

**EXPERIMENT NO:02**

**Aim:** To design Flutter UI by including common widgets.

**Theory:****Flutter Widgets Overview**

Each element on the screen of a Flutter app is a **widget**. The UI of the app is built by combining and nesting these widgets, forming a widget tree. The structure and behavior of an app depend on the choice and sequence of widgets used.

When any modification is made to the code, Flutter's widget system rebuilds the widget tree by computing the difference between the previous and current widget states. This ensures that only the necessary parts of the UI are updated efficiently, improving performance and responsiveness.

**Types of Widgets****1.Single-Child Layout Widgets**

Single-child layout widgets can contain only one child widget inside a parent layout. These widgets often include specific layout functionalities, which help in structuring the UI efficiently. Flutter provides a variety of single-child widgets that enhance readability and maintainability of the code.

**2.Multiple-Child Layout Widgets**

Multiple-child layout widgets allow more than one child inside a parent widget. Their layouts vary based on how they arrange children. Examples include:

- **Row** – Arranges child widgets horizontally.
- **Column** – Arranges child widgets vertically.
- **Stack** – Overlaps child widgets, useful for layered UI designs.

By combining **Row** and **Column**, complex UI structures can be created efficiently.

### 3.StatefulWidget

A **StatefulWidget** maintains state information that can change over the widget's lifecycle. It consists of two primary classes:

1. **The widget class**
2. **The state class**

Instead of a `build()` method, a **StatefulWidget** has a `createState()` method that returns a class extending Flutter's **State** class. Common examples of **StatefulWidget**s include:

- **Checkbox**
- **Radio**
- **Slider**
- **InkWell**
- **Form**
- **TextField**

### 4.StatelessWidget

A **StatelessWidget** does not hold any state and remains static throughout its lifecycle. It only rebuilds when its parent widget triggers an update. Examples include:

- **Text**
- **Row**
- **Column**
- **Container**

## Commonly Used Widgets in Flutter

- **Container** – A box widget used for layout styling with padding, margins, borders, colors, and size constraints.
- **Row & Column** – Arranges widgets horizontally (**Row**) or vertically (**Column**) with spacing and alignment control.
- **Stack** – Allows widgets to overlap, useful for banners, floating elements, or layered designs.
- **Text** – Displays customizable text with various font styles, colors, and alignments.
- **Image** – Loads and displays images from assets, network, or memory with scaling and fit options.
- **Scaffold** – Provides a structural layout with an app bar, body, floating action button, and bottom navigation.

- **ListView** – A scrollable list that efficiently handles large dynamic content, supporting both vertical and horizontal scrolling.
- **GridView** – Displays widgets in a grid format, ideal for galleries, product lists, and dashboards.
- **SizedBox** – Creates space between widgets or defines fixed dimensions.
- **ElevatedButton** – A button with an elevation effect, customizable in color, shape, and actions.
- **TextField** – A user input field for text entry, supporting validation and keyboard configurations.
- **AppBar** – A top navigation bar with a title, actions, and menu icons.
- **BottomNavigationBar** – A bottom navigation bar with icons and labels for switching between app sections.
- **Drawer** – A slide-out navigation panel for quick access to menus and settings.
- **Card** – A Material Design component that organizes content inside an elevated box.

Flutter's extensive widget system enables developers to create visually appealing, efficient, and responsive applications by structuring UI elements in a modular way.

## Code:

### Main.dart:

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

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

class MyApp extends
  StatelessWidget {
  @override
  Widget build(BuildContext context) {
    return MaterialApp(
      debugShowCheckedModeBanner: false,
      home: SplashScreen(),
    );
  }
}

class SplashScreen
  extends StatefulWidget {
  @override
  _SplashScreenState createState() => _
  SplashScreenState();
}

class _SplashScreenState extends
  State<SplashScreen> {
  @override
  void initState() {
    super.initState();
    Future.delayed(Duration(
seconds: 7), () {
      Navigator.pushReplacement(
        context,
        MaterialPageRoute(builder:
(context) => LoginSignupPage()),
      );
    });
  }
}
```

