🚀 Advanced Topics to Explore

1️⃣ Platform Channels - Native & Flutter Communication

🔹 **Why?** If your Flutter module needs to interact with Android (e.g., accessing sensors, database, or native APIs).
🔹 **Learn:**

- Sending/receiving data between Flutter and Android.
- Implementing **MethodChannel**, **EventChannel**, and **BasicMessageChannel**.
- Example: Flutter UI triggers a native Android function (e.g., open camera).

🔗 [Official Docs](#)

2️⃣ FlutterFragment - Embedding Flutter in a Specific Android View

🔹 **Why?** Instead of launching a full Flutter activity, you can **embed Flutter as a fragment** inside an existing Android UI.
🔹 **Learn:**

- Using FlutterFragment in an Android FragmentActivity.
- Controlling Flutter's lifecycle within Android.
- Example: A mixed UI with native Android buttons + a small Flutter widget.

🔗 [Guide](#)

3⃣ Multiple Flutter Engines - Optimize Performance

⬛ **Why?** If you need multiple Flutter screens in an Android app **without reloading the engine** every time.
⬛ **Learn:**

- Using **FlutterEngineCache** to store and reuse a single engine.
- Example: Keeping Flutter alive across multiple screens.

⬛ [Learn More](#)

4⃣ Writing Native Plugins for Flutter

⬛ **Why?** If you want to create **custom Flutter plugins** for Android-native features.
⬛ **Learn:**

- Writing a native Flutter plugin using Kotlin/Java.
- Publishing the plugin to **pub.dev**.
- Example: Custom plugin for fingerprint authentication.

⬛ [Plugin Development Guide](#)

5️⃣ Dynamic Feature Modules - Load Flutter on Demand

🔹 **Why?** Reduce APK size by **downloading Flutter modules on demand** instead of bundling them in the main app.
🔹 **Learn:**

- Using **Google Play's Dynamic Delivery** to load Flutter when needed.
- Example: A banking app loads a Flutter-based chat module **only when the user wants to chat**.

🔗 [Docs](#)