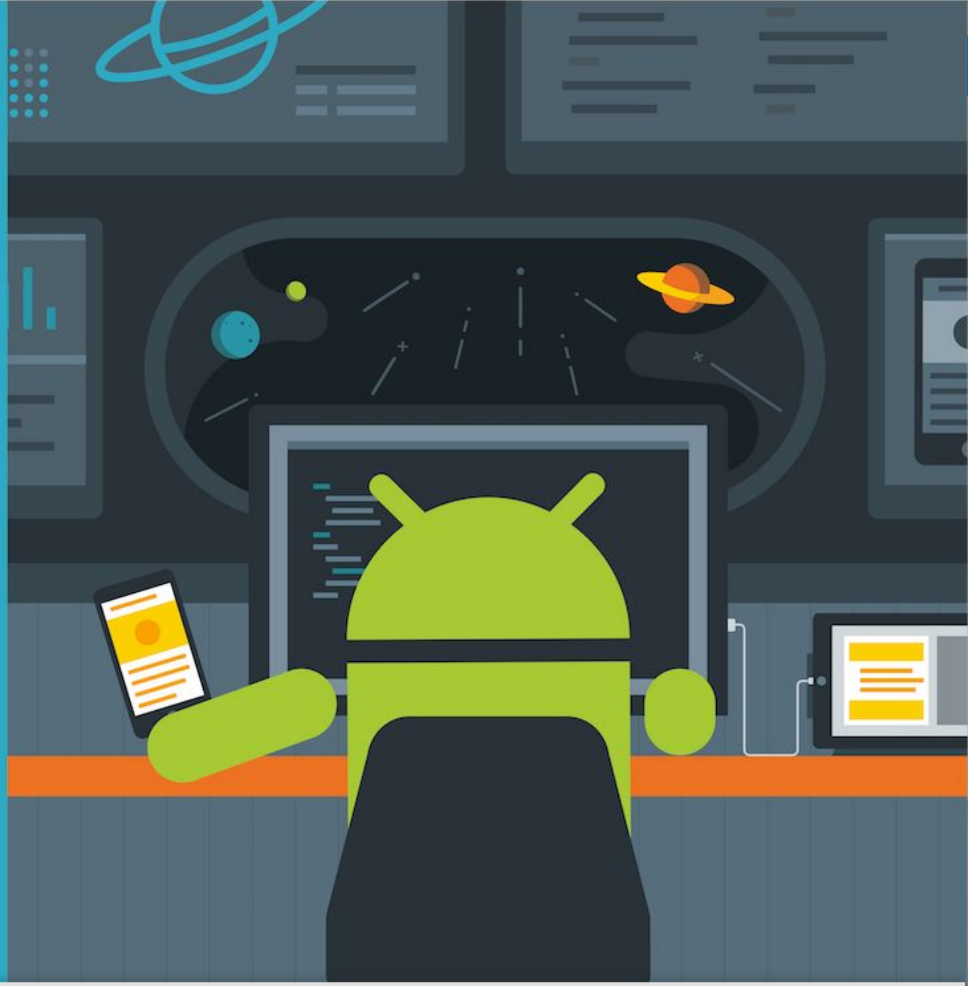
Advanced Android Development course

Brought to you by the Google Developers Training team



Contents

- Welcome to our new Advanced Android Development course
- What will you learn in this course?

Introduction

Next steps in the Android developer journey

Android Developer Fundamentals

Take off on your journey to becoming an Android app developer

Advanced Android Development

Now go deeper into advanced Android development concepts

Who is the audience for this course?

- Java programmers who have basic knowledge of building Android apps
- Preferred: Developers who have taken the Android Developer Fundamentals course

