



DEPARTMENT OF COMPUTING

CS-415: Mobile Application Development

Class: BESE12-AB

Lab 04: Flutter Basics

CLO-2: Design data-driven Mobile Interfaces using advanced design and development techniques

CLO-4: Display proficiency using modern tools and framework usage by developing interactive mobile applications

Date: 18th Feb 2025

Time: 10:00 - 12:50

Lab Instructor: Mr. Moeed Ahmed

Class Instructor: Engr. Naema Asif



Lab 04: Flutter Widgets, Material Design, Layouts & Interactivity

Introduction

This lab will focus on getting familiar with basics of flutter widgets, material design, layouts and its interactivity on user interface.

Objectives

In this lab you will practice and get familiar with the understanding of:

- Flutter “Hello World”
- Widgets Creation and Utilization
- Material Design and Layout Concepts
- Adding Interactivity to your Flutter App

Tools/Software Requirements

- [Android Studio](#) Ladybug Feature Drop | 2024.2.2
- [Android Emulator](#) (35.3.11) Stable (*Optional, depends on system's [requirement](#)*)
- [Visual Studio Code](#) (1.97.2 - Latest)
- Flutter Windows Android [SDK](#) 3.29.0 (stable)
- Flutter Lab [Online](#)

Lab Task-1:

Follow the guidelines mentioned in [Your first Flutter app](#) and try creating the app through implementing each step. Zip your own source-code by accomplishing the following steps and submit it on LMS:

- Create a project
- Add a button
- Make the app prettier
- Add functionality
- Add navigation rail

Lab Task-2:

Follow the guidelines mentioned in [Material Design Components](#) and follow the step-by-step tutorial for **MDC-101 Flutter: Material Components Basics**. Zip your own source-code by accomplishing the following steps and upload it on LMS:

- Set up Flutter development environment
- Codelab starter app
- Add TextField widgets
- Add buttons



Lab Task-3:

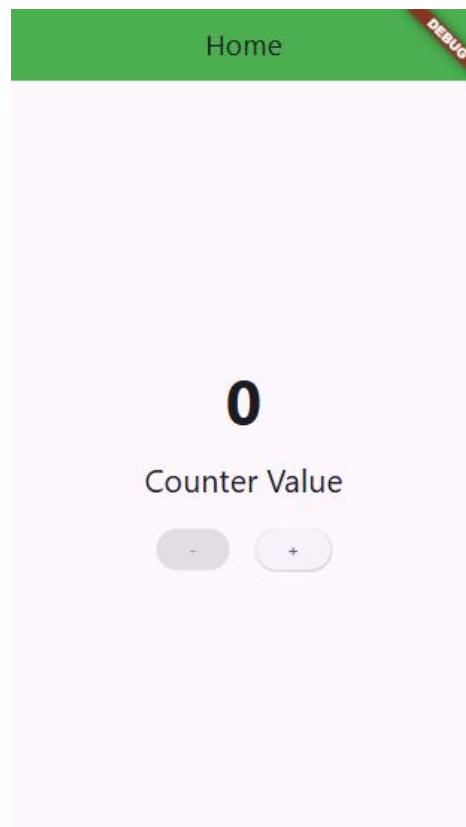
Follow the guidelines mentioned in [Material Design Components](#) and follow the step-by-step tutorial for **MDC-102 Flutter: Material Structure and Layout**. You might need to reuse your same codebase from Task-2. Zip your source-code after accomplishing the following steps and upload it on LMS:

- Add a top app bar
- Add a card in a grid
- Make a card collection

Lab Task-4:

Create an app with a single screen as shown below. Follow the steps for the necessary functionality:

1. Add a label and add two buttons i.e. Increment & Decrement
2. When user press the + button the value increments by 1
3. When user press the – button the value decrement by 1
4. Initially the decrement button is disabled and value of label is 0
5. When user presses the increment button value of label increments by 1 and both buttons are enabled
6. Disable the Increment button when number reaches to 10 and show message to user in Alert Dialog that you cannot increment more
7. Similarly disable the Decrement button when numbers reaches to 1 and show message to user in Alert Dialog that you cannot decrement more





Useful Resources:

Below is the list of useful resources to help you in solving this task:

- [Introduction to Widgets](#)
- [Flutter Widgets Index](#)
- [Layouts in Flutter](#)
- [Combining Different Layout Approaches](#)

Deliverable:

You need to submit the code files for all above lab tasks on the LMS before the deadline.