

EXPERIMENT NO: 2

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

Flutter Widgets:

In Flutter, everything displayed on the screen is a widget. The layout and structure of your app depend entirely on the sequence and choice of widgets used to build it. Essentially, the app's structure forms a tree of widgets, with each widget potentially containing other widgets, making the UI dynamic and interactive.

Whenever the code is altered, the Flutter framework compares the previous and current widget descriptions to determine the minimal changes needed for rendering the UI, which optimizes performance. Widgets are nested within each other, and from the root of the app to its deepest level, each widget plays a role, whether in displaying content, defining the UI design, or managing user interactions.

Single-Child and Multi-Child Widgets

Flutter has different types of widgets, and one important distinction is between single-child and multi-child widgets.

- **Single-child widgets** allow only one child widget to be nested inside them. These are great for simpler layouts where only a single component needs to be displayed, but often come with additional layout functionalities. Examples of single-child widgets include Padding, Center, and Align.
- **Multi-child widgets** can contain multiple child widgets, allowing for more complex layouts. For instance, the Row widget arranges children horizontally, while the Column widget arranges them vertically. By combining Row and Column, more intricate and hierarchical layouts can be designed.

Types of Widgets in Flutter

Flutter provides two primary types of widgets:

1. StatefulWidget

A StatefulWidget has mutable state and can change during its lifecycle. This type of widget contains two classes: the State object and the Widget class. The state is dynamic and can be updated during the widget's life. A StatefulWidget doesn't have a build() method but instead contains a createState() method, which returns an instance of a class that extends Flutter's State class. Examples include widgets like Checkbox, Radio, Slider, InkWell, Form, and TextField.

2. StatelessWidget

A StatelessWidget is immutable and does not change over time. It's static throughout its lifecycle. These widgets don't maintain any internal state and are usually used for UI elements that do not need to change after the initial render. Examples include Text, Row, Column, Container, and Icon.

Commonly Used Flutter Widgets

Here are some commonly used Flutter widgets that help structure and design the UI:

- **Container**

A versatile widget that acts as a box for styling elements such as padding, margins, colors, borders, and constraints. It's often used for layout and positioning of child widgets.

- **Row & Column**

These are essential for laying out widgets either horizontally (Row) or vertically (Column). They manage the alignment, distribution, and spacing of their child widgets.

- **Stack**

The Stack widget overlays its child widgets on top of each other, which is useful for creating layered UI elements, such as floating action buttons or tooltips.

- **Text**

The Text widget displays static or dynamic text on the screen. It supports various styling options like font size, color, weight, and alignment.

- **Image**

The Image widget is used to display images in the app from sources like assets, networks, or memory. You can control properties like scaling and fitting.

- **Scaffold**

The Scaffold widget provides the basic structure of an app, including the app bar, body, floating action button, and bottom navigation bar.

- **ListView**

A scrollable list that efficiently renders a large amount of dynamic content. It can handle both vertical and horizontal scrolling.

- **GridView**

A grid-based layout that arranges widgets in rows and columns, perfect for displaying items like photos, products, or a dashboard with adjustable columns.

- **SizedBox**

A widget used to add space between other widgets or to set fixed widths and heights for layout adjustment.

- **ElevatedButton**

A button with elevation, giving it a raised appearance. It's highly customizable, allowing you to modify its color, shape, and the actions performed when clicked.

- **TextField**

A user input field that allows text entry. It supports various keyboard types, validation, and configuration options for user input.

- **AppBar**

A top navigation bar that typically includes the title of the app and action buttons. It's commonly used within the Scaffold widget.

- **BottomNavigationBar**

A bar placed at the bottom of the screen for navigation. It typically contains icons and labels to switch between different sections or screens of the app.

- **Drawer**

A side navigation panel that slides out, often used for app menus, settings, or quick navigation links.

- **Card**

A material design component that presents content in a container with elevation. Cards are often used to display content in a visually distinct manner.

