

## EXPERIMENT NO: - 02

**Name:** Soham Satpute

**Class:** D15A

**Roll No:** 51

**AIM:** - To design Flutter UI by including common widgets.

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### Introduction to Flutter UI Design:

Flutter is a UI toolkit by Google that allows developers to build **natively compiled applications** for mobile, web, and desktop from a single codebase. It provides a **widget-based architecture**, where everything on the screen is a widget.

In this project, the goal is to design a **Flutter user interface (UI)** using commonly used widgets, ensuring a smooth and visually appealing experience for users.

- **AppBar** (for titles, icons, and navigation)
- **Body** (the main content area)
- **BottomNavigationBar** (for multi-page navigation)
- **FloatingActionButton** (for quick actions)

### 2. Layout and Structure

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#### Key Aspects of Flutter UI Design:

##### 1. Scaffold: The Foundation of UI

- The Scaffold widget provides the basic structure of the app, including:

- **Column & Row:** Used for arranging widgets vertically (Column) and horizontally (Row).
- **Container:** Used to wrap other widgets, allowing

customization with padding, margins, color, and decoration.

- **SizedBox:** Helps in adding spacing between elements.

### 3. Interactive Widgets

- **TextField:** For user input (e.g., login forms, search bars).
- **Button Widgets:**
  - **ElevatedButton** (button with elevation)
  - **OutlinedButton** (button with a border)
  - **TextButton** (simple, clickable text)

### 4. Navigation and Routing

- **Navigator:** Used to move between different screens/pages.
- **Drawer:** A side navigation menu, commonly used in apps.
- **BottomNavigationBar:** Allows switching between multiple pages.

### 5. Visual Enhancements

- **Images:** Displaying assets or network images.
- **Icons:** Using Icons to represent actions or features.

- **Card:** A material design widget that provides a rounded, shadowed box for better UI presentation.

### 6. Lists and Grids

- **ListView:** Displays a scrollable list of items (e.g., news feed, messages).
- **GridView:** Displays items in a grid format (e.g., photo gallery, product catalog).

### 7. State Management

- **Stateful Widgets:** Used when UI needs to update dynamically (e.g., toggling dark/light mode).
- **Provider, Riverpod, or Bloc:** Advanced state management techniques for handling complex UI interactions.

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### Application of These Widgets in UI Design:

Using these widgets, we can create an interactive UI with:

- **Login & Signup Pages** with input fields and buttons.
- **Home Page** with a navigation bar and interactive elements.
- **Themed UI** (light/dark mode toggle).

- **Dynamic Content** using lists and cards.

This approach ensures that the **UI is responsive, accessible, and visually appealing** across different devices and screen sizes.

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**Code:**

**Welcome Page:**

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

class WelcomePage extends
StatelessWidget {
  @override
  Widget build(BuildContext context)
  {
    return Scaffold(
      backgroundColor:
Colors.blue.shade700, // Matches
the image background body:
SafeArea( child: Column(
children: [
  Align(
alignment:
Alignment.topLeft,
child: Padding(
padding: EdgeInsets.all(16),
child: Icon(Icons.settings, color:
Colors.white, size: 28), //
Settings Icon
),
),
Spacer(),
Text(
'zoom',
style: TextStyle(fontSize: 40,
color: Colors.white,
fontWeight:
```

```
Text(
  'Workplace',
  style: TextStyle(fontSize: 28,
color: Colors.white),
),
Spacer(),
Container(
  width: double.infinity,
padding:
EdgeInsets.symmetric(horizontal:
20, vertical: 30),
decoration: BoxDecoration(
color: Colors.white,
borderRadius:
BorderRadius.only(topLeft:
Radius.circular(30), topRight:
Radius.circular(30)),
boxShadow:
[BoxShadow(color: Colors.black12,
spreadRadius: 1, blurRadius: 10)],
),
child: Column(
mainAxisSize:
MainAxisSize.min,
children: [
Text('Welcome', style:
TextStyle(fontSize: 24, fontWeight:
FontWeight.bold)),
  SizedBox(height: 5),
Text('Get started with your account',
style: TextStyle(fontSize:
16, color: Colors.grey)),
  SizedBox(height: 30),
_buildButton(context,
```

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```
FontWeight.bold),  
    ),
```

```
'Join a meeting', Colors.blue,  
Colors.white,      ()      {}),
```

```

        SizedBox(height: 15),
        _buildButton(context,
        'Sign up', Colors.grey.shade300,
        Colors.black, () {

Navigator.pushNamed(context,
'/signup');
        }),
        SizedBox(height: 10),
        _buildButton(context,
        'Sign in', Colors.grey.shade300,
        Colors.black, () {

Navigator.pushNamed(context,
'/login');
        }),
    ],
  ),
],
),
),
);
}