```
});  
}
```

```
@override  
Widget build(BuildContext context) {  
  return Scaffold(  
    backgroundColor: Colors.red,  
    body: Center(  
      child: Image.asset(  
        'assets/logo.png',  
        width: 150,  
        height: 150,  
      ),  
    ),  
  );  
}
```

```
class LoginSignupPage extends StatelessWidget {  
  @override  
  Widget build(BuildContext context) {  
    return Scaffold(  
      backgroundColor: Colors.white,  
      appBar: AppBar(  
        backgroundColor: Colors.white,  
        elevation: 0,  
        actions: [  
          TextButton(  
            onPressed: () {},  
            child: Text(  
              "SKIP",  
              style:  
                TextStyle(color: Colors.black, fontSize: 16),  
            ),  
          ],  
        ),  
      body: Padding(  
        padding:  
          const EdgeInsets.symmetric(horizontal: 20),  
      ),  
    ),  
  );  
}
```

```

child: Column(
  mainAxisAlignment: MainAxisAlignment.center,
  children: [
    Image.asset('assets/logo.png', width: 120, height: 120),
    SizedBox(height: 10),
    Text(
      "Enjoy faster show booking through our recommendations tailored for you.",
      textAlign: TextAlign.center,
      style: TextStyle(fontSize: 14, color: Colors.black54),
    ),
    SizedBox(height: 30),

```

```

// Google Sign-in Button

```

```

ElevatedButton.icon(
  onPressed: () {
    // Navigate to HomePage on Google Sign-in click
    Navigator.push(
      context,
      MaterialPageRoute(builder: (context) => LoginPage()),
    );
  },
  icon: Image.asset('assets/Google.png', width: 24, height: 24),
  label: Text("Login"),
  style: ElevatedButton.styleFrom(
    backgroundColor: Colors.white,
    foregroundColor: Colors.black,
    minimumSize: Size(double.infinity, 50),
    side: BorderSide(color: Colors.black26),
  ),
),
SizedBox(height: 15),

```

```

// Email Sign-in Button

```

```

ElevatedButton.icon(
  onPressed: () {},
  icon: Icon(Icons.email, color: Colors.black),
  label: Text("Sign Up"),
  style: ElevatedButton.styleFrom(
    backgroundColor: Colors.white,
    foregroundColor: Colors.black,

```

```

        minimumSize: Size(double.infinity, 50),
        side: BorderSide(color: Colors.black26),
    ),
),
SizedBox(height: 20),

// Mobile Number Input Field
Container(
  padding: EdgeInsets.symmetric(horizontal: 10),
  decoration: BoxDecoration(
    border: Border.all(color: Colors.black26),
    borderRadius: BorderRadius.circular(8),
  ),
  child: Row(
    children: [
      Image.asset(
        'assets/flag.png', // Use an Indian flag asset
        width: 24,
        height: 24,
      ),
      SizedBox(width: 10),
      Text("+91", style: TextStyle(fontSize: 16, color: Colors.black)),
      SizedBox(width: 10),
      Expanded(
        child: TextField(
          keyboardType: TextInputType.phone,
          decoration: InputDecoration(
            hintText: "Enter mobile number",
            border: InputBorder.none,
          ),
        ),
      ),
    ],
  ),
),

Spacer(),

// Terms & Conditions
Text.rich(

```

```

    TextSpan(
      text: "I agree to the ",
      style: TextStyle(fontSize: 12, color: Colors.black54),
      children: [
        TextSpan(
          text: "Terms & Conditions",
          style: TextStyle(color: Colors.blue, decoration: TextDecoration.underline),
        ),
        TextSpan(text: " and "),
        TextSpan(
          text: "Privacy Policy",
          style: TextStyle(color: Colors.blue, decoration: TextDecoration.underline),
        ),
      ],
    ),
    textAlign: TextAlign.center,
  ),
  SizedBox(height: 20),
],
),
),
);
}
}

```

### **Login.dart:**