Landing.dart

```
import 'package:flutter/material.dart';
import 'Home.dart';
import 'theme.dart'; // Assuming AppColors is imported from theme.dart

class Landing extends StatelessWidget {
  @override
  Widget build(BuildContext context) {
    List<String> imageUrl = [
      'https://images.unsplash.com/photo-1577084381380-3b9ea4153664?q=80&w=2012&auto=format&fit=crop&ixlib=rb-4.0.3&ixid=M3wxMjA3fDB8MHxwaG90by1wYWdlfHx8fGVufDB8fHx8fA%3D%3D',
      'https://media.istockphoto.com/id/452192145/photo/ancient-thai-painting.webp?a=1&b=1&s=612x612&w=0&k=20&c=VeU1WbFs5ns4TFftXU8ud8PTMq3I9VeNNk-ub2DnWzE=',
      'https://images.unsplash.com/photo-1549716679-95380658d5cd?w=600&auto=format&fit=crop&q=60&ixlib=rb-4.0.3&ixid=M3wxMjA3fDB8MHxzZWFyY2h8MjB8fGNhbzHc3xlbnnwfHwwfHx8MA%3D%3D',
      'https://images.unsplash.com/photo-1471899236350-e3016bf1e69e?q=80&w=2071&auto=format&fit=crop&ixlib=rb-4.0.3&ixid=M3wxMjA3fDB8MHxwaG90by1wYWdlfHx8fGVufDB8fHx8fA%3D%3D',
      'https://media.istockphoto.com/id/182062885/photo/space-station-in-earth-orbit.webp?a=1&b=1&s=612x612&w=0&k=20&c=aIGFjcWNyVs4fLL9cWWtYZybeef0X1S1iROLA-bbx_8='
    ];
    return MaterialApp(
      debugShowCheckedModeBanner: false,
      theme: ThemeData.dark(),
      home: Scaffold(
        backgroundColor: AppColors.background,
        body: Column(
          children: [
            // Top Bar
            Container(
              margin: const EdgeInsets.only(top: 20),
              padding: const EdgeInsets.symmetric(vertical: 20),
              alignment: Alignment.center,
```

```
        color: Colors.black,
        child: Text(
            'Gallery',
            style: TextStyle(fontSize: 24, fontWeight: FontWeight.bold, color:
Colors.white),
        ),
    ),

// Content Feed
Expanded(
    child: SingleChildScrollView(