```

```

Widget _buildButton(BuildContext
context, String text, Color bgColor,
Color textColor, VoidCallback
onPressed) { return SizedBox(
width: double.infinity, child:
ElevatedButton( onPressed:
onPressed, style:
ElevatedButton.styleFrom(

```

```

EdgeInsets.symmetric(vertical: 15),
shape:
RoundedRectangleBorder(borderRa
dius: BorderRadius.circular(10)),
),
child: Text(text, style:
TextStyle(fontSize: 18, color:
textColor)),
),
);
}
}

```

### SignUp Page:

```

import
'package:flutter/material.dart';

class SignUpPage extends
StatelessWidget {

@override

Widget build(BuildContext context)
{ return Scaffold( backgroundColor:
Colors.blue.shade700, body:
SafeArea( child: Column( children: [
Spacer(),
Text(
'Create Account', style:
TextStyle(fontSize: 26, color:
Colors.white, fontWeight:

```

---

backgroundColor:           bgColor,  
padding:



```

FontWeight.bold),
),
Spacer(), Container(
width: double.infinity,
padding:
EdgeInsets.symmetric(horizontal:
20, vertical: 30), decoration:
BoxDecoration( color:
Colors.white, borderRadius:
BorderRadius.only(topLeft:
Radius.circular(30), topRight:
Radius.circular(30)), boxShadow:
[BoxShadow(color:
Colors.black12, spreadRadius: 1,
blurRadius: 10)],
),
child: Column(
mainAxisSize: MainAxisSize.min,
children: [
_buildTextField("Full Name",
Icons.person),
SizedBox(height: 10),
_buildTextField("Age",
Icons.calendar_today, isNumber:
true),
SizedBox(height: 10),

```

```

_buildTextField("Email",
Icons.email),
SizedBox(height: 10),
_buildTextField("Password",
Icons.lock, isPassword: true),
SizedBox(height: 20),
_buildButton(context, "Sign Up",
Colors.blue, Colors.white, () {
Navigator.pushReplacementNamed(c
ontext, '/home');
}),
],
),
),
),
),
);
}

Widget _buildTextField(String label,
IconData icon, {bool isPassword =
false,
bool isNumber = false}) { return
TextField(
decoration: InputDecoration(
labelText: label,

```

---

---

```

prefixIcon: Icon(icon, color:
Colors.blue), border:
OutlineInputBorder(borderRadius:
BorderRadius.circular(10)), filled:
true,
fillColor: Colors.grey.shade100,
),
keyboardType: isNumber ?
TextInputType.number :
TextInputType.text, obscureText:
isPassword,
);
}

```

```

Widget _buildButton(BuildContext
context, String text, Color bgColor,
Color textColor, VoidCallback
onPressed) { return SizedBox( width:
double.infinity, child:
ElevatedButton( onPressed:
onPressed, style:
ElevatedButton.styleFrom(
backgroundColor: bgColor, padding:
EdgeInsets.symmetric(vertical: 15),

```

```

shape:
RoundedRectangleBorder(borderRa
dius: BorderRadius.circular(10)),
),
child: Text(text, style:
TextStyle(fontSize: 18, color:
textColor)),
),
);
}
}

```

### SignIn Page:

```

import
'package:flutter/material.dart';

class LoginPage extends
StatelessWidget {

@override
Widget build(BuildContext context) {
return Scaffold( backgroundColor:
Colors.blue.shade700, body:
SafeArea( child: Column( children: [
Spacer(),
Text(
'Welcome Back',

