ABHINAYA DANDA

D15A   Roll No:12

Experiment 2: Exploring Flutter Widgets

Aim: To design Flutter UI by including common widgets.

Theory:

In Flutter, widgets are the building blocks of the UI. Widgets can be either stateless or stateful and can be combined to create complex UIs.

- **Flutter Scaffold:** Scaffold is a basic structure of the visual interface of an app. It provides functionality like an app bar, a drawer, and a bottom navigation bar.
- **Flutter Container:** Container is a box model that allows you to create a box with specific dimensions, padding, margin, and decoration.
- **Flutter Row & Column:** Row and Column are flex widgets used for arranging child widgets horizontally (Row) or vertically (Column).
- **Flutter Text:** Text widget is used for displaying a short piece of text. It supports styling and formatting.
- **Flutter TextField:** TextField is an input widget that allows users to enter text.
- **Flutter Buttons:** Flutter provides various button widgets like ElevatedButton, TextButton, and OutlinedButton for user interaction.
- **Flutter Stack:** Stack is a widget that allows you to overlay widgets on top of each other.
- **Flutter Forms:** Flutter forms are used to collect user input. They often involve using TextFields and validation.
- **Flutter AlertDialog:** AlertDialog is a popup dialog that displays important information or asks the user for input.
- **Flutter Icons:** Flutter comes with a set of customizable icons that can be used in your app.
- **Flutter Images:** Flutter supports the loading and display of images using the Image widget.
- **Flutter Card:** Card is a material design card. It's a container with rounded corners and elevation.
- **Flutter Tabbar:** TabBar is a widget that displays a horizontal row of tabs.
- **Flutter Drawer:** Drawer is a slide-in menu that is typically used for navigation.
- **Flutter Lists:** Lists are used to display a scrolling list of widgets.
- **Flutter GridView:** GridView is a scrollable grid of widgets.
- **Flutter Toast:** Toast is a temporary notification that appears at the bottom of the screen.
- **Flutter Checkbox:** Checkbox is a UI element that allows users to toggle between two states.
- **Flutter Radio Button:** Radio buttons allow users to select one option from a set.
- **Flutter Progress Bar:** Progress Bar indicates the progress of an ongoing task.
- **Flutter Snackbar:** Snackbar provides lightweight feedback about an operation.
- **Flutter Tooltip:** Tooltip provides additional information when the user hovers over a widget.
- **Flutter Slider:** Slider allows users to select a value from a range.

- **Flutter Switch:** Switch is a UI element for toggling between two states.
- **Flutter Charts:** Flutter supports various charting libraries for visualizing data.
- **Bottom Navigation Bar:** A bar at the bottom of the screen for navigation.
- **Flutter Themes:** Themes define the colors, fonts, and styles used in an app.
- **Flutter Table:** Table is used to create a two-dimensional array of widgets.
- **Flutter Calendar:** Calendar widgets help in displaying and selecting dates.
- **Flutter Animation:** Flutter supports various animation widgets and APIs for creating smooth animations.

Syntax:

Flutter Scaffold:

```
import 'package:flutter/material.dart';

void main() {
  runApp(MyApp());
}

class MyApp extends StatelessWidget {
  @override
  Widget build(BuildContext context) {
    return MaterialApp(
      home: Scaffold(
        appBar: AppBar(
          title: Text('My App'),
        ),
        body: Center(
          child: Text('Hello, World!'),
        ),
      ),
    );
  }
}
```

Flutter Container:

```
Container(
  width: 100.0,
  height: 100.0,
  color: Colors.blue,
  child: Text('Container'),
)
```

Flutter Row & Column:

```
Row(
  children: [
```

```
      Text('Item 1'),
      Text('Item 2'),
    ],
  )

  Column(
    children: [
      Text('Item 1'),
      Text('Item 2'),
    ],
  )
```

Flutter Text:

```
Text(
  'Hello, World!',
  style: TextStyle(fontSize: 20.0),
)
```

Flutter Buttons:

```
ElevatedButton(
  onPressed: () {
    // Handle button press
  },
  child: Text('Elevated Button'),
)

TextButton(
  onPressed: () {
    // Handle button press
  },
  child: Text('Text Button'),
)
```