        child: Column(
            children: List.generate(imageUrls.length, (index) =>
ArtworkCard(imageUrl: imageUrls[index])),
        ),
    ),
),

// Call-to-Action Section
Container(
    margin: const EdgeInsets.all(16),
    child: ElevatedButton(
        style: ElevatedButton.styleFrom(
            backgroundColor: Colors.blue,
            shape: RoundedRectangleBorder(
                borderRadius: BorderRadius.circular(8),
            ),
            padding: const EdgeInsets.symmetric(horizontal: 24, vertical: 12),
        ),
        onPressed: () {
            Navigator.push(
                context,
                MaterialPageRoute(builder: (context) => HomePage()),
            );
        },
        child: const Text(
            'Get Started',
            style: TextStyle(fontSize: 18, color: Colors.white),
        ),
    ),
),
],),
),
```

```

    );
}
}

class ArtworkCard extends StatelessWidget {
final String imageUrl;

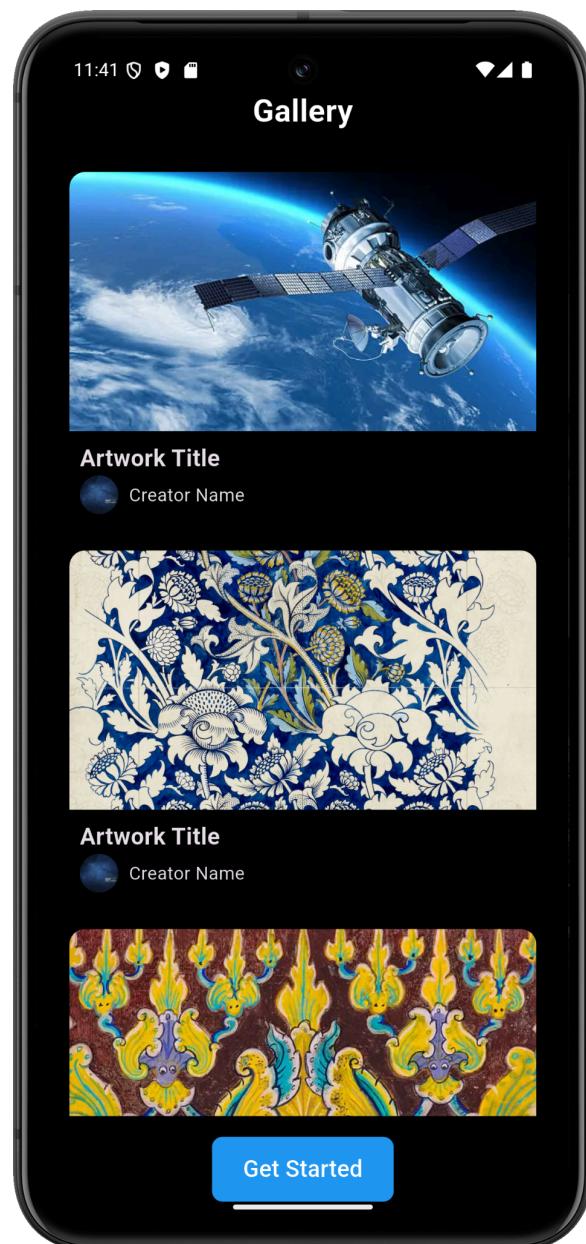
ArtworkCard({required this.imageUrl});

@Override
Widget build(BuildContext context) {
return Container(
margin: const EdgeInsets.symmetric(horizontal: 25, vertical: 10),
decoration: BoxDecoration(
color: Colors.black54,
borderRadius: BorderRadius.circular(12),
),
child: Column(
crossAxisAlignment: CrossAxisAlignment.start,
children: [
ClipRRect(
borderRadius: BorderRadius.vertical(top: Radius.circular(12)),
child: Image.network(
imageUrl,
height: 200,
width: double.infinity,
fit: BoxFit.cover,
),
),
Padding(
padding: const EdgeInsets.all(8.0),
child: Column(
crossAxisAlignment: CrossAxisAlignment.start,
children: [
const Text(
'Artwork Title',
style: TextStyle(fontSize: 18, fontWeight: FontWeight.bold),
),
Row(
children: [
CircleAvatar(
backgroundImage: NetworkImage(