```

```

style: TextStyle(fontSize: 26, color:
Colors.white, fontWeight:
FontWeight.bold),
),
Spacer(), Container(
width: double.infinity,
padding:
EdgeInsets.symmetric(horizontal:
20, vertical: 30), decoration:
BoxDecoration( color:
Colors.white, borderRadius:
BorderRadius.only(topLeft:
Radius.circular(30), topRight:
Radius.circular(30)), boxShadow:
[BoxShadow(color:
Colors.black12, spreadRadius: 1,
blurRadius: 10)],
),
child: Column(
mainAxisSize: MainAxisSize.min,
children: [
_buildTextField("Email",
Icons.email),
SizedBox(height: 10),
_buildTextField("Password",
Icons.lock, isPassword: true),

```

```

SizedBox(height: 20),
_buildButton(context, "Login",
Colors.blue, Colors.white, () {
Navigator.pushReplacementNamed(c
ontext, '/home');
}),
],
), ),
],
), ),
);
}

Widget _buildTextField(String label,
IconData icon, {bool isPassword =
false}) {
return TextField(
decoration: InputDecoration(
labelText: label, prefixIcon:
Icon(icon, color:
Colors.blue), border:
OutlineInputBorder(borderRadius:
BorderRadius.circular(10)), filled:
true,
fillColor: Colors.grey.shade100,

```

```

),
obscureText: isPassword,
);
}

Widget _buildButton(BuildContext
context, String text, Color bgColor,
Color textColor, VoidCallback
onPressed) { return SizedBox( width:
double.infinity, child:
ElevatedButton( onPressed:
onPressed, style:
ElevatedButton.styleFrom(
backgroundColor: bgColor, padding:
EdgeInsets.symmetric(vertical: 15),
shape:
RoundedRectangleBorder(borderRa
dius: BorderRadius.circular(10)),
),
child: Text(text, style:
TextStyle(fontSize: 18, color:
textColor)),
),
);
} }

```

### Home Page:

```

import
'package:flutter/material.dart';

class HomePage extends
StatefulWidget {
  @override
  _HomePageState createState() =>
  _HomePageState();
}

class _HomePageState extends
State<HomePage> { bool isDarkMode
= false; // Toggle theme

  @override
  Widget build(BuildContext context)
  {
    return MaterialApp( theme:
      isDarkMode ?
      ThemeData.dark() :
      ThemeData.light(),

    debugShowCheckedModeBanner:
    false,
    home: Scaffold( appBar:
      AppBar( title:
        Text("Meet & Chat"),
        actions: [
          IconButton( icon:
            Icon(isDarkMode ?
              Icons.light_mode

```

---

Icons.*dark\_mode*),

---

```

        onPressed: () => setState(() =>
        isDarkMode = !isDarkMode), //
Toggle                                     theme
    ),
    ],
    ),
    body: Padding(padding:
EdgeInsets.all(20), child:
Column(children: [
    Row(
mainAxisAlignment:
MainAxisAlignment.spaceAround,
    children: [

    _buildButton(Icons.videocam, "New
Meeting"),
    _buildButton(Icons.add,
"Join"),

    _buildButton(Icons.calendar_today,
"Schedule"),

    _buildButton(Icons.screen_share,
"Share Screen"),

    ],
    ),
    SizedBox(height: 30),
Text("Find People and Start
Chatting", style: TextStyle(fontSize:
18)),
    SizedBox(height: 10),
ElevatedButton(onPressed:
() {}, child: Text("Add Contacts")),
    ],

```

```

    ),
    bottomNavigationBar:
BottomNavigationBar(
    items: [

    BottomNavigationBarItem(icon:
Icon(Icons.chat), label: "Meet &
Chat"),

    BottomNavigationBarItem(icon:
Icon(Icons.message), label:
"Messages"),

    BottomNavigationBarItem(icon:
Icon(Icons.contacts), label:
"Contacts"),

    BottomNavigationBarItem(icon:
Icon(Icons.more_horiz), label:
"More"),
    ],
    ),
    );
}

Widget _buildButton(IconData icon,
String label) { return
    Column(children: [
    CircleAvatar(radius: 25, child:
Icon(icon, size: 30, color:
Colors.white), backgroundColor:
Colors.blue),
    SizedBox(height: 5),