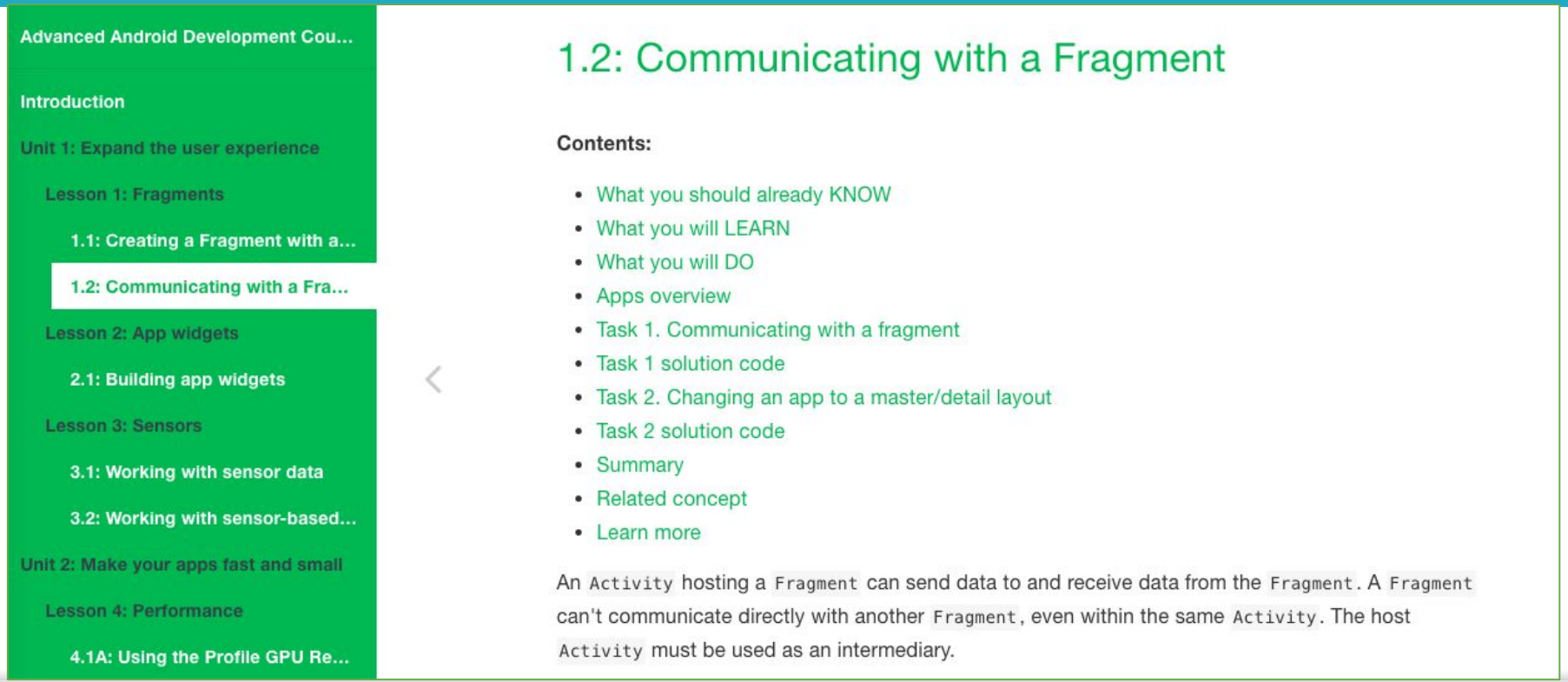
About the course

- Takes you to the next level of Android development
- Intended to be an instructor-led course
- All materials are available online
- Self-motivated learners can work through practicals on their own

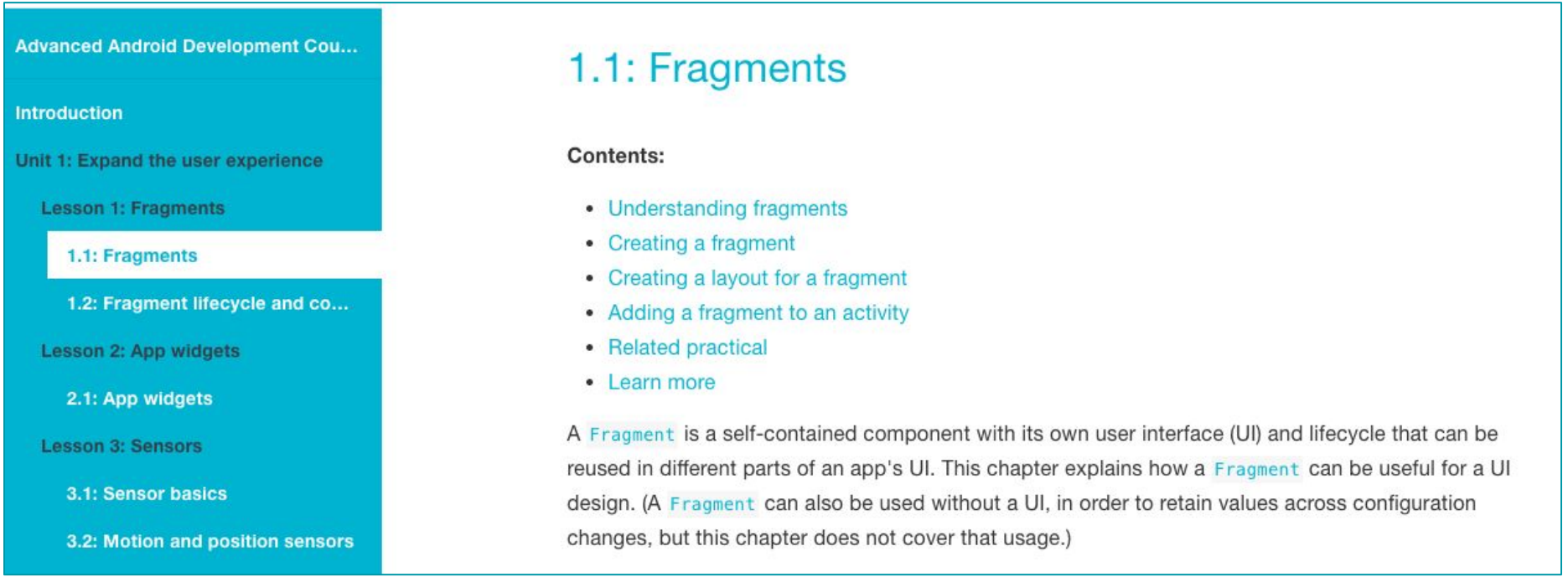
Materials

- Concepts guide
- Practicals
- Slides
- Source code in GitHub
- Everything is available online
- Released under Creative Commons License

