🔥 20-Hour Dart with Flutter Course – Android & iOS Focus

◆ Module 1: Introduction & Setup (1 hour)

➢ What is Flutter? Why use it?
➢ Flutter vs Native development
➢ Installing Flutter SDK and Dart
➢ Setting up Android Studio/VS Code
➢ Creating your first Flutter project
➢ Running app on Android & iOS emulator

◆ Module 2: Dart Programming Basics (3 hours)

🕐 **Duration: 3 Hours**

✅ **Topics:**

➢ Variables, Data types, Operators
➢ Conditionals: if, switch
➢ Loops: for, while
➢ Functions and Parameters
➢ Lists, Sets, Maps
➢ Null Safety
➢ Classes and Objects
➢ Inheritance and Constructors

➢ Asynchronous Programming: Future, async/await

✅ **Practice:**

➢ Build a CLI calculator in Dart
➢ Write async functions to simulate API calls

◆ **Module 3: Flutter Basics & Widgets (2.5 hours)**

🕐 **Duration: 2.5 Hours**

✅ **Topics:**

➢ Stateless vs Stateful Widgets
➢ MaterialApp, Scaffold
➢ Container, Row, Column, Text, Image, Icon, ListView
➢ Padding, Margin, Decoration
➢ Buttons, TextField, Forms
➢ GestureDetector & InkWell

✅ **Mini Project:**

❖ Build a personal profile card app

◆ **Module 4: Navigation & Routing (1 hour)**

🕐 **Duration: 1 Hour**

✅ **Topics:**

➢ Named routes vs push/pop
➢ Passing data between screens
➢ BottomNavigationBar
➢ Drawer and TabBar

✅ **Mini Project:**

❖ Multi-page travel info app with navigation

◆ **Module 5: State Management (2 hours)**

🕐 **Duration: 2 Hours**

✅ **Topics:**

> ➢ setState vs lifting state
> ➢ InheritedWidget (brief)
> ➢ Provider (main focus)
> ➢ FutureBuilder & StreamBuilder

✅ **Mini Project:**

> ❖ To-Do List App with Provider for state

◆ **Module 6: Working with APIs & HTTP (2 hours)**

🕐 **Duration: 2 Hours**

✅ **Topics:**

> ➢ Fetching data using `http` package
> ➢ JSON parsing in Dart
> ➢ Error handling
> ➢ Loading states

✅ **Mini Project:**

> ❖ News App using News API

◆ **Module 7: Local Data & Storage (1.5 hours)**

🕐 **Duration: 1.5 Hours**

✅ **Topics:**

> ➢ Shared Preferences
> ➢ File storage basics
> ➢ SQFLite for local database

✅ **Mini Project:**

> ❖ Notes app with local storage

◆ Module 8: Firebase Integration (2 hours)

🕐 **Duration: 2 Hours**

✅ **Topics:**

- ➢ Firebase setup (Android + iOS)
- ➢ Authentication (Email/Password)
- ➢ Cloud Firestore (CRUD operations)
- ➢ Firebase Storage (upload images)

✅ **Mini Project:**

- ❖ Simple Chat App using Firebase

◆ Module 9: Platform-Specific Features (1 hour)

🕐 **Duration: 1 Hour**

✅ **Topics:**

- ➢ Permissions (camera, location)
- ➢ Camera integration
- ➢ Accessing device sensors (via packages)
- ➢ Push notifications (brief)

◆ Module 10: Deployment & Best Practices (1 hour)

🕐 **Duration: 1 Hour**

✅ **Topics:**

- ➢ Debug vs Release mode
- ➢ Building APK/IPA
- ➢ Publishing to Play Store & App Store (overview)
- ➢ Folder structure, clean code, and performance tips
- ➢ Useful extensions and tools

🎓 Final Project (3 Hours)

Build a Real-World App:

    E.g., Food Ordering App or Expense Tracker App with Auth, API, Provider & Firebase.

📦 Tools & Packages Covered:

- ☐ `http`
- ☐ `provider`
- ☐ `shared_preferences`
- ☐ `sqflite`
- ☐ `firebase_auth`, `cloud_firestore`, `firebase_core`
- ☐ `image_picker`, `permission_handler`

📝 Deliverables:

- ❖ 5+ mini projects
- ❖ 1 final capstone project
- ❖ Source code on GitHub
- ❖ Project deployment guide
- ❖ Certificate (if you're offering one)