```

import 'package:flutter/material.dart';
import 'home.dart'; // Import the HomePage file

```

```

class LoginPage extends StatelessWidget {
  final TextEditingController emailController = TextEditingController();
  final TextEditingController passwordController = TextEditingController();

```

```

  @override

```

```

  Widget build(BuildContext context) {
    return Scaffold(
      backgroundColor: Colors.white,
      appBar: AppBar(
        backgroundColor: Colors.white,
        elevation: 0,

```



```

leading: IconButton(
  icon: Icon(Icons.arrow_back, color: Colors.black),
  onPressed: () {
    Navigator.pop(context);
  },
),
),
body: Padding(
  padding: const EdgeInsets.symmetric(horizontal: 20),
  child: Column(
    mainAxisAlignment: MainAxisAlignment.center,
    children: [
      Image.asset('assets/logo.png', width: 120, height: 120),
      SizedBox(height: 20),
      Text(
        "Welcome Back!",
        style: TextStyle(fontSize: 22, fontWeight: FontWeight.bold),
      ),
      SizedBox(height: 10),
      Text(
        "Login to continue",
        style: TextStyle(fontSize: 14, color: Colors.black54),
      ),
      SizedBox(height: 30),
      TextField(
        controller: emailController,
        decoration: InputDecoration(
          labelText: "Email",
          border: OutlineInputBorder(),
        ),
      ),
      SizedBox(height: 15),
      TextField(
        controller: passwordController,
        obscureText: true,
        decoration: InputDecoration(
          labelText: "Password",
          border: OutlineInputBorder(),
        ),
      ),
    ],
  ),
),

```

```

    SizedBox(height: 20),
    ElevatedButton(
      onPressed: () {
        String email = emailController.text;
        String password = passwordController.text;

        if (email.isNotEmpty && password.isNotEmpty) {
          Navigator.pushReplacement(
            context,
            MaterialPageRoute(builder: (context) => HomePage()),
          );
        } else {
          ScaffoldMessenger.of(context).showSnackBar(
            SnackBar(content: Text("Please enter email and password")),
          );
        }
      },
      child: Text("Login"),
      style: ElevatedButton.styleFrom(
        backgroundColor: Colors.red,
        foregroundColor: Colors.white,
        minimumSize: Size(double.infinity, 50),
      ),
    ),
    SizedBox(height: 15),
    TextButton(
      onPressed: () {},
      child: Text(
        "Forgot Password?",
        style: TextStyle(color: Colors.red),
      ),
    ),
    ),
    SizedBox(height: 20),
    Text("Or login with"),
    SizedBox(height: 10),
    ElevatedButton.icon(
      onPressed: () {},
      icon: Image.asset('assets/Google.png', width: 24, height: 24),
      label: Text("Login with Google"),
      style: ElevatedButton.styleFrom(

```

```

        backgroundColor: Colors.white,
        foregroundColor: Colors.black,
        minimumSize: Size(double.infinity, 50),
        side: BorderSide(color: Colors.black26),
    ),
),
],
),
),
);
}
}

```

### **Home.dart:**

```

import 'package:flutter/material.dart';

class HomePage extends StatelessWidget {
  @override
  Widget build(BuildContext context) {
    return Scaffold(
      appBar: AppBar(
        title: Text('Welcome Guest!'),
        actions: [
          IconButton(icon: Icon(Icons.search), onPressed: () {}),
          IconButton(icon: Icon(Icons.qr_code), onPressed: () {}),
        ],
      ),
      body: SingleChildScrollView(
        child: Column(
          crossAxisAlignment: CrossAxisAlignment.start,
          children: [
            // Location Bar
            Padding(
              padding: const EdgeInsets.symmetric(horizontal: 15, vertical: 5),
              child: Text("Navi Mumbai", style: TextStyle(color: Colors.red)),
            ),

            // Location Enable Bar
            Container(

```

```

width: double.infinity,
color: Colors.blue,
padding: EdgeInsets.all(10),
child: Text(
  "Enable location to discover nearby events, movies, and more.",
  style: TextStyle(color: Colors.white),
  textAlign: TextAlign.center,
),
),