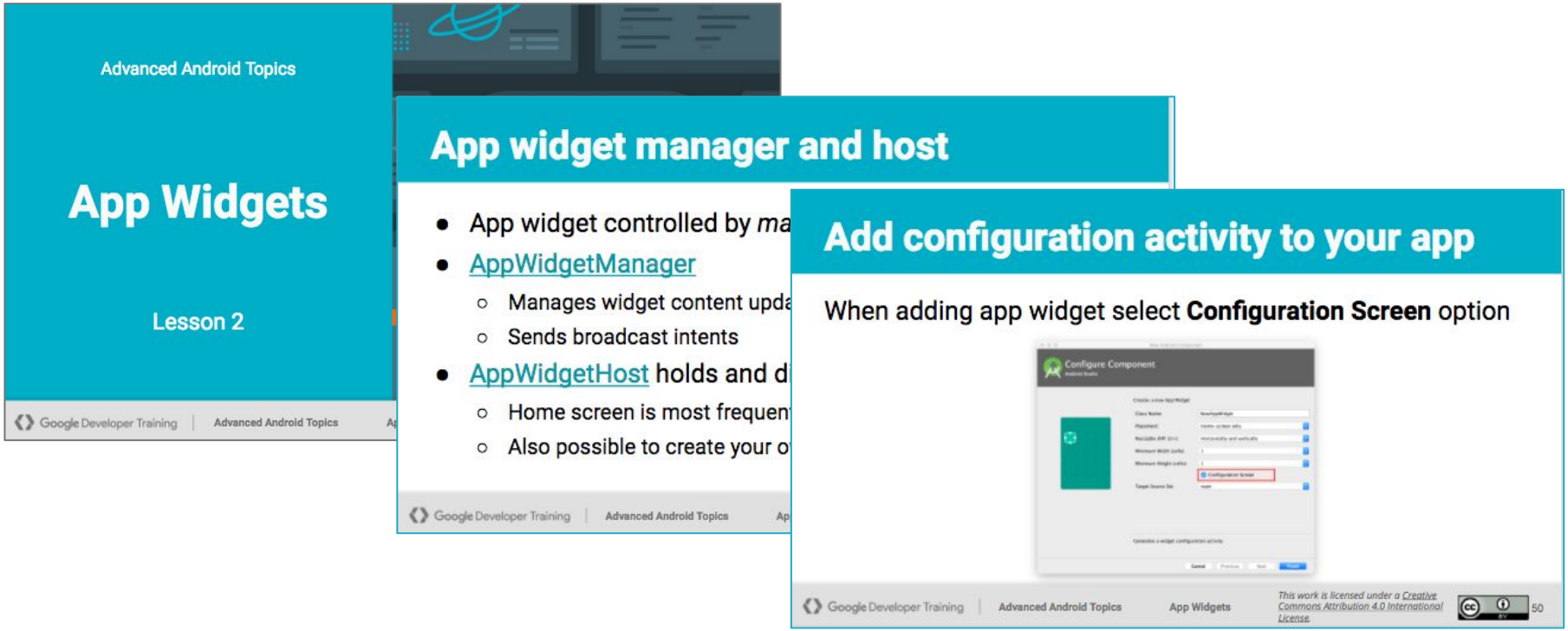
Step-by-step practicals



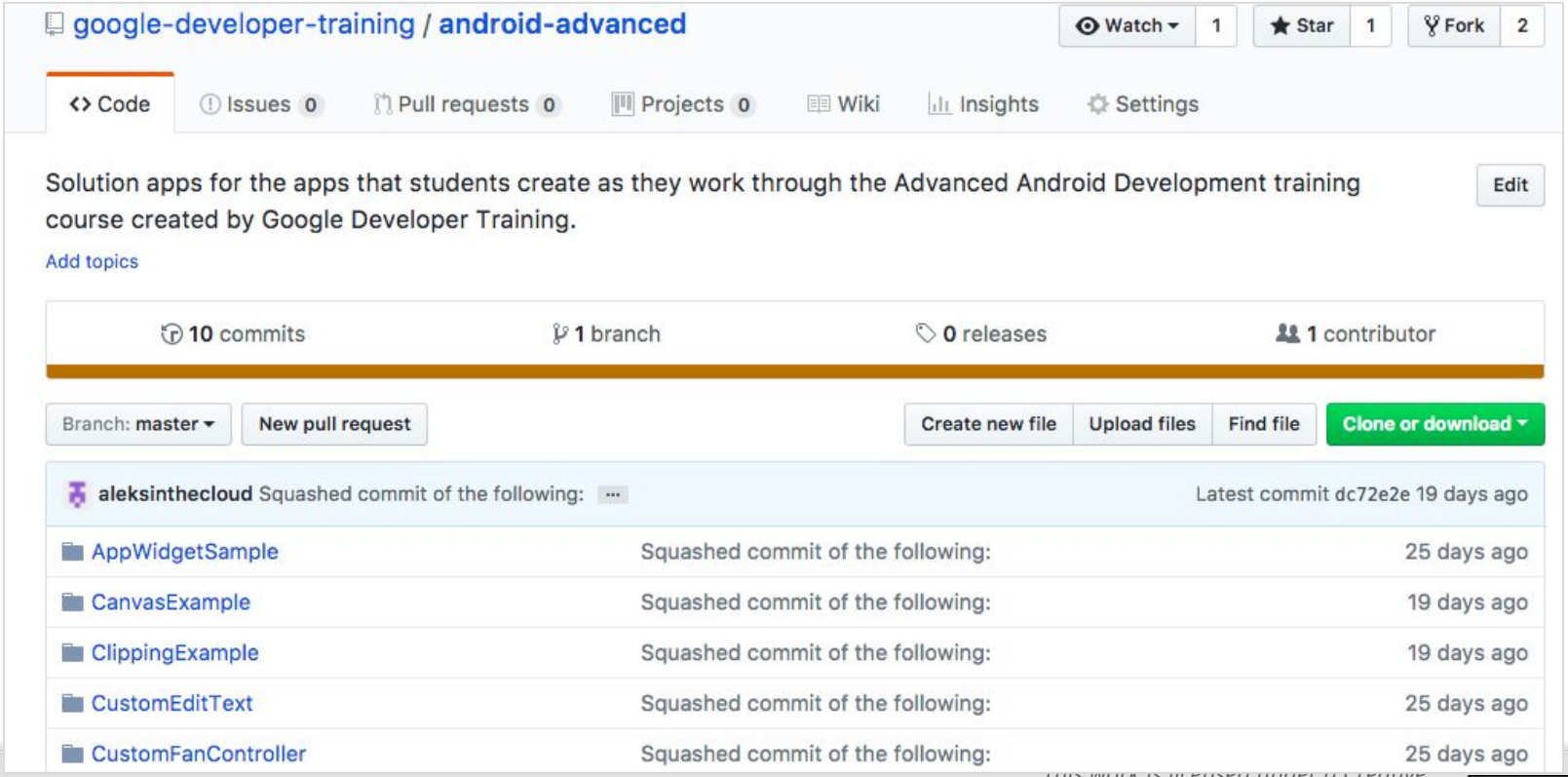
Concepts guides



Slide decks



Source code for sample apps in GitHub



Course structure

- Course is divided into units
- Each unit is independent of other units

You choose:

- Teach the whole course
- Teach specific units
- Add units to your existing Android dev curriculum

What does the course cover?

- Unit 1: Expand the user experience
- Unit 2: Make your apps fast and small
- Unit 3: Make your apps accessible
- Unit 4: Add geo features to your apps
- Unit 5: Advanced graphics and views
- More units coming in early 2018, including media playback

Unit 1

Expand the user experience

Expand the user experience

In Android Developer Fundamentals you learned how to use layouts to display activities.

Now learn about fragments, widgets, and sensors to improve the experience your users have with your app.