```

'<https://media.istockphoto.com/id/177247796/photo/night-sky-filled-with-stars-and-n>

```
ebulae.jpg?s=1024x1024&w=is&k=20&c=iKWP9X2wvjXd5kb0xIV5K_tLzrOSL6FGZ  
ggDwDpFXOI='  
    ),  
    radius: 15,  
),  
const SizedBox(width: 8),  
const Text(  
  'Creator Name',  
  style: TextStyle(fontSize: 14),  
),  
],  
,  
],  
,  
),  
],  
,  
);  
}  
}
```



Home.dart

```
import 'package:flutter/material.dart';
import '../widgets/bottom_nav.dart';
import '../widgets/top_nav.dart';
import '../widgets/custom_card.dart';

class HomePage extends StatefulWidget {
  const HomePage({Key? key}) : super(key: key);

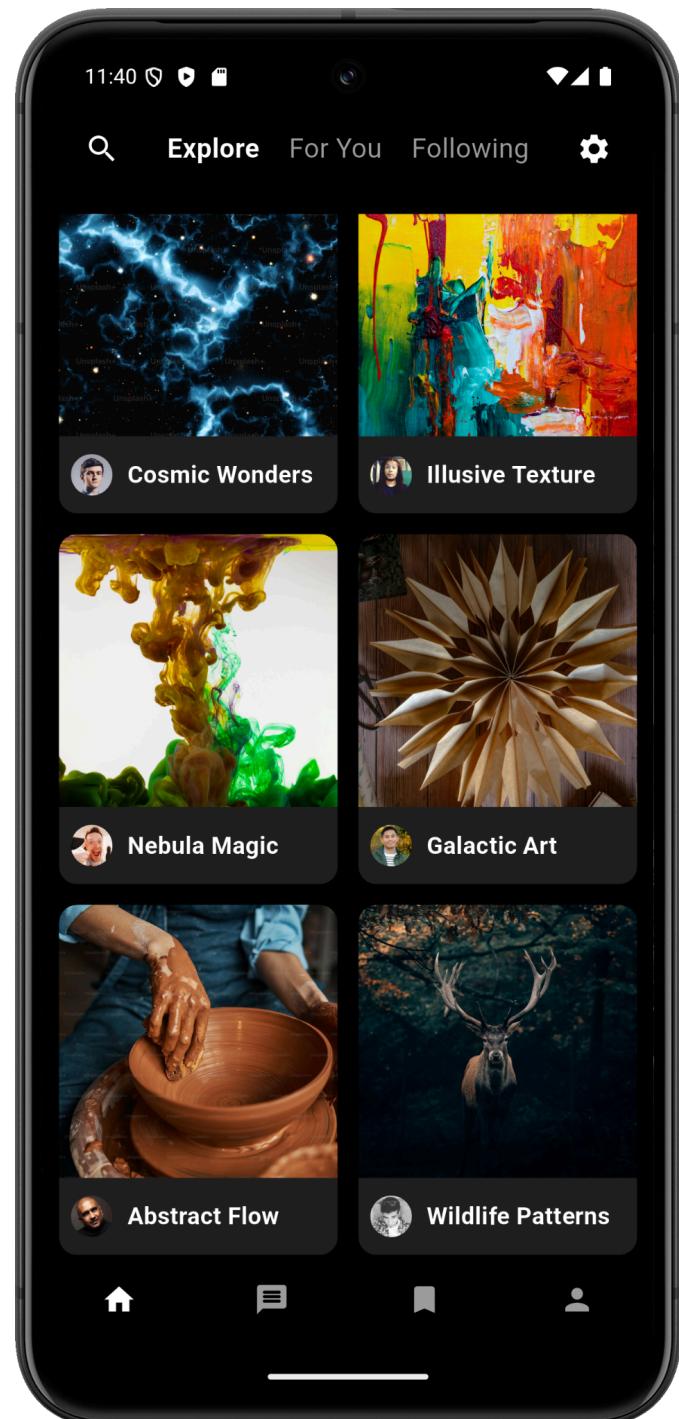
  @override
  _HomePageState createState() => _HomePageState();
}

class _HomePageState extends State<HomePage> {
  int _selectedIndex = 0;

  void _onNavTapped(int index) {
    setState(() {
      _selectedIndex = index;
    });
  }

  @override
  Widget build(BuildContext context) {
    return Scaffold(
      backgroundColor: Colors.black,
      body: Column(
        children: [
          const TopNavBar(),
          Expanded(
            child: GridView.builder(
              padding: const EdgeInsets.all(8),
              gridDelegate: const SliverGridDelegateWithFixedCrossAxisCount(
                crossAxisCount: 2,
                crossAxisSpacing: 8,
                mainAxisSpacing: 8,
                childAspectRatio: 0.8,
            ),
          ),
        ],
      ),
    );
  }
}
```

```
itemCount: 6, // Adjust this based on actual data
itemBuilder: (context, index) {
  return CustomCard(
    imageUrl:
    "https://images.unsplash.com/photo-146233
1940025-496dfbfc7564?q=80&w=2111&aut,
    title: "Gibberish #${index + 1}",
    avatarUrl:
    "https://randomuser.me/api/portraits/men/${in
dex + 1}.jpg",
  );
},
),
),
],
),
bottomNavigationBar:
BottomNavBar(currentIndex: _selectedIndex,
onTap: _onNavTapped),
);
}
}
```