```

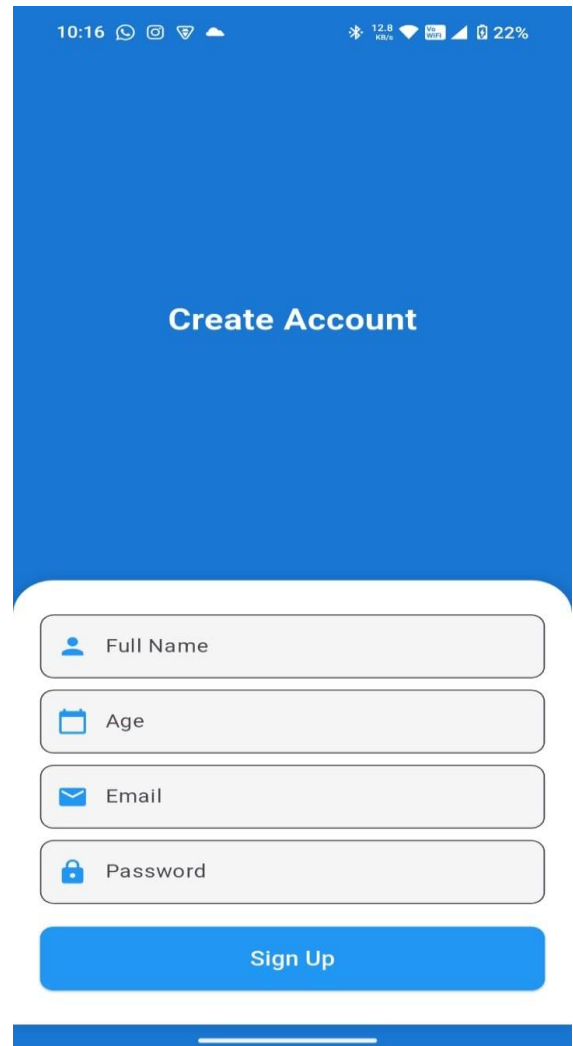
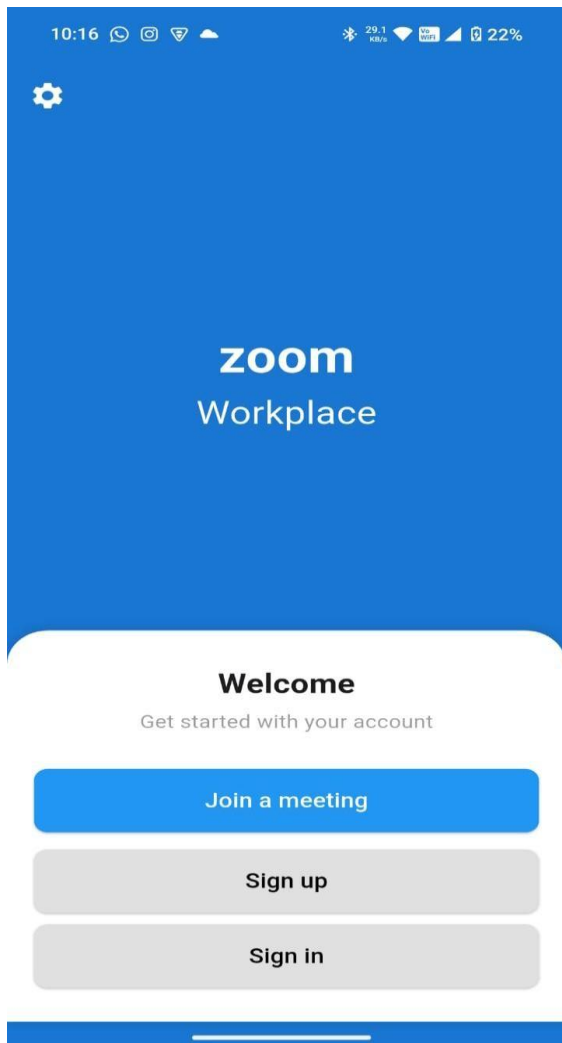
---

),

Text(label),,,),}



## OUTPUT:



10:16



0.62 KB/s



22%

Welcome Back

Email

Password

Login

