FLUTTER APPLICATION DEVELOPMENT

Duration: 4 days /28 hours; Instructor-led/ remote online training
Time: 9.00am – 5.00pm
Break: 10.15am – 10.30am /3.15pm – 3.30pm
Lunch: 1.00pm – 2.00pm

WHAT YOU WILL LEARN
This course is an introduction to Flutter application development. It covers how to create and compile projects using VSCode, basics of the Swift language and uploading the completed app on the Apple App Store and the Google Play Store.

During this course, you will create a reasonably complex Flutter application. In the process, you will learn about widgets, packages, icons, interactivity, navigation, themes, Material design, animations and themes.

PROGRAMS YOU WILL WRITE:
- Startup Name Generator - a simple app that generates proposed names for a startup company.
- Shrine - an e-commerce app that sells clothing and home goods.
- Reply - an email app

PREREQUISITES
Knowledge of a programming language is recommended

SYSTEM REQUIREMENTS
- A Mac computer running macOS 10.15 Catalina or 11.0 Big Sur **OR**
- A Windows computer running Windows 10 or higher
- VSCode 1.54.x or higher
- Android Studio 4.1.x or higher
- Xcode 12.x or higher

REFERENCES
- https://dart.dev/samples
- https://codelabs.developers.google.com/codelabs/first-flutter-app-pt1#0
- https://codelabs.developers.google.com/codelabs/first-flutter-app-pt2#8
- https://codelabs.developers.google.com/codelabs/mdc-101-flutter#0

- https://codelabs.developers.google.com/codelabs/mdc-102-flutter#6
- https://codelabs.developers.google.com/codelabs/mdc-103-flutter#0
- https://codelabs.developers.google.com/codelabs/mdc-104-flutter#1
- https://flutter.dev/docs/codelabs/implicit-animations
- https://codelabs.developers.google.com/codelabs/material-motion-flutter#0

METHODOLOGY
This program will be conducted with interactive lectures, PowerPoint presentations, online discussions, and practical exercises.

COURSE OBJECTIVES
Upon completion of this program, participants should be able to:
- Create a reasonably complex Flutter application, using widgets, packages, icons, interactivity, navigation, themes, Material design, animations and themes.

COURSE OUTLINE

Day 1

Module 1: A Dart tour
- Hello World
- Variables
- Control flow statements
- Functions
- Comments
- Imports
- Classes
- Inheritance
- Mixins
- Interfaces and abstract classes
- Async
- Exceptions

Module 2: Write your first Flutter app, part 1
- Create the starter Flutter app
- Use an external package
- Add a stateful widget
- Create an infinite scrolling ListView

Module 3: Write your first Flutter app, part 2
- Add icons to the list
- Add interactivity
- Navigate to a new screen
- Change the UI using themes

Day 2

Module 4: Basic Flutter Layout concepts
- Row and column classes
- Axis size and alignment
- Flexible widget
- Expanded widget
- Sizedbox widget
- Spacer widget
- Text widget
- Icon widget
- Image widget
- Putting it all together

Module 5: Material components basics
- Introduction
- Add Textfield widgets
- Add buttons

Module 6: Material structure and layout
- Introduction
- Add a top app bar
- Add a card in a grid
- Make a card collection

Module 7: Material Theming with Color, Shape, Elevation, and Type
- Introduction
- Change the colors
- Modify typography and label styles
- Adjust elevation
- Add Shape
- Change the layout
- Try another theme

Day 3

Module 8: Material advanced components
- Add the backdrop menu
- Add a shape
- Add motion
- Add a menu on the back layer
- Add a branded icon

Module 9: Implicit animations
- What are implicit animations?
- Example: Fade in text effects
- Example: Shape-shifting effect
- Using animation curves

Module 10: Building Beautiful Transitions with Material Motion for Flutter
- Get familiar with the sample app code
- Add Container Transform transition from email list to email detail page
- Add Container Transform transition from FAB to compose email page
- Add Shared Z-Axis transition from search icon to search view page
- Add Fade Through transition between mailbox pages
- Add Fade Through transition between compose and reply FAB
- Add Fade Through transition between disappearing mailbox title
- Add Fade Through transition between bottom app bar actions

Day 4

Assignment - Student will design and build a simple application