

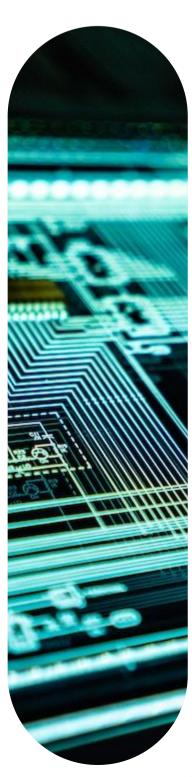
# MOBILE APP DEVELOPMENT

Become a Mobile App Developer with flutter

3 Month Curriculum (MICRO DIPLOMA)







# **COURSE TITLE: DATA SCIENCE**

#### **DURATION: 4 MONTHS**

#### **WEEK 1: INTRODUCTION TO BASICS**

- Introduction to Dart
- What is Dart
- Why Flutter chose Dart
- · Overview of Dart.Dev

#### INSTALLING THE DART SDK

- · Step by Step Installation guide
- Verifying Installation

## **DART VARIABLES AND DECLARATIONS**

- Variables and data types
- · Literals and constants
- Concatenation and String Interpolation
- · Printing to console

#### **WEEK 2: BUILT-IN TYPES AND NULL SAFETY**

- Dart Built-in Types
- Strings
- Methods (toUpperCase, toLowerCase, length, trim, contains)
- Numbers (int, double)
- Booleans
- Lists (arrays)
- · List methods and properties
- Sets
- Maps (dictionaries)
- · Map methods and properties

## **TYPE OF CONVERSION**

## **UNDERSTANDING DART NULL SAFETY**

- Nullable and non-nullable types
- Null aware operators
- · Sound null safety principles

## **WEEK 3: OPERATORS AND COMMENTS**

- Dart Operators
- Arithmetic Operators
- · Augmented assignment operators
- Increment and Decrement operators
- Comparison operators
- Logical operators
- Conditional operators

## **COMMENTS**

- Single line comments
- Multiline comments
- TODO comments
- · Documentation comments

# **KEYWORDS IN DARTS**

- var (type inference)
- final (runtime constant)
- const (compile-time constant)
- dynamic (dynamic type)

# **WEEK 4: FUNCTIONS AND CONTROL FLOW**

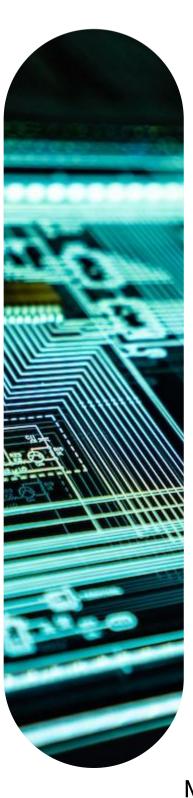
- Dart Functions
- · Defining and calling functions
- Parameters and return types
- Arrow functions

# **DARTS CONTROL FLOW STATEMENTS**

- if and else statements
- · switch and case statements
- Loops (for loop, while loop, do-while loop for-in loop)







#### **WEEK 5: ADVANCED DART**

- Dart classes in-depth
- · Defining classes and objects
- Constructors
- Default and named constructors
- Methods and properties
- · Inheritance and mixtins
- · Abstract classes and interfaces

## **DART GENERICS**

- · Generic classes and methods
- Type constraints

#### PRIVATE FIELDS AND ENCAPSULATION IN DART

- · Private fields and methods
- · Encapsulation principles

## **WEEK 6: SETUP AND BASICS**

- Installation of Flutter
- Downloading and setting up Flutter SDK
- Setting up an IDE (VS Code, Android Studio)
- Creating an emulator/simulator

#### **CREATING A FLUTTER APPLICATION**

- · Walkthrough of pubspec.yaml
- · Main function and MaterialApp
- · Scaffold structure
- AppBar
- Body
- FloatingActionButton
- Text widget
- · Hot reload and hot restart
- · Colors and fonts customization

# **WEEK 7: WIDGETS**

- Stateless and Stateful widgets
- Differences between StatelessWidget and StatefulWidget
- Lifecycle methods
- Examples of each type

# **USING IMAGES, ICONS, ASSETS AND BUTTONS IN FLUTTER**

- Adding images and assets
- Using Image widget
- Different types of buttons (FlatButton, RaisedButton, IconButton)
- Using icons from Icons class

## **WEEK 8: LAYOUT AND SPACE MANAGEMENT**

- Space Management
- Using Padding and Margin
- · Container widget properties
- width, height, color, decoration

## **GRID MANAGEMENT**

- Row and Column widgets
- MainAxisAlignment and CrossAxisAlignment
- Flex properties

# **WEEK 9: LIST, LOOPS AND NAVIGATION**

- List and Loops
- Listview widget
- ListTile widget
- Generating list items using loops
- Using ListView.builder for dynamic lists

# MAPS AND ROUTING

- Using the map data structure
- Basic routing and navigation
- Navigator.push and Navigator.pop
- Named routes





- Using Flutter Packages
- · Adding packages to pubspec.yaml
- · Importing and using packages
- Examples (http, provider, shared\_preferences)

#### **ERROR HANDLING**

- · Try, Catch, and Finally blocks
- Handling asynchronous errors

## **WEEK 11: PRODUCTION BUILDING AND FIREBASE SETUP**

- Production Building
- Building APK and IPA files
- · Release modes and configurations

## **SETTING UP FIREBASE**

- Creating a Firebase project
- Adding Firebase to Flutter app (Android & iOS)

## **WEEK 12: FIREBASE ADVANCED**

- · Firebase Authorization & Social Media Sign-in
- Email/Password authentication
- · Phone authentication
- · Integrating Google Sign-In
- Integrating Facebook Login

## **DEPLOYMENT, FILE STORAGE AND AUTHENTICATION**

- Deploying to Firebase Hosting using Firebase CLI
- Using Firebase Storage
- Uploading and downloading files
- · Firebase Authentication setup
- · Handling user sessions
- Securing app with authentication