Creatives.dart

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

class CreativesPage extends StatelessWidget {
  final List<Map<String, dynamic>> creatives = [
    {
      "name": "Lorenzo 🤘 Bocchi",
      "location": "Australia",
      "responseTime": "Responds quickly",
      "projects": 2,
      "featured": true,
      "profilePic": "https://via.placeholder.com/50",
      "portfolio": [
        "https://images.unsplash.com/photo-1547891654-e66ed7ebb968?q=80&w=2070&auto=format&fit=crop&ixlib=rb-4.0.3&ixid=M3wxMjA3fDB8MHxwaG90by1wYWdlfHx8fGVufDB8fHx8fA%3D%3D",
        "https://plus.unsplash.com/premium_photo-1673240367277-e1d394465b56?q=80&w=2069&auto=format&fit=crop&ixlib=rb-4.0.3&ixid=M3wxMjA3fDB8MHxwaG90by1wYWdlfHx8fGVufDB8fHx8fA%3D%3D",
        "https://images.unsplash.com/photo-1547826039-bfc35e0f1ea8?q=80&w=1972&auto=format&fit=crop&ixlib=rb-4.0.3&ixid=M3wxMjA3fDB8MHxwaG90by1wYWdlfHx8fGVufDB8fHx8fA%3D%3D"
      ],
    },
    {
      "name": "Jeffrey Dirkse",
      "location": "Netherlands",
      "responseTime": "Responds quickly",
      "projects": 1,
      "featured": true,
      "profilePic": "https://via.placeholder.com/50",
      "portfolio": [
        "https://images.unsplash.com/photo-1547891654-e66ed7ebb968?q=80&w=2070&auto=format&fit=crop&ixlib=rb-4.0.3&ixid=M3wxMjA3fDB8MHxwaG90by1wYWdlfHx8fGVufDB8fHx8fA%3D%3D",
        "https://plus.unsplash.com/premium_photo-1673240367277-e1d394465b56?q=80&
```

```
w=2069&auto=format&fit=crop&ixlib=rb-4.0.3&ixid=M3wxMjA3fDB8MHxwaG90by1wYWdlfHx8fGVufDB8fHx8fA%3D%3D",
"https://images.unsplash.com/photo-1547826039-bfc35e0f1ea8?q=80&w=1972&auto=format&fit=crop&ixlib=rb-4.0.3&ixid=M3wxMjA3fDB8MHxwaG90by1wYWdlfHx8fGVufDB8fHx8fA%3D%3D"
]
},
{
  "name": "Irene Demetri",
  "location": "Greece",
  "responseTime": "Responds quickly",
  "projects": 3,
  "featured": true,
  "profilePic": "https://via.placeholder.com/50",
  "portfolio": [
    "https://images.unsplash.com/photo-1547891654-e66ed7ebb968?q=80&w=2070&auto=format&fit=crop&ixlib=rb-4.0.3&ixid=M3wxMjA3fDB8MHxwaG90by1wYWdlfHx8fGVufDB8fHx8fA%3D%3D",
    "https://plus.unsplash.com/premium_photo-1673240367277-e1d394465b56?q=80&w=2069&auto=format&fit=crop&ixlib=rb-4.0.3&ixid=M3wxMjA3fDB8MHxwaG90by1wYWdlfHx8fGVufDB8fHx8fA%3D%3D",
    "https://images.unsplash.com/photo-1547826039-bfc35e0f1ea8?q=80&w=1972&auto=format&fit=crop&ixlib=rb-4.0.3&ixid=M3wxMjA3fDB8MHxwaG90by1wYWdlfHx8fGVufDB8fHx8fA%3D%3D"
  ]
};

@Override
Widget build(BuildContext context) {
  return Scaffold(
    backgroundColor: Colors.black,
    appBar: AppBar(
      backgroundColor: Colors.black,
      title: const Text("Hire Creatives",
        style: TextStyle(color: Colors.white,
          fontSize: 18,
          fontWeight: FontWeight.bold)),
      actions: [
        IconButton(

```

