

Experiment No:02

Aim: To design Flutter UI by including common widgets.

Theory:

Common Widgets in Flutter

Flutter offers a diverse array of widgets that empower developers to craft dynamic and engaging user interfaces. These widgets fulfill a multitude of functions, from presenting textual content and images to managing user interactions and organizing layouts. Below, we delve into some of the frequently utilized widgets in Flutter:

1. Text Widgets:

- **Text:** Renders a text string with customizable attributes like font size, color, and alignment.
- **RichText:** Enables intricate text formatting by supporting inline styles and multiple text spans.

2. Input Widgets:

- **TextField:** Facilitates user text input with options for customization and validation.
- **Form:** Provides a way to group and validate multiple form fields together.

3. Button Widgets:

- **ElevatedButton:** Represents a raised button, typically used for primary actions.
- **TextButton:** Displays a text-based button, suitable for secondary actions.
- **IconButton:** Exhibits a button adorned with an icon, often used for navigation or actions.
- **FloatingActionButton:** Showcases a circular button, commonly employed for prominent actions.

4. Selection Widgets:

- **Checkbox:** Allows users to toggle a binary state, such as on/off or selected/unselected.
- **Radio:** Enables users to select a single option from a set of mutually exclusive choices.

- **Switch:** Offers a toggle switch for binary options.
- **Slider:** Allows users to choose a value from a range by sliding a thumb along a track.

5. Layout Widgets:

- **Row:** Aligns child widgets horizontally in a row.
- **Column:** Aligns child widgets vertically in a column.
- **Stack:** Stacks widgets on top of each other, enabling complex UI compositions.
- **Container:** Provides a versatile layout widget for customizing child position, size, and appearance.

6. Scrolling Widgets:

- **ListView:** Displays a scrollable list of widgets, either vertically or horizontally.
- **GridView:** Presents a grid of widgets in rows and columns, with support for scrolling and item customization.
- **SingleChildScrollView:** Enables scrolling of a single child widget in one direction.

7. Material Design Widgets:

- **AppBar:** Represents the top app bar for navigation and branding purposes.
- **Scaffold:** Implements the basic material design layout structure, including app bars, drawers, and bottom navigation.
- **Card:** Displays a material design card, often used to showcase related content or information.

8. Interaction Widgets:

- **GestureDetector:** Detects various gestures like taps, swipes, and drags on its child widget.
- **InkWell:** Provides a material design inkwell effect that responds to touches with a splash effect, offering tactile feedback.

