EXPERIMENT NO: - 02

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

Theory: -

Each element on the screen of the Flutter app is a widget. The view of the screen completely depends upon the choice and sequence of the widgets used to build the apps. And the structure of the code of apps is a tree of widgets.

When you made any alteration in the code, the widget rebuilds its description by calculating the difference of previous and current widget to determine the minimal changes for rendering in UI of the app.Widgets are nested with each other to build the app. It means the root of your app is itself a widget, and all the way down is a widget also. For example, a widget can display something, can define design, can handle interaction, etc.

The single child layout widget is a type of widget, which can have only **one child widget** inside the parent layout widget. These widgets can also contain special layout functionality. Flutter provides us many single child widgets to make the app UI attractive. If we use these widgets appropriately, it can save our time and makes the app code more readable.

The multiple child widgets are a type of widget, which contains **more than one child widget**, and the layout of these widgets are **unique**. For example, Row widget laying out of its child widget in a horizontal direction, and Column widget laying out of its child widget in a vertical direction. If we combine the Row and Column widget, then it can build any level of the complex widget.

Type of Widgetss

➢ **StatefulWidget**

    A StatefulWidget has state information. It contains mainly two classes: the state object and the widget. It is dynamic because it can change the inner data during the widget lifetime. This widget does not have a build() method. It has createState() method, which returns a class that extends the Flutters State Class. The examples of the StatefulWidget are Checkbox, Radio, Slider, InkWell, Form, and TextField.

➢ **StatelessWidget**

The StatelessWidget does not have any state information. It remains static throughout its lifecycle. The examples of the StatelessWidget are Text, Row, Column, Container, etc.

Some of the commonly used widgets

Container – A box widget used for styling with padding, margins, colors, borders, and constraints. It helps in layout structuring and positioning.

Row & Column – Used to arrange widgets in horizontal (Row) or vertical (Column) orientation. They manage spacing, alignment, and distribution of child widgets.

Stack – Overlaps widgets on top of each other, useful for creating layered UIs like banners, tooltips, or floating elements.

Text – Displays text on the screen with customizable font size, color, alignment, and styling options

Image – Loads and displays images from assets, network, or memory with scaling, fit, properties.

Scaffold – Provides a basic layout structure with an app bar, body, floating action button, and bottom navigation.

ListView – A scrollable list widget that efficiently renders large amounts of dynamic content. Supports both vertical and horizontal scrolling.

GridView – Displays widgets in a grid format, useful for galleries, product listings, or dashboards. It supports dynamic column adjustments.

SizedBox – Used to create space between widgets or define fixed width and height for layout adjustments.

ElevatedButton – A button with elevation that provides a raised effect, customizable with color, shape, and click actions.

TextField – A user input field that supports text entry, keyboard configurations, validation.

AppBar – A top navigation bar that includes a title, actions, and menu icons, commonly used in Scaffold.

BottomNavigationBar – A bar at the bottom of the screen used for navigation between different app sections with icons and labels.

Drawer – A side navigation panel that slides out from the left, typically used for app menus and quick navigation.Card – A material design component that displays content inside a box with elevation.

Code:

Home_screen.dart

```dart
import 'package:flutter/material.dart';
import './widgets/service_category.dart';
import './widgets/banner_slider.dart';
class HomeScreen extends StatefulWidget {
 const HomeScreen({super.key});
 @override
 State<HomeScreen>          createState()        =>
_HomeScreenState();
}
class _HomeScreenState extends State<HomeScreen>
{
 final  TextEditingController  _searchController  =
TextEditingController();
 @override
 Widget build(BuildContext context) {
  return Scaffold(
   appBar: AppBar(
    title: const Text('Urban Company'),
    backgroundColor: Colors.transparent,
    elevation: 0,
   ),
   body: LayoutBuilder(
    builder: (context, constraints) {
     return SingleChildScrollView(
      child: ConstrainedBox(
       constraints:      BoxConstraints(minHeight:
constraints.maxHeight),
       child: Column(
        crossAxisAlignment:
CrossAxisAlignment.start,
         children: [
```

```dart
// Banner Slider at the top
const BannerSlider(),



// Search bar
Padding(
 padding: const EdgeInsets.all(16.0),
 child: TextField(
  controller: _searchController,
  decoration: InputDecoration(
   hintText: 'Search for services...',
   prefixIcon: const Icon(Icons.search),
   suffixIcon: IconButton(
    icon: const Icon(Icons.clear),
    onPressed: () {
     _searchController.clear();
    },
   ),
   border: OutlineInputBorder(
 borderRadius: BorderRadius.circular(12),
   ),
  ),
 ),
),
// Services heading
const Padding(
 padding: EdgeInsets.all(16.0),
 child: Text(
  'Services',
  style: TextStyle(
   fontSize: 20,
   fontWeight: FontWeight.bold,
  ),
```

```dart
      ),
    ),

    // Grid of service categories
    Padding(
      padding: const EdgeInsets.symmetric(horizontal: 16),
      child: GridView.count(
        shrinkWrap: true,
        physics: const NeverScrollableScrollPhysics(),
        crossAxisCount: 2,
        padding: const EdgeInsets.all(8),
        mainAxisSpacing: 16,
        crossAxisSpacing: 16,
        children: [
          ServiceCategory(
            title: "Women's Salon",
            image: 'assets/images/categories/womens_salon.png',
            onTapCallback: () {
              Navigator.pushNamed(
                context,
                '/service-details',
                arguments: 'WSaloon',
              );
            },
          ),
          ServiceCategory(
            title: "Men's Salon",
            image: 'assets/images/categories/mens_salon.png',
            onTapCallback: () {
              Navigator.pushNamed(
                context,
                '/service-details',
                arguments: 'MSaloon',
              );
            },
          ),
          ServiceCategory(
            title: 'AC & Appliance Repair',
            image: 'assets/images/categories/ac_appliance.png',
            onTapCallback: () {
              Navigator.pushNamed(
                context,
                '/service-details',
                arguments: 'Repair',
              );
            },
          ),
          ServiceCategory(
            title: 'Cleaning',
            image: 'assets/images/categories/cleaning.png',
            onTapCallback: () {
              Navigator.pushNamed(
                context,
                '/service-details',
                arguments: 'Cleaning',
              );
            },
          ),
          ServiceCategory(
```

```
          title: 'Wall Painting',

          image:
'assets/images/categories/wall_painting.png',

          onTapCallback: () {

            Navigator.pushNamed(

              context,

              '/service-details',

              arguments: 'Wall Painting',

            );

          },

        ),

        ServiceCategory(

      title: 'Electrician, Plumber & Carpenters',

          image:

'assets/images/categories/electrician_plumber.png',

          onTapCallback: () {

            Navigator.pushNamed(

              context,

              '/service-details',

              arguments: 'Repair',

            );

          },

        ),

      ],

    ),

  ),

],

),

),

);

},
```

```
),
```

Slider_widget:

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

import 'package:carousel_slider/carousel_slider.dart';


class BannerSlider extends StatelessWidget {

  const BannerSlider({super.key});


  @override

  Widget build(BuildContext context) {

    final List<String> bannerImages = [

      'assets/images/banners/banner2.webp',

      'assets/images/banners/banner1.webp',

      'assets/images/banners/banner3.webp',

    ];