```
icon: const Icon(Icons.search, color: Colors.white),
onPressed: () {},
),
IconButton(
icon: const Icon(Icons.filter_list, color: Colors.white),
onPressed: () {},
),
],
),
body: ListView.builder(
padding: const EdgeInsets.all(10),
itemCount: creatives.length,
itemBuilder: (context, index) {
final creative = creatives[index];

return Container(
margin: const EdgeInsets.only(bottom: 12),
decoration: BoxDecoration(
color: Colors.grey[900],
borderRadius: BorderRadius.circular(12),
),
child: Column(
children: [
// Portfolio Preview
Stack(
alignment: Alignment.bottomCenter,
clipBehavior: Clip.none,
children: [
Padding(
padding: const EdgeInsets.symmetric(
horizontal: 10, vertical: 8),
child: Row(
mainAxisAlignment: MainAxisAlignment.spaceEvenly,
children: (creative['portfolio'] as List<dynamic>)
.map<Widget>((image) =>
Flexible(
child: ClipRRect(
borderRadius: BorderRadius.circular(8),
child: Image.network(image,
width: 110, height: 80, fit: BoxFit.cover),
),
))
.toList(),
),
],
),
),
]);
```

```
        ),
    // Profile Picture with PRO Badge
    Positioned(
        bottom: -25,
        child: Stack(
            clipBehavior: Clip.none,
            children: [
                CircleAvatar(
                    radius: 30,
                    backgroundImage: NetworkImage(
                        creative['profilePic']),
                ),
                Positioned(
                    bottom: 0,
                    left: 18,
                    child: Container(
                        padding: const EdgeInsets.symmetric(
                            horizontal: 6, vertical: 2),
                        decoration: BoxDecoration(
                            color: Colors.blue,
                            borderRadius: BorderRadius.circular(8),
                        ),
                        child: const Text("PRO",
                            style: TextStyle(
                                color: Colors.white, fontSize: 12)),
                    ),
                ),
            ],
        ),
    ),
),
const SizedBox(height: 30),  
  
// Profile Details
Padding(
    padding: const EdgeInsets.all(12),
    child: Column(
        children: [
            Text(creative['name'],
                style: const TextStyle(
                    color: Colors.white,
                    fontSize: 18,
                    fontWeight: FontWeight.bold)),

```

```
Row(  
    mainAxisAlignment: MainAxisAlignment.center,  
    children: [  
        const Icon(Icons.location_on, color: Colors.grey,  
            size: 14),  
        Text("${creative['location']}"),  
        style: const TextStyle(  
            color: Colors.grey, fontSize: 12)),  
        const SizedBox(width: 5),  
        Text("• ${creative['responseTime']}"),  
        style: const TextStyle(  
            color: Colors.green,  
            fontSize: 12,  
            fontWeight: FontWeight.bold)),  
    ],  
,  
const SizedBox(height: 8),  
Row(  
    mainAxisAlignment: MainAxisAlignment.center,  
    children: [  
        if (creative['featured'])  
            Container(  
                padding: const EdgeInsets.symmetric(  
                    horizontal: 8, vertical: 4),  
                decoration: BoxDecoration(  
                    color: Colors.blueGrey[700],  
                    borderRadius: BorderRadius.circular(8)),  
                ),  
                child: const Text("★ Featured",  
                    style: TextStyle(  
                        color: Colors.white, fontSize: 12)),  
            ),  
        const SizedBox(width: 8),  
        Container(  
            padding: const EdgeInsets.symmetric(  
                horizontal: 8, vertical: 4),  
            decoration: BoxDecoration(  
                color: Colors.blue,  
                borderRadius: BorderRadius.circular(8)),  
            ),  
            child: Text(  
                "${creative['projects']} Projects Completed",  
                style: const TextStyle(  
                    color: Colors.white, fontSize: 12)),  
        ),  
    ],  
,  
const SizedBox(height: 8),
```

```
        ),  
        ],  
        ),  
        ],  
        ),  
        ],  
        ),  
        ),  
        );  
    },  
),  
  
// Bottom Navigation Bar  
bottomNavigationBar:  
BottomNavBar(currentIndex: 0, onTap: (index)  
{},  
);  
}  
}  
}
```