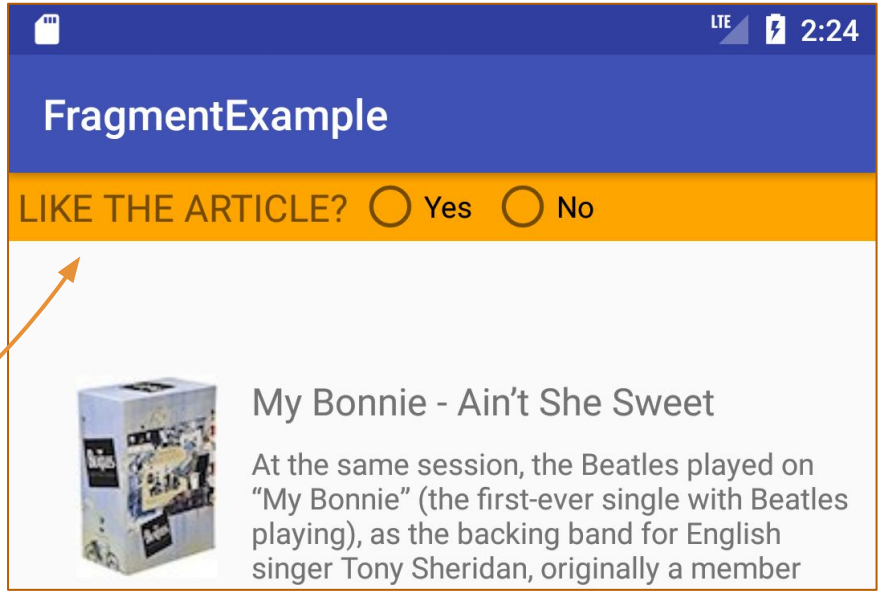
Lesson 1.1 Fragments

Learn that a fragment:

- Represents a section of a UI
- Can be reused
- Is created statically in XML or dynamically in code

Build an app:

- Use a fragment to get user feedback



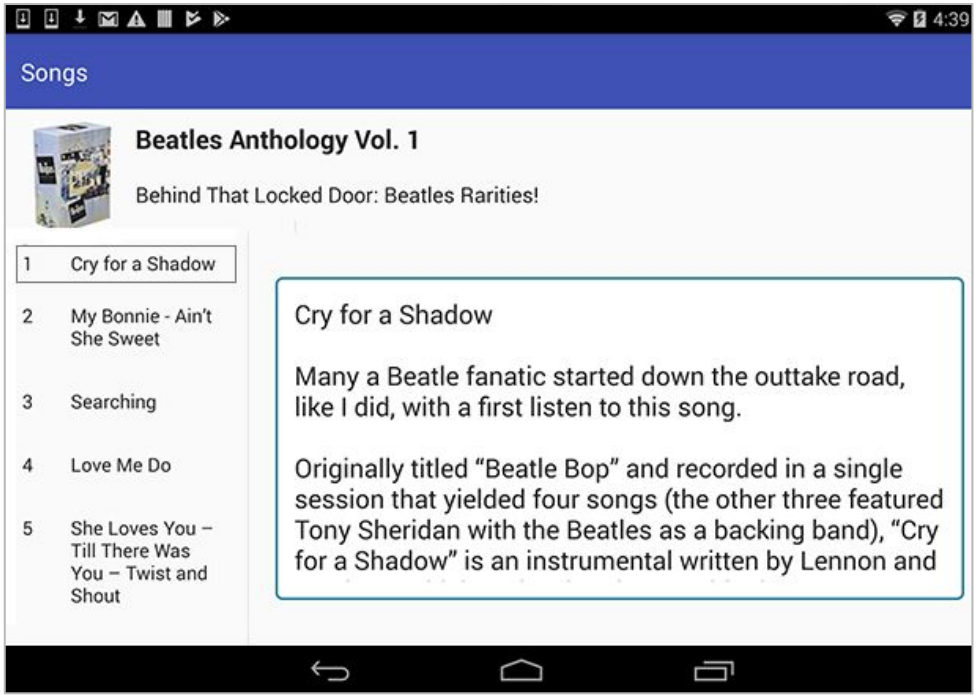
1.2 Communicating with fragments

Learn how to:

- Send data to and from fragments
- Implement master/detail layout for wide screens

Build an app:

- Use fragment to show song details



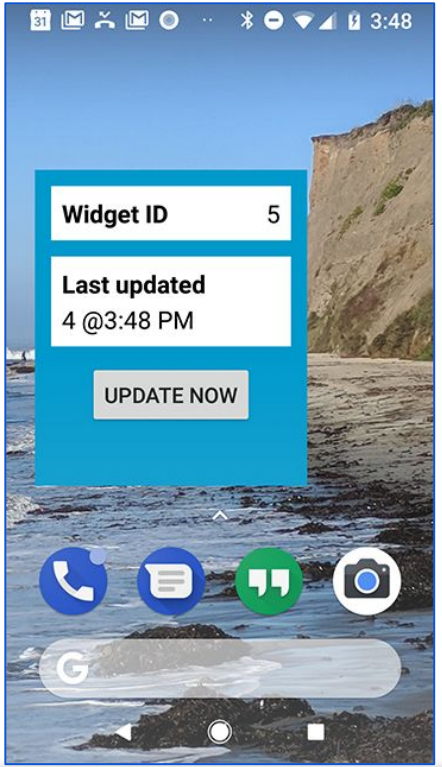
2.1 App widgets

Learn how to:

- Implement a widget for your app
- Make the widget respond to user actions

Build an app:

- App widget updates automatically and on demand



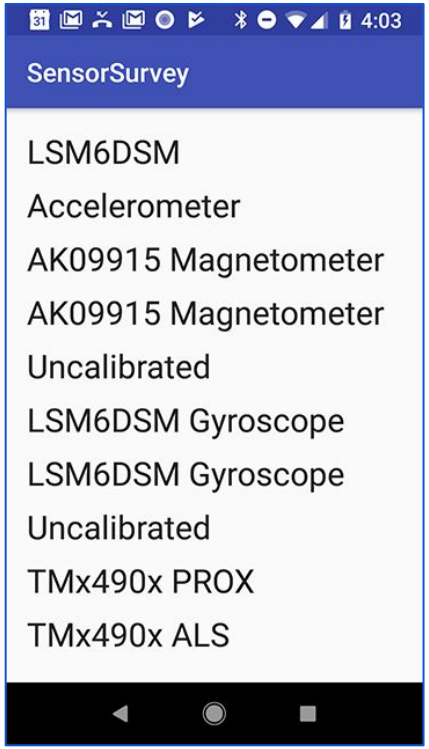
3.1 Working with sensor data

Learn how to:

