Course Name	: FLUTTER MASTERY: BUILDING CROSS-PLATFORM MOBILE APPLICATIONS
Duration	: 3 Days (Physical Classroom / Virtual Live Instructor)
Skill Level	: Beginner

COURSE DESCRIPTION:
Embark on a comprehensive journey into cross-platform app development with our course, "Flutter and Dart Programming Mastery." The first modules provide a solid foundation, introducing Flutter and Dart programming, from installing Dart SDK to mastering syntax and conditional statements. As you progress, delve into object-oriented programming with Dart and seamlessly transition into Flutter in Module 5, where you'll configure Android Studio, set up Flutter SDK, and create your first Flutter project. The course then delves deep into Flutter widgets, navigation, and routing, and concludes with Firebase integration, empowering you to build dynamic and engaging cross-platform applications. By the end, you'll possess the skills to craft robust mobile apps with Flutter and Dart.

This immersive course is designed for beginners and intermediate learners alike, providing a structured path to mastery. Each module is hands-on, with labs and practical exercises reinforcing theoretical concepts. Whether you're aiming to create your first cross-platform app or enhance your app development skills, "Flutter and Dart Programming Mastery" equips you with the knowledge and expertise needed for success in the dynamic world of mobile development.

WHAT WILL YOU LEARN?
In this course, you'll gain a comprehensive skill set in cross-platform app development. Starting with Dart programming basics, you'll progress through syntax, conditional statements, and object-oriented programming. The course then immerses you in Flutter, guiding you through widget fundamentals, navigation, and routing. Practical exercises reinforce concepts, allowing you to create your first Flutter project confidently. The journey concludes with Firebase integration, empowering you to implement real-time databases and user authentication. By the course's end, you'll have the expertise to craft dynamic, engaging mobile applications using Flutter and Dart, making you proficient in the ever-evolving field of cross-platform app development.

PREREQUISITE:
Beginners. No programming experience is required.

METHODOLOGY:
This program will be conducted with interactive lectures, PowerPoint presentations, discussions, and practical exercises. This course can be conducted as instructor-led (ILT) or virtual instructor-led training (VILT).

JOB SCOPE:
Upon completion of this course, candidates may pursue the following career paths:

- Flutter Mobile Developer
- Dart Programmer
- Mobile App Developer
- Hybrid Mobile Developer
- Cross-platform mobile developer

MODULE 1: Introduction to Flutter and Dart Programming
- Welcome
- Introduction
- Importance of Flutter
- Introduction to Dart
- Writing Dart code
- Dart Pad
- Installing Dart SDK
- IntelliJ IDEA
- Lab 1: Installing Dart IDE and Writing Dart Program
- 1-12 Installing IntelliJ IDEA
- 1-13 Creating a Dart Project Using IntelliJ IDEA
- 1-25 Using Dart Pad

MODULE 2: Dart Programming - Syntax
- Introduction
- main( ) function
- Dart Variables
- Dart Data Types
- Input of Information to Dart Program
- Writing Comments
- Dart Conditional Operators
- If Statement
- If – Else Statement
- If...Else and Else...If... Statement
- If Else and Logical Operators For
- Loops
- While Loops
- Do-while Loops
- Break Statement
- Switch Case Statement

MODULE 3: Dart Functions
- Functions
- Function Structure
- Creating a Function
- Function Return Data Types
- Void Function
- Function Returning Expression
- Functions and Variable Scope

MODULE 4: Dart Object Oriented Programming
- Object
- Class
- Creating a Class
- Adding Methods to Classes
- Providing Constructors for Your Classes
- Class — Getters and Setters
- Class Inheritance
- Abstract Class
- Dart Project Structure and Dart Libraries

MODULE 5: Introduction to Flutter
- Understanding Flutter
- Flutter Framework
- Android Studio
- What is Android Studio?
- Android Studio Software Prerequisite
- Installing Android Studio
- Flutter SDK
- Installing and Configuring Flutter SDK
- Creating a New Flutter Project
- Setup an Android Virtual Device
- Run a Flutter App
- Installing Flutter on Mac
- Test Your Flutter App on iOS Phone with Windows O.S
- Android Studio Sugar and Spice
- Run your Apps on a Hardware Device (Physical Phone)
- Run your Flutter App on Android Phone
- Run your Flutter App on IPhone Device
- Emulator Debug Mode
- Introduction to Flutter Widgets
- Creating a Flutter App Using Widgets
- What is a Material App widget?

MODULE 6: Flutter Widgets Fundamentals
- Scaffold Widget
- Image Widget
- Container Widget
- Column and Row Widgets
- Icon Widget
- Layouts in Flutter
- Card Widget
- App Icons for iOS and Android Apps
- Hot Reload and Hot Restart Stateful
- and Stateless Widgets
- Use a Custom Font

MODULE 7: Navigation and Routing
- Button Widget
- Floating Action Button
- Raised Button, Flat Button, and
- Icon Button
- Drop down Button
- Outline Button Bar
- Pop up Menu Button
- App Structure and Navigation
- Navigate to a New Screen and Back
- Navigate with Named Routes
- Send and Return Data Among Screens
- Animate a Widget Across Screens Web
- View Widget in Flutter

MODULE 8: Visual, Behavioral and Motion-Rich Widgets Implementing Material Design Guidelines - Part 1
- Introduction
- Bottom Navigator Bar Widget
- Default Tab Controller, Tab Bar, and Tab Bar View Widgets
- List Tile Widget
- List View Widget
- Drawer Widget Data
- Table Widget
- Selectable Text Widget
- Stack Widget

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MODULE 9: Visual, Behavioral and Motion-Rich Widgets Implementing Material Design Guidelines - Part 2
- Input and Selections
- Text Field Widget.
- Check box Group and Radio Button Group
- WidgetsDate Picker.
- Time Picker.
- Slider Widget.
- Switch Widget
- Dialogs, Alerts, and Panels
- Alert Dialog Widget
- Cupertino Alert Dialog Widget.
- Bottom Sheet.
- Modal Bottom Sheet
- Persistent Bottom Sheet.
- Expansion Panel Widget.
- Snack Bar Widget.

MODULE 10: Firebase
- Introduction
- What is the JSON ?
- How does Firebase Database work?
- Firebase authentication (Signup and Login to Flutter App)
- Configure Your App to use Firebase Services
- Adding Firebase to your Android App
- Adding Firebase to your iOS App
- Configuring Firebase Authentication
- Login to an App Using Firebase User Accounts
- Logout Configuration
- Firebase Database
- Which database is right for your project?
- Real Time Database
- Cloud Firestore

CONCLUSION
- QA
- Useful References and Books
- Feedback

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