Code and output:

```dart
import 'package:flutter/material.dart';
import 'package:gmail_clone/addmail.dart';
import 'package:gmail_clone/variables.dart';

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

  @override
  State<Mails> createState() => _MailsState();
}

class _MailsState extends State<Mails> {
  @override
  Widget build(BuildContext context) {
    return Scaffold(
      appBar: AppBar(
        backgroundColor: Colors.white,
        title: Material(
          elevation: 8.0,
          child: TextFormField(
            decoration: InputDecoration(
              hintText: 'Search...',
              border: InputBorder.none,
              icon: Container(
                margin: EdgeInsets.only(left: 5),
                child: Icon(Icons.dehaze),
              ),
              suffixIcon: Container(
                margin: EdgeInsets.all(5),
                child: CircleAvatar(
                  backgroundImage: NetworkImage(exampleimage),
                ),
              ),
            ),
          ),
        ),
      ),
      floatingActionButton: FloatingActionButton(
        backgroundColor: Colors.white,
        onPressed: ()=>Navigator.push(
          context,MaterialPageRoute(builder: (context)=>AddMail())),
        child: Icon(
          Icons.add,
          size: 45,
          color: Colors.red,
        ),
      ),
```

```dart
//cards for mails,loop through this list
body: ListView.builder(
    itemCount: 8,
    itemBuilder: (BuildContext context, int index) {
      return InkWell(
        onTap: () {},
        child: Padding(
          padding: EdgeInsets.all(14),
          child: Row(
            mainAxisAlignment: MainAxisAlignment.spaceBetween,
            children: <Widget>[
              Row(
                children: [
                  CircleAvatar(
                    backgroundImage: NetworkImage(exampleimage),
                    radius: 24,
                  ),
                  SizedBox(
                    width: 15.0,
                  ),
                  Column(
                    crossAxisAlignment: CrossAxisAlignment.start,
                    children: <Widget>[
                      Text(
                        'Abhinaya',
                        style: mystyle(22, Colors.black, FontWeight.w700),
                      ),
                      Text(
                        'Hello,how are u?',
                        overflow: TextOverflow.ellipsis,
                        style: mystyle(18, Colors.black, FontWeight.w600),
                      )
                    ],
                  ),
                ],
              ),
              SizedBox(
                width: 5.0,
              ),
              Column(children: <Widget>[
                Text(
                  '12:30',
                  style: mystyle(18, Colors.black, FontWeight.w500),
                ),
                SizedBox(
                  height: 5.0,
                ),
                InkWell(
                    onTap: () {},
```
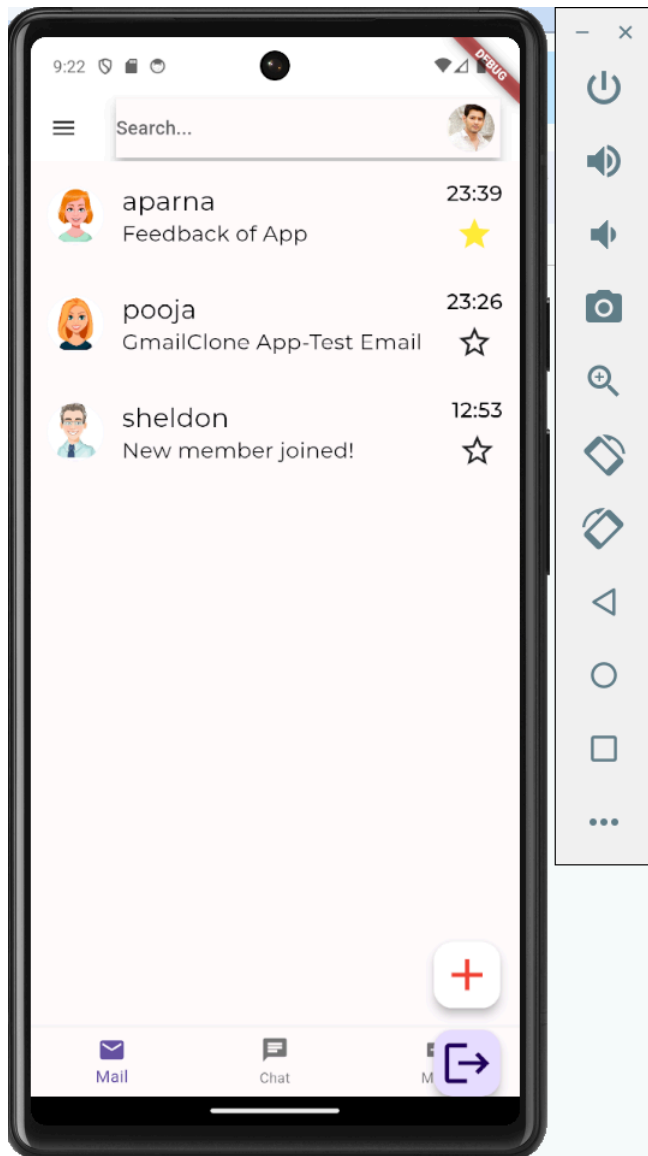
```
                child: Icon(Icons.star_border, size: 32))
            ])
          ],
        ),
      ),
    );
  }),
  );
 }
}
```

Output:

Conclusion:
Understood the use of different widgets in flutter and implemented it in my gmail clone project.
****