- Get available sensors
- Register listeners for sensor data
- React to incoming sensor data

Build apps:

- Display all available sensors
- Display data from light and proximity sensors



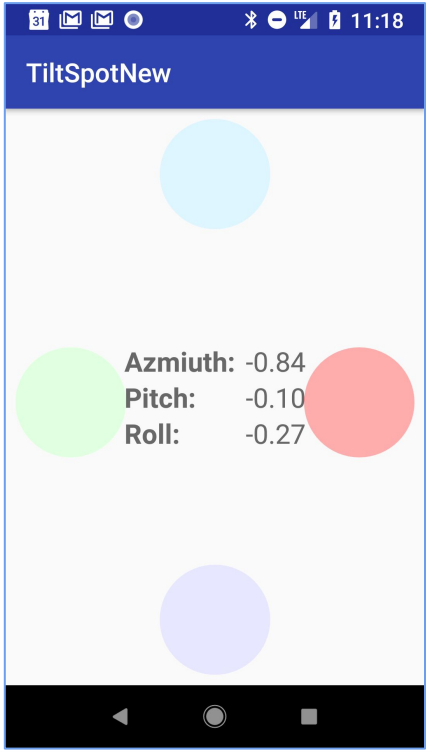
3.2 Sensor-based orientation

Learn about:

- Accelerometer and magnetometer
- Sensor coordinate systems

Build an app:

- Display shapes to show angles and orientation detected by accelerometer and magnetometer



Unit 2

Performance: Make your apps fast and small

Make your apps fast and small

What is good app performance, and why does it matter?

Learn how to keep your app fast and small so your users stay engaged. Use tools to measure performance and identify how to improve it.

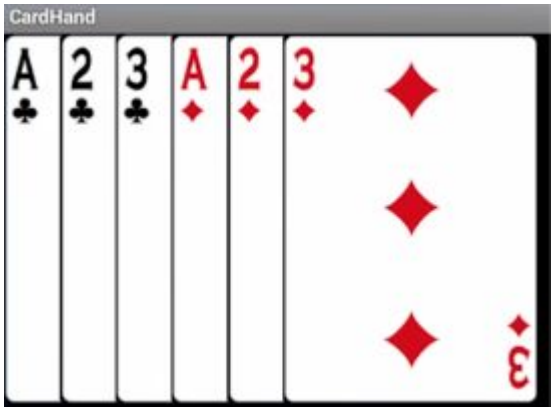
4.1 Performance: Rendering and layout

Learn about:

- How layout and drawing affects your app's performance
- Tools to detect performance problems

Do:

- Use tools to analyze drawing performance



Overdraw *is drawing one pixel on top of another*

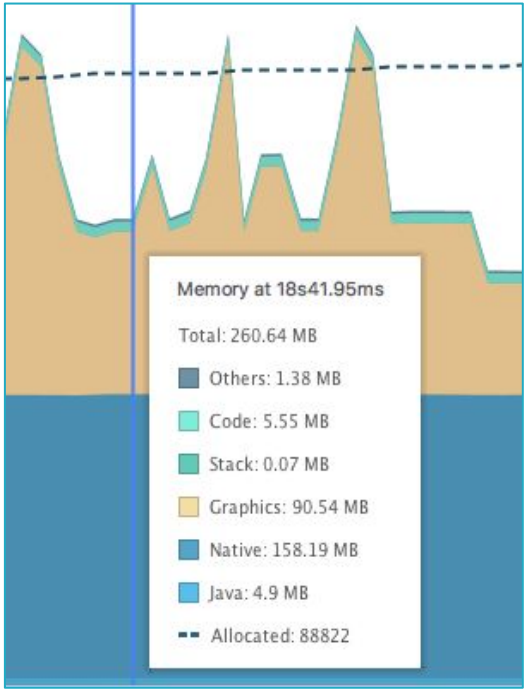
4.2 Performance: Memory

Learn about:

- Memory leaks
- The Memory Profiler tool

Do:

- Use the Memory Profiler tool



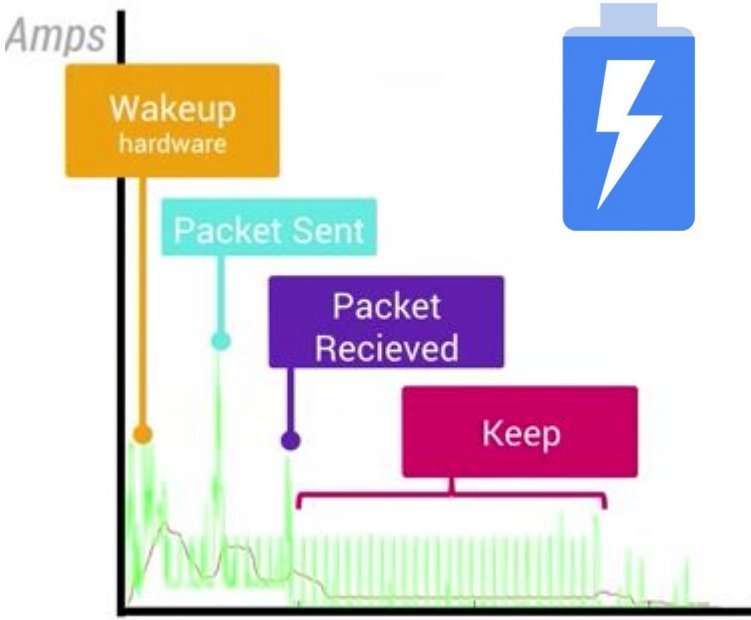
4.3 Network, battery, image performance

Learn about:

- Text and image performance
- What affects battery drain
- Network best practices

Do:

- Run the Network Profiler tool
- Use battery visualization tools
- Convert images to WebP format



Unit 3

Unit 3: Make your apps accessible

Make your apps accessible

Make your apps accessible to users with varying abilities, and in different languages and locales.

