

Flutter

INTRODUCTION TO DEVELOPMENT WITH FLUTTER

- Learn to set up a new Flutter project using Android Studio.
- Understand the Widget tree and learn to use pre-made Flutter Widgets for user interface design.
- Learn to incorporate Image and Text Widgets to create simple user interfaces.
- Learn to incorporate App Icons for iOS and Android.
- Learn how to add and load image assets to Flutter projects. Run Flutter apps on iOS Simulator, Android Emulator and physical devices.

CREATING BEAUTIFUL UI WITH FLUTTER FOR BEGINNERS

- Use Hot Reload and Hot Restart to quickly refresh the app UI and understand when to use each.
- Learning to use the Pubspec.yaml file to incorporate dependencies, custom assets and fonts.
- An introduction to the Widget build() method.
- Learning to use layout widgets such as Columns, Rows, Containers and Cards.
- Incorporating Material icons using the Icons class.

BUILDING APPS WITH STATE

- Understand the difference between Stateful and Stateless Widgets and when they should each be used.
- Understand how callbacks can be used to detect user interaction in button widgets.
- Understand the declarative style of UI programming and how Flutter widgets react to state changes.
- Learn to import Dart libraries to incorporate additional functionality.
- Learn about how variables, data types and functions work in Dart 2.
- Build flexible layouts using the Flutter Expanded widget.
- Understand the relationship between setState(), State objects and Stateful Widgets.

LEVERAGING FLUTTER PACKAGES TO SPEED UP DEVELOPMENT

- Learn to use the Dart package manager to incorporate Flutter compatible packages into your projects.
- Understanding the structure of the pubspec.yaml file.
- Incorporate the audioplayers package to play sound. Learn more about functions in Dart and the arrow syntax.
- Learn to refactor widgets and understand Flutter's philosophy of UI as code.

STRUCTURING FLUTTER APPS

- Learn about how lists and conditionals work in Dart.
- Learn about classes and objects in Dart and how it apply to Flutter widgets.
- Understand Object Oriented Dart and how to apply the fundamentals of OOP to restructuring a Flutter app.
- Learn to use Dart Constructors to create customisable Flutter widgets.
- Apply common mobile design patterns to structure Flutter apps.
- Learn about structuring and organising Flutter apps.

CREATING BEAUTIFUL UI WITH FLUTTER FOR INTERMEDIATES

- Customise apps with Theme widgets.
- Refactoring widgets by extracting them as separate Widget classes.
- Learn about Dart annotations and modifiers.
- Understand the immutability of Stateless and Stateful Widgets and how the screen is updated with the build() method.
- Create custom Flutter Widgets by combining smaller widgets.
- Learn about the difference between final and const in Dart.
- Learn about maps, enums and the ternary operator in Dart.
- Understand that functions are first class objects in Dart and how functions can be passed around as arguments.
- Learn to build multi-screen Flutter apps by learning about routes and the Navigator widget.
- Understand why flutter favours composition vs. inheritance when customising widgets.

POWERING FLUTTER APPS WITH BACKEND DATA

Learn about asynchronous programming in Dart and understand how to use async/await and the Futures API.

- Understand Stateful Widget lifecycle methods.
- Handling exceptions in dart with try/catch and throw. Use Dart null aware operators to prevent app crashes. Getting location data from both iOS and Android.
- Using the http package to perform networking and get live data from open APIs.
- Understanding how to parse JSON data using the dart:convert library.
- Understand how to pass data to State objects via the Stateful Widget.
- Use the TextField Widget to take user input.
- Understand how to pass data backwards using the Navigator widget.

CUPERTINO WIDGETS AND PLATFORM-BASED UI

- Learn to use the Cupertino package and build Flutter apps for iOS with UIKit styled Cupertino widgets.
- Use the dart:io library to detect runtime platform and create separate UIs for iOS and Android in the same Flutter app. Learn
- to use Dart loops to create recurring widgets.

INTEGRATING FLUTTER APPS WITH FIREBASE

- Learn to use hero animations in Flutter apps.
- Understand how the animation controller works and create custom animations.
- Learn to use Dart mixins to extend class functionality.
- Incorporate Firebase Cloud Firestore into your Flutter apps.
- Implement authentication in your Flutter apps with the Firebase Auth package.
- Build a scrolling ListView widget to learn how Flutter creates and destroys reusable elements.
- Understand Dart Streams to listen to data changes.
- Learn to use the Flutter StreamBuild to turn streams of data into widgets that can be rendered.

STATE MANAGEMENT

- Understand why we need to manage state across our widget tree.
- Learn about declarative vs. imperative programming.
- Look at how setState works under the hood.
- Learn about prop drilling and lifting state up.
- Create a todo list app.
- Learn about the BottomSheet widget and the ListViewBuilder.
- Understand Flutter app architecture design patterns.
- Learn to manage state with the Google recommended Provider package.