Code:

```
import "dart:io";

import "package:flutter/material.dart";
import "package:flutter/widgets.dart";
import "package:image_picker/image_picker.dart";

class AddCourse extends StatefulWidget {
  const AddCourse({super.key});

  @override
  State<AddCourse> createState() => _AddCourseState();
}

class _AddCourseState extends State<AddCourse> {

  final ImagePicker _picker = ImagePicker();

  File? selectedImage;

  Future getImage()async{
    var image = await _picker.pickImage(source: ImageSource.gallery);

    selectedImage = File(image!.path);
    setState(() {

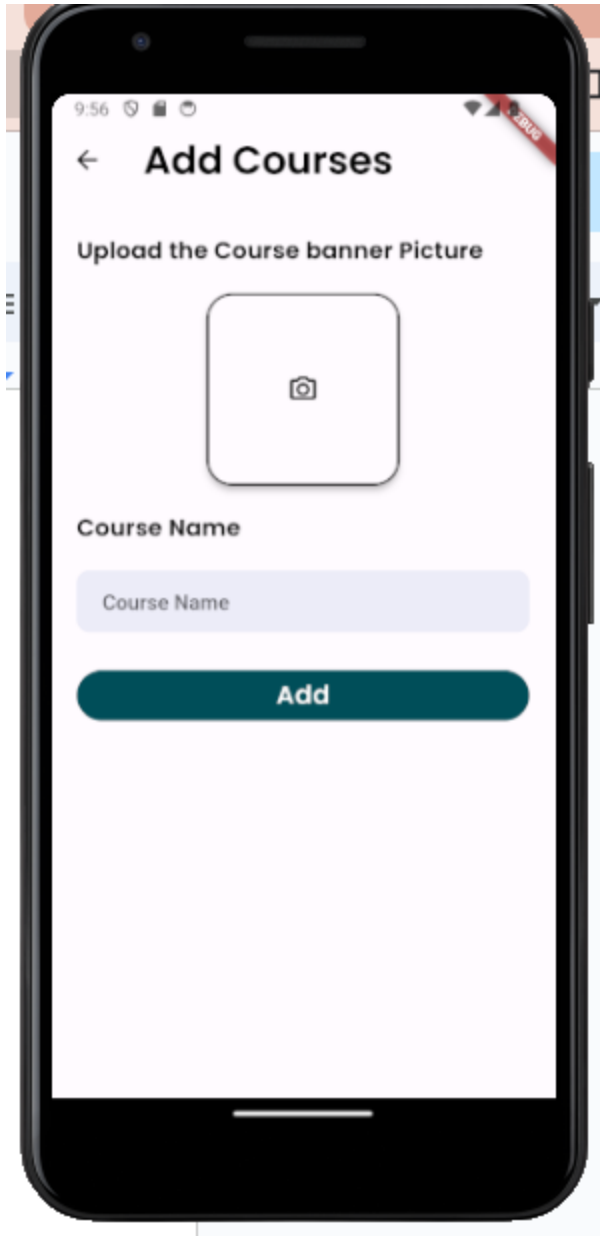
    });
  }

  @override
  Widget build(BuildContext context) {
    return Scaffold(
      appBar: AppBar(
        title: Text(
          "Add Courses",
```

```
style: TextStyle(
  color: Colors.black,
  fontSize: 30.0,
  fontWeight: FontWeight.bold,
  fontFamily: 'Poppins'),
)),
body: Container(
margin: EdgeInsets.only(top: 30.0, left: 20.0, right: 20.0),
child: Column(
  crossAxisAlignment: CrossAxisAlignment.start,
  children: [
    Text(
      "Upload the Course banner Picture",
      style: TextStyle(
        color: Colors.black,
        fontSize: 18.0,
        fontFamily: 'Poppins',
        fontWeight: FontWeight.bold),
    ),
    SizedBox(
      height: 20.0,
    ),
    selectedImage==null?GestureDetector(
      onTap: (){
        getImage();
      },
      child: Center(
        child: Material(
          elevation: 4.0,
          borderRadius: BorderRadius.circular(20),
          child: Container(
            width: 150,
            height: 150,
            decoration: BoxDecoration(
              border: Border.all(color: Colors.black, width: 1.5),
              borderRadius: BorderRadius.circular(20)),
            child: Icon(Icons.camera_alt_outlined,color: Colors.black),
          )),
        ),
```

```
):Center(  
  child: Material(  
    elevation: 4.0,  
    borderRadius: BorderRadius.circular(20),  
    child: Container(  
      width: 150,  
      height: 150,  
      decoration: BoxDecoration(  
        border: Border.all(color: Colors.black, width: 1.5),  
        borderRadius: BorderRadius.circular(20)),  
      child: Image.file(  
        selectedImage!,  
        fit: BoxFit.cover,  
      ),  
    ),  
  ),  
  SizedBox(  
    height: 20.0,  
  ),  
  Text(  
    "Course Name",  
    style: TextStyle(  
      color: Colors.black,  
      fontSize: 18.0,  
      fontFamily: 'Poppins',  
      fontWeight: FontWeight.bold,  
    ),  
  ),  
  SizedBox(height: 20.0,),  
  Container(  
    padding: EdgeInsets.symmetric(horizontal: 20.0),  
    width: MediaQuery.of(context).size.width,  
    decoration: BoxDecoration(  
      color: Color(0xffececfc),  
      borderRadius: BorderRadius.circular(10)),  
    child: TextField(  
      decoration: InputDecoration(  
        border: InputBorder.none,  
        hintText: "Course Name"
```

```
        ),
      ),
    ),
    SizedBox(height: 30.0,),
    Container(
      width: MediaQuery.of(context).size.width,
      padding: EdgeInsets.symmetric(vertical: 5.0 ),
      decoration: BoxDecoration(
        color: Color(0xFF0F4E58), borderRadius: BorderRadius.circular(30)
      ),
      child: Center(
        child: Text("Add", style: TextStyle(
          color: Colors.white,
          fontSize: 20.0,
          fontFamily: 'Poppins',
          fontWeight: FontWeight.bold
        )),
      ),
    ),
  ],
),
),
);
}
```



```
Run main.dart (Pixel 3a API 34 extension level 7 x86 64) x
Console
D/EGLEmulation( 9688): app_time_stats: avg=19.77ms min=3.33ms max=421.68ms count=37
I/flutter ( 9688): Checkbox value changed to: true
D/EGLEmulation( 9688): app_time_stats: avg=56.94ms min=11.95ms max=515.78ms count=22
I/flutter ( 9688): Checkbox value changed to: true
I/flutter ( 9688): Checkbox value changed to: true
D/EGLEmulation( 9688): app_time_stats: avg=43.94ms min=11.69ms max=1581.71ms count=57
I/flutter ( 9688): Button clicked!
E/FrameTracker( 9688): force finish cuj, time out: J<INE_INSETS_ANIMATION::181@com.example.untitled>
D/EGLEmulation( 9688): app_time_stats: avg=3045.48ms min=2.95ms max=118590.81ms count=39
untitled > lib > main.dart CRLF UTF-8 2 spaces
```

Conclusion: I have successfully studied and used different Common Widgets used in Flutter UI such as Column Widget, Scaffold, Text, SizedBox etc.