# Lab 03

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# Objective

The purpose of this lab session is to practice Flutter tool. Create a simple application on flutter.

**Student Information**

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| --- | --- |
| **Student Name** |  |
| **Student ID** |  |
| **Date** |  |

**Assessment**

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| --- | --- |
| **Marks Obtained** |  |
| **Remarks** |  |
| **Signature** |  |

# Objective

The purpose of this lab session is to practice Flutter tool. Create a simple application on flutter.

# Instructions

You have to perform the following tasks yourselves. Raise your hand if you face any difficulty in understanding and solving these tasks. **Plagiarism** is an abhorrent practice and you should not engage in it.

# How to Submit

Submit lab work using Teams.

**Exploring project structure and main files**

**.idea:**

The. idea folder contains your code editors project related settings specific files. No need to make any manual changes here.

**Android:**

In this folder, if you want to do any code specific to android. The android folder inside the flutter project contains the android platform specific settings, resources and code. If you need to write any platform specific code, you may be making changes in here.

**Build:**

The build folder contains the output generated when build or run the flutter project. You will find all the release files/folders like apks and app bundles here.

**iOS:**

Similar to android folder the iOS, the iOS folder contains iOS specific settings, resources and code. You will make the platform specific code or changes in here.

**Lib:**

The lib folder is main folder where you will write all the flutter app related codes. Initially it will contain just one single file main. Art which has the entry point for flutter app.

**Test:**

The test folder is set to contain any testing related codes that you write. If you decide to write tests/test cases, you will be adding code in here.

**.gitignore:**

The next file is .gitignore. This is git specific file. You can adjust the .gitignore file to include/exclude ant files/folder as your need.

**Metadata:**

As name suggest, the. metadata files contain Flutter project related metadata that tools use. You should not make any manual changes to this file.

**.pubspec.lock:**

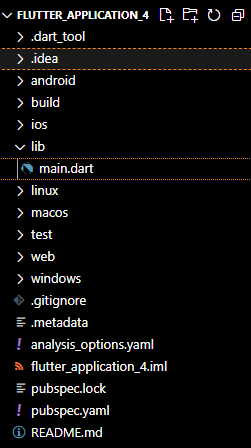
The pubspec.lock file is helper file create next to pubspec.yaml file. It list the specific versions of each dependency that packages use in your app and ensure the version stays consistent across different developer machine. No need to take any changes here.

**.pubspec.yaml:**

The pubspec.yaml contains flutter app specific metadata and configurations. You can configure dependencies such as external packages, image assets, font files, app versions etc. with help of this file. You will often make changes to the pubspec.yaml file add external dependencies.

**README.md:**

The readme.md is markdown format file which is primarily used to describe your project in git repository. You can write project specific thins like what your project does or how to use certain libraries in the README.md file.



# Basic widgets:

Flutter comes with a suite of powerful basic widgets, of which the following are commonly used:

**Text**

The Text widget lets you create a run of styled text within your application.

**Row, Column**

These flex widgets let you create flexible layouts in both the horizontal (Row) and vertical (Column) directions. The design of these objects is based on the web's flexbox layout model.

**Stack**

Instead of being linearly oriented (either horizontally or vertically), a Stack widget lets you place widgets on top of each other in paint order. You can then use the Positioned widget on children of a Stack to position them relative to the top, right, bottom, or left edge of the stack. Stacks are based on the web's absolute positioning layout model.

**Container**

The Container widget lets you create a rectangular visual element. A container can be decorated with a Box Decoration, such as a background, a border, or a shadow. A Container can also have margins, padding, and constraints applied to its size. In addition, a Container can be transformed in three-dimensional space using a matrix.

**Lab Assessment: Flutter Counter App with Basic Navigation**

**Objective:**You have to create a simple counter application using Flutter. The goal is to familiarize with Flutter project setup, basic widgets, state management, and screen navigation.

**Instructions:**

App Setup:

* Create a new Flutter project named CounterApp.
  + The app will consist on A screen that displays a counter and allows the user to increment or decrement the value.

UI Design:

* + Counter Screen:
    - Use a Text widget to display the current value of the counter.
    - Add two buttons:
      * A "increment" button to increment the counter.
      * A "decrement” button to decrement the counter.

State Management:

* + Use a StatefulWidget for the Counter Screen.
  + Implement logic to update the counter value when the increment and decrement buttons are pressed.

**Submission Guidelines:**

Write a simple report on app along with app screenshot.