Plotting the Path Forward

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Overview

Explore advanced topics for future learning

- What is Android Jetpack?

- What is Material Design?

- Where to go next?

Plotting the Path Forward

Android Jetpack

Material Design

Understanding Android Jetpack

Android Jetpack

Android Jetpack is a set of libraries and tools designed to be the building blocks for Android development best practices

Android Jetpack

AppCompat

Room

WorkManager

Permissions

Navigation

androidx.*

Why Android Jetpack?

Consistent package structure

Unbundled from Android framework

- Offers backwards compatibility

- More frequent updates

Scalability

- Consistent behavior

- Out of the box solutions

Android Architecture Components

The Android Architecture Components are a set of libraries that provide solutions to common challenges associated with Android development.

Android Architecture Components

Persist state across rotation	**Notify UI of state changes**
Navigate between screens	**Interact with databases**

Android Architecture Components

ViewModel	**LiveData**
Navigation	**Room**

Kotlin First

Android Jetpack embraces Kotlin

Several libraries written entirely with Kotlin

Several advantages

- Simplified apis

- Tight integration with Kotlin code

Demo

Exploring Android Jetpack

- Find documentation for Android Jetpack

- Explore the full list of Android Jetpack libraries

- Examine the Android Architecture Components

Introducing Material Design

Material Design

Material Design is a design system developed by Google. It brings a consistent set of design principles, patterns, and specs to Android and other platforms.

Inspired by physical world

Consistent typography

Common spacing and grid

Meaningful motion

Bold colors

Principles of Material Design

Material Design Specs

Android

iOS

Flutter

Web

Implementing Material Design

Styles & Themes	**Material Design Components**

Demo

Exploring Material Design

- Explore the Material.IO website

- Examine the Material Design guidelines, components, and icons

- Prototype a color palette with the Material Design Color Tool

Introducing Future Topics

Additional Android Topics
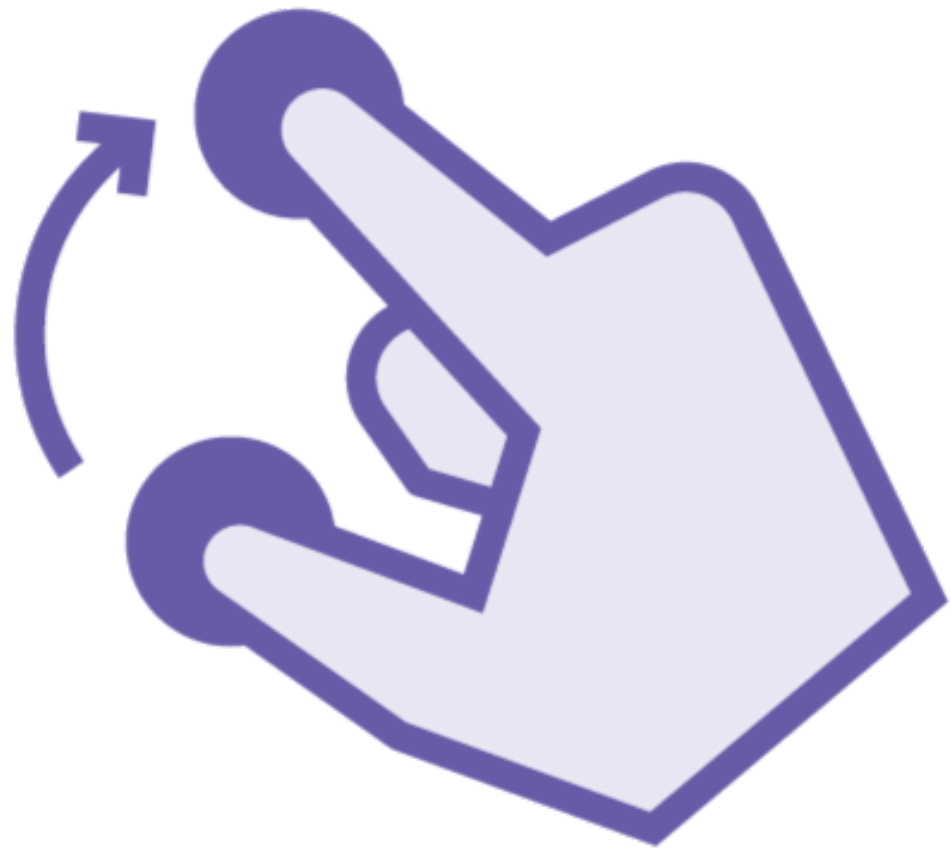
User Input / Output	App Architecture	Permissions
Data Storage	Background Tasks	Testing

User Input & Output

EditText

Dialogs

Snackbar

Gestures

Notifications

ViewModel & LiveData

ViewBinding & DataBinding

Model - View - ViewModel

Model - View - Presenter

Application Architecture

Permissions

How to define permissions?

How to request runtime permissions?

How to respond to denied permissions?

Data Storage

SharedPreferences

Room

Firebase

SQLDelight

Background Tasks

WorkManager

Services

Coroutines

Executors & Threads

Testing

JUnit testing

Instrumentation tests

androidx.test

Espresso tests

Android development is continuously evolving
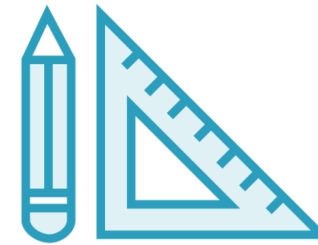
Summary

Plotting the Path Forward

- Explored Android Jetpack and the Android Architecture Components

- Introduced Material Design and the Material.IO design resources

- Outlined future Android development topics

Plotting the Path Forward

Consider your own app

- Which Android Jetpack tools may fit the needs of your app?

- How might Material Design improve the user experience of your app?

- What topics will you need to explore to continue building your app?

Tools

User experience

Advanced topics