 SizedBox(height: 10),

// Categories (Movies, Music Shows, etc.)
SingleChildScrollView(
  scrollDirection: Axis.horizontal,
  padding: EdgeInsets.symmetric(horizontal: 10),
  child: Row(
    children: [
      _categoryIcon(Icons.movie, "Movies"),
      _categoryIcon(Icons.music_note, "Music Shows"),
      _categoryIcon(Icons.theater_comedy, "Comedy Shows"),
      _categoryIcon(Icons.event, "Plays"),
    ],
  ),
),

 SizedBox(height: 20),
Padding(
  padding: const EdgeInsets.symmetric(horizontal: 10),
  child: Row(
    children: [
      Expanded(child: Image.asset('assets/event1.jpg', fit: BoxFit.cover)),
      SizedBox(width: 10),
      Expanded(child: Image.asset('assets/event2.jpg', fit: BoxFit.cover)),
    ],
  ),
),

// Recommended Movies Section

```

```

Padding(
  padding: const EdgeInsets.symmetric(horizontal: 15),
  child: Row(
    mainAxisAlignment: MainAxisAlignment.spaceBetween,
    children: [
      Text("Recommended Movies", style: TextStyle(fontSize: 18, fontWeight:
FontWeight.bold)),
      Text("See All >", style: TextStyle(color: Colors.red)),
    ],
  ),
),

SizedBox(height: 10),
SingleChildScrollView(
  scrollDirection: Axis.horizontal,
  padding: EdgeInsets.symmetric(horizontal: 10),
  child: Row(
    children: [
      _movieCard('assets/movie1.jpg', 'PROMOTED'),
      _movieCard('assets/movie2.jpg', ""),
      _movieCard('assets/movie3.jpg', ""),
    ],
  ),
),
],
),
),
bottomNavigationBar: BottomNavigationBar(
  selectedItemColor: Colors.red,
  unselectedItemColor: Colors.black54,
  items: [
    BottomNavigationBarItem(icon: Icon(Icons.home), label: "Home"),
    BottomNavigationBarItem(icon: Icon(Icons.movie), label: "Movies"),
    BottomNavigationBarItem(icon: Icon(Icons.event), label: "Live Events"),
    BottomNavigationBarItem(icon: Icon(Icons.person), label: "Profile"),
  ],
),
);
}

```


```

Widget _categoryIcon(IconData icon, String label) {
  return Column(
    children: [
      Icon(icon, size: 40),
      SizedBox(height: 5),
      Text(label, style: TextStyle(fontSize: 14)),
    ],
  );
}


Widget _movieCard(String imagePath, String tag) {
  return Padding(
    padding: const EdgeInsets.only(right: 10),
    child: Column(
      children: [
        Stack(
          children: [
            Image.asset(imagePath, width: 100, height: 150),
            if (tag.isNotEmpty)
              Positioned(
                top: 5,
                left: 5,
                child: Container(
                  color: Colors.red,
                  padding: EdgeInsets.symmetric(horizontal: 5, vertical: 2),
                  child: Text(tag, style: TextStyle(color: Colors.white, fontSize: 10)),
                ),
              ),
          ],
        ),
      ],
    ),
  );
}

```


## OUTPUT:





SKIP



Enjoy faster show booking through our recommendations tailored for you.

 Login

 Sign Up

 +91 Enter mobile number

I agree to the [Terms & Conditions](#) and [Privacy Policy](#)



book **my** show

## Welcome Back!

Login to continue


Email

Password

Login

[Forgot Password?](#)

Or login with

 Login with Google



book **my** show

## Welcome Back!

Login to continue

Email

shravani@gmail.com


Password

...

Login

[Forgot Password?](#)

Or login with

 Login with Google





Welcome Guest!



Navi Mumbai

Enable location to discover nearby events, movies, and more.



MoviesMusic ShowsComedy Shows Plays



## Recommended Movies

[See All >](#)

PROMOTED



Home