Accessible apps reach more users.

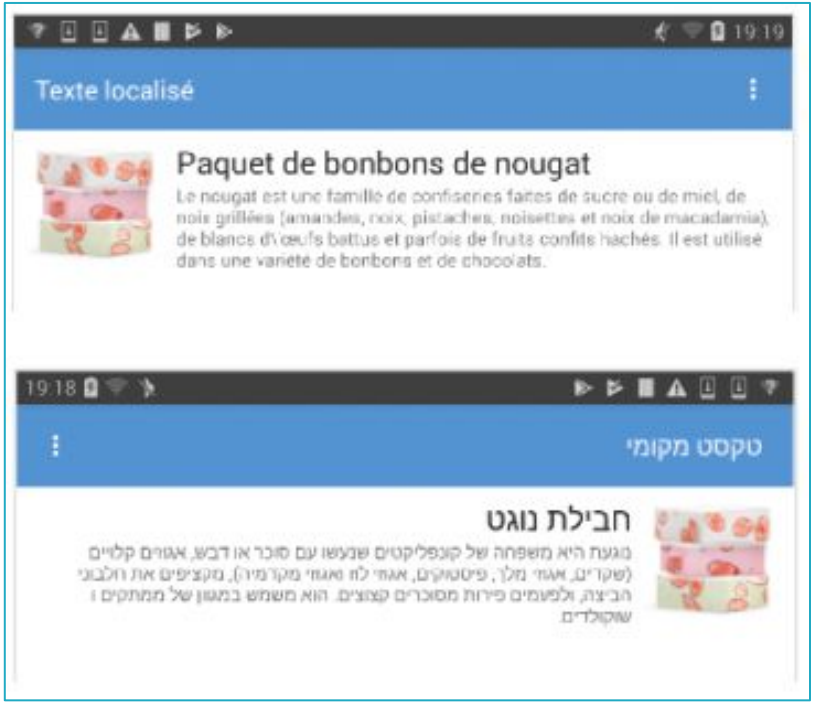
5.1 Languages and layouts

Learn how to:

- Support different languages

Build an app:

- Use Translations Editor to add translations
- Add support for right-to-left languages



5.2 Locales

Learn about:

- Locales
- Formatting dates, times, numbers, currencies

Build an app:

- Show date, quantity, and price of candy in the user's locale

6/8/2017

6 of August?

8 of June?

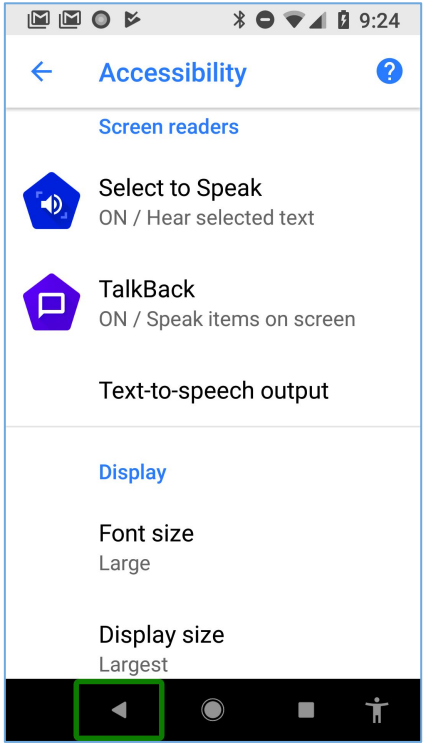
6.1 Accessibility

Learn about:

- Accessibility features in Android
- Best practices for making accessible apps

Do:

- Explore accessibility features on your device
- Use Google Talkback
- Test your app's accessibility



Unit 4

Add geo features to your app

Add geo features to your apps

Did you know that you can add many of the features provided by Google Maps to the Android apps you build?

This unit shows how to detect and show the user's location, show nearby places, and insert maps into your apps.

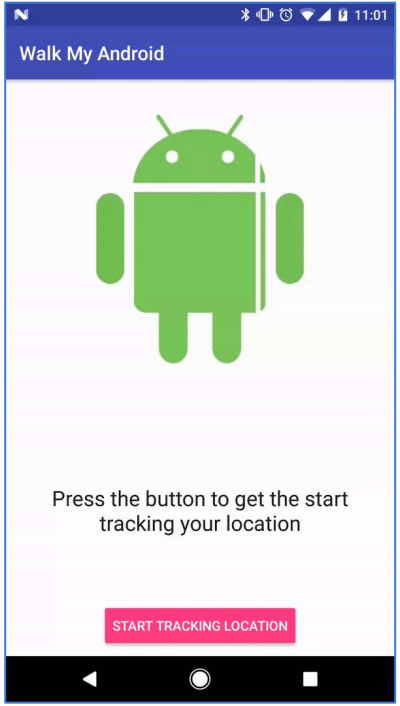
7.1 Location

Learn how to:

- Get the device's location
- Get address from longitude and latitude
- Update the location

Build an app:

- Update the user's location as they walk



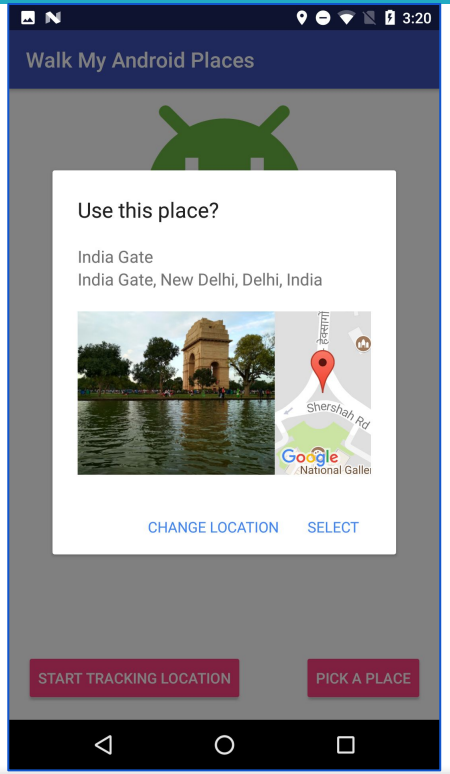
8.1 Places API

Learn how to:

- Use Places in your app

Build an app:

- Show a list of nearby places
- Update UI depending on kind of place



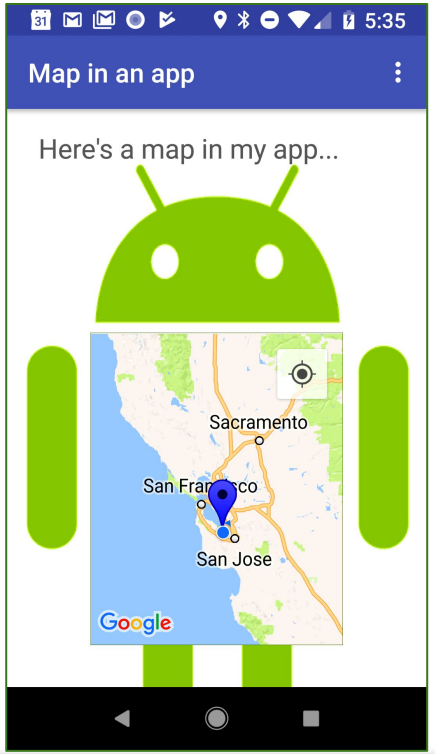
9.1 Add a Google Map to your app

Learn about:

- Integrating Google Maps in your app
- Map types and styles
- Markers and points of interest

Build an app:

- Add map types and markers
- Style your map
- Enable location tracking and Street View



Unit 5

Advanced graphics and views

Advanced graphics and views

Android Studio comes with lots of predefined views, from buttons to seek bars. You can customize their appearance with attributes and use drawables for customized backgrounds.

But sometimes you want even more control over the way your UI elements are rendered.

This unit teaches advanced graphics and views to help you draw exactly the UI elements you have in mind.

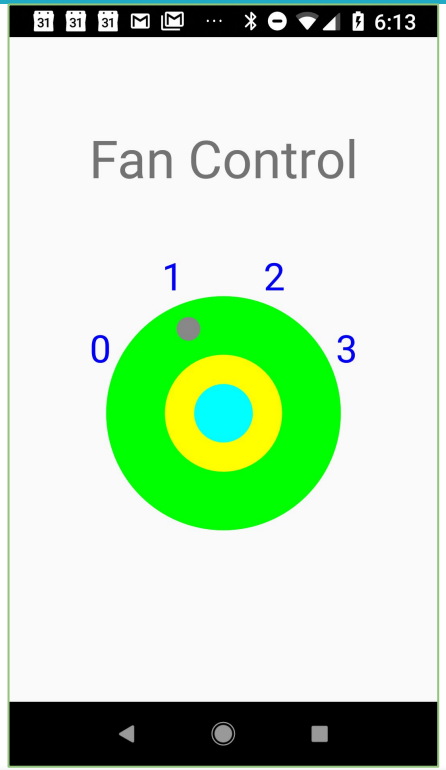
10.1 Custom views

Learn about:

- Custom views — when, why, how

Build an app:

- Create a custom TextEdit view
- Create a custom fan-controller view



11.1 Canvas

Learn about:

- Canvas, Paint
- Clipping regions
- Responding to button clicks

Build an app:

- Simple canvas app
- Let user draw sketches
- Canvas with different clipping regions

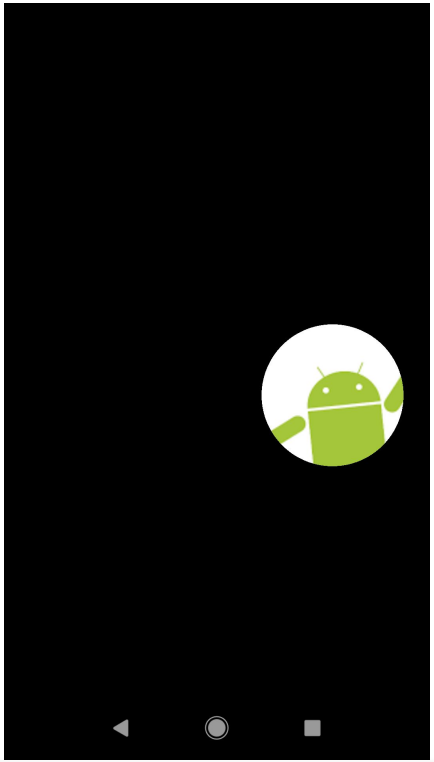
11.2 SurfaceView

Learn how to:

- Use SurfaceView to perform drawing operations outside the main thread

Build an app:

- Search for an Android robot hiding in the dark



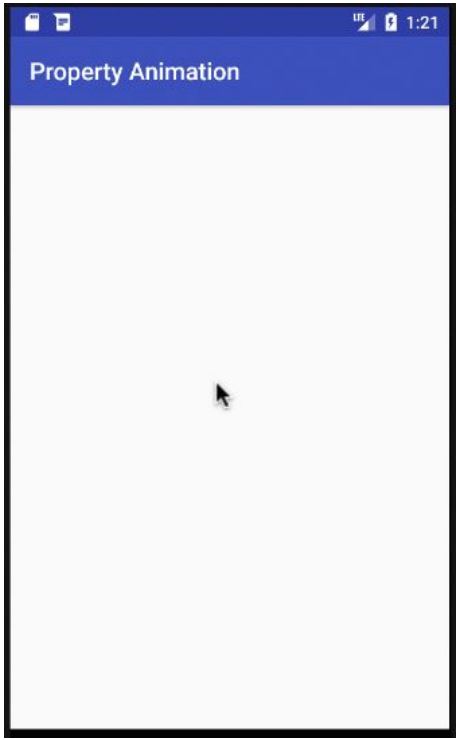
12.1 Animation

Learn about:

- Different kinds of animation in Android
- Creating property animators
- Use AnimatorSets to play multiple animations

Build an app:

- Animate a circle expanding and shrinking



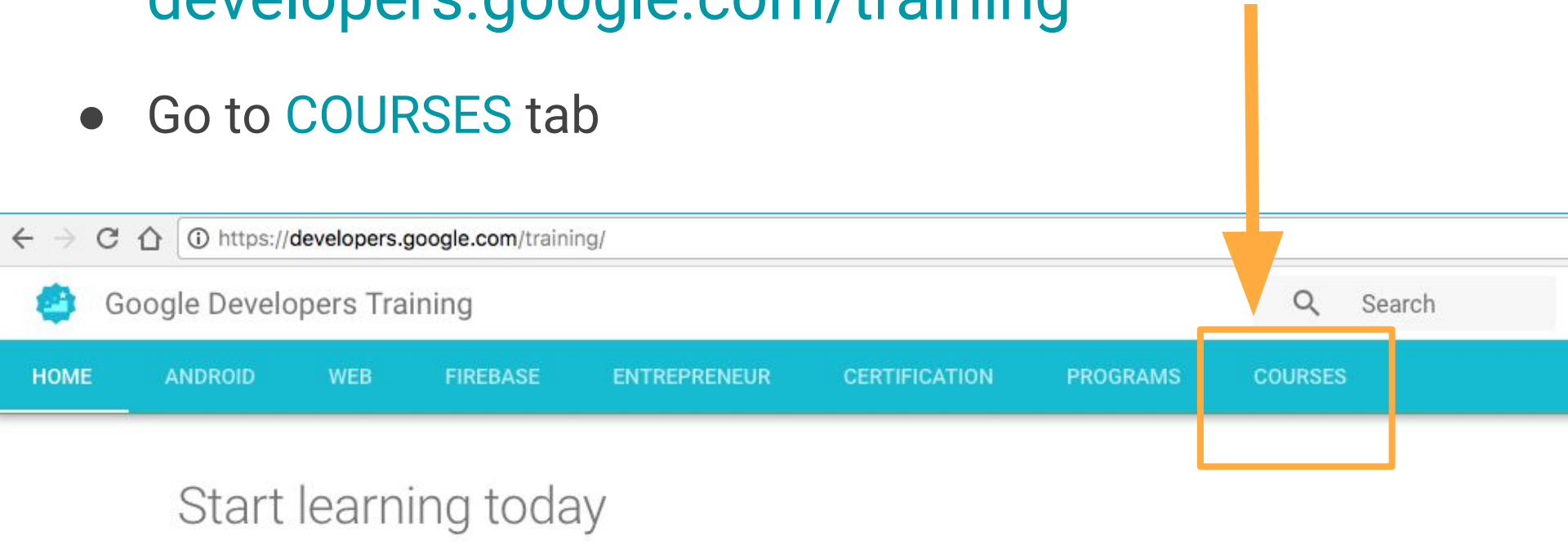
Where is everything?

Google Developers Training website

- To find all the materials for the course go to:

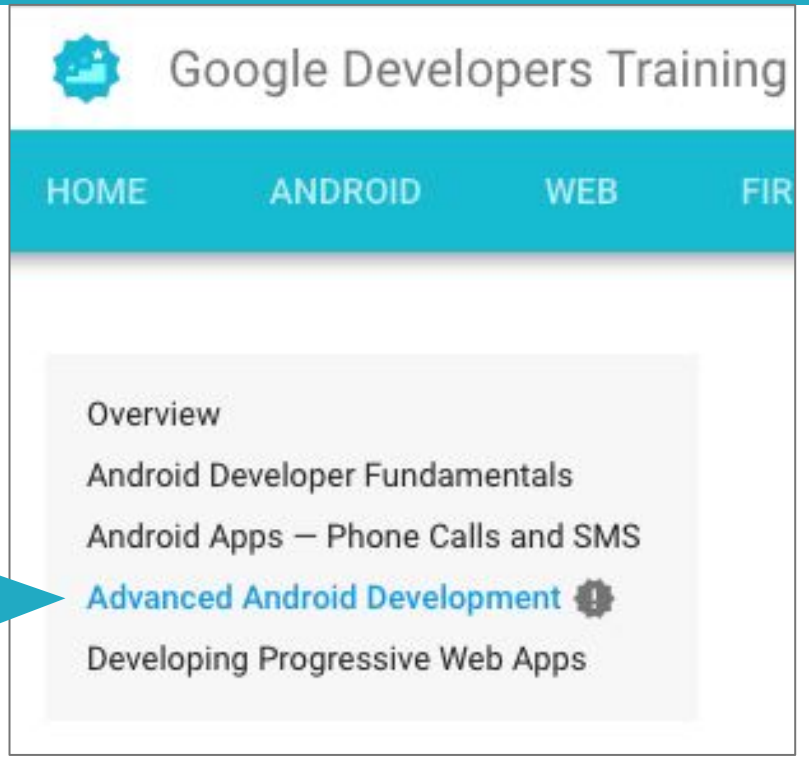
  developers.google.com/training

- Go to COURSES tab



Choose the course

In the left hand menu, choose Advanced Android Development



Advanced Android Development

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Advanced Android Development

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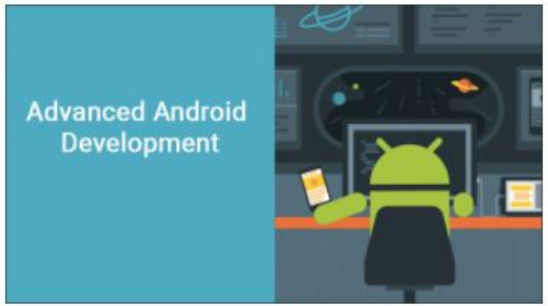
Internal: Count: 70, Average: 4.6

Advanced Android Development is an instructor-led course created by the Google Developers Training team. Students learn advanced Android programming concepts and build a variety of apps.



About the course

The course materials include:

- A practical workbook: Advanced Android Development—Practicals
- A concept reference: Advanced Android Development—Concepts
- Slide decks (for optional use by instructors)

Each lesson contains a slide deck, a concepts chapter, and in most cases, one or more practical exercises. As students work through the exercises, they create apps to practice and perfect the skills they're learning.

END