    return CarouselSlider(

      options: CarouselOptions(

        height: 250.0, // Adjusted height for a better
banner display

        autoPlay: true,

        enlargeCenterPage: true,

        viewportFraction: 1.0, // This ensures the image
takes full width

        aspectRatio: 16 / 9, // This ensures the image has
a 16:9 aspect ratio

      ),

      items: bannerImages.map((imagePath) {

        return Builder(

          builder: (BuildContext context) {

            return Container(
```
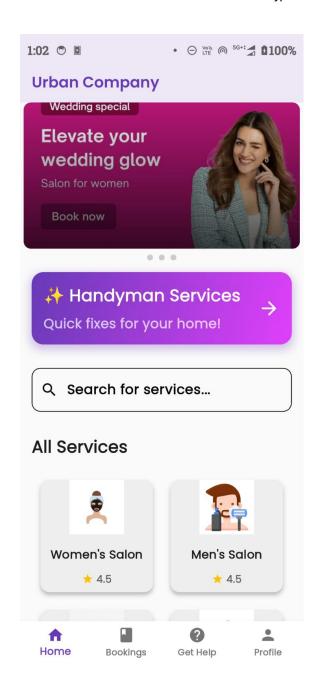
```dart
      width:
              MediaQuery.of(context).size.width, // Full
width of the device
                              margin:    const
EdgeInsets.symmetric(horizontal: 5.0),
      decoration: BoxDecoration(
        borderRadius: BorderRadius.circular(10),
        image: DecorationImage(
          image: AssetImage(imagePath),
          fit: BoxFit
                .cover, // This will ensure the image
covers the entire container
        ),
      ),
    );
    },
  );
  }).toList(),
 );
 }
}
```

Service_category.dart:

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


class ServiceCategory extends StatelessWidget {
 final String title;
 final String image;
 final VoidCallback? onTapCallback;


 const ServiceCategory({
   Key? key,
   required this.title,
   required this.image,
   this.onTapCallback,
 }) : super(key: key);


 @override
 Widget build(BuildContext context) {
  return GestureDetector(
    onTap: onTapCallback,
    child: ClipRRect(
      borderRadius: BorderRadius.circular(12),
      child: Container(
        color: Colors.grey[200],
        child: Column(
          mainAxisAlignment:
MainAxisAlignment.center,
          children: [
            Expanded(
              child: Image.asset(
                image,
                fit: BoxFit.cover,
              ),
            ),
            const SizedBox(height: 8),
            Padding(
              padding: const EdgeInsets.all(8.0),
              child: Text(
                title,
                textAlign: TextAlign.center,
                style: const TextStyle(
                  fontSize: 14,
                  fontWeight: FontWeight.bold,
                ),
```

```
          overflow: TextOverflow.ellipsis,
        ),
      ),
    ],
  ),
 ),
 );
 }
}
```

Service_details_screen:

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


class ServiceDetailsScreen extends StatelessWidget {
 @override
 Widget build(BuildContext context) {
  final selectedCategory =
      ModalRoute.of(context)!.settings.arguments as
String;

  final List<Map<String, String>> services = [
   {
    'title': 'Haircut + Beard grooming',
    'category': 'MSaloon',
    'duration': '45 mins',
    'price': '₹499',
    'rating': '4.8',
    'reviews': '1.2K',
    'image':
'assets/images/services/msaloon_banner.jpeg',
   },
   {
    'title': 'Women Salon & Beauty',
    'category': 'WSaloon',
    'duration': '60 mins',
    'price': '₹799',
    'rating': '4.9',
    'reviews': '2.1K',
    'image':
'assets/images/services/wsaloon_banner.jpeg',
   },
   {
    'title': 'AC Repair & Maintenance',
    'category': 'Repair',
    'duration': '90 mins',
    'price': '₹999',
    'rating': '4.7',
    'reviews': '3.5K',
    'image':
'assets/images/services/repair_banner.jpeg',
   },
   {
    'title': 'House Cleaning Services',
    'category': 'Cleaning',
    'duration': '120 mins',
    'price': '₹1499',
    'rating': '4.6',
    'reviews': '2.8K',
    'image':
'assets/images/services/cleaning_banner.jpeg',
   },
```

```dart
    {
      'title': 'Relaxing Body Massage',
      'category': 'Massage',
      'duration': '60 mins',
      'price': '₹1299',
      'rating': '4.9',
      'reviews': '1.8K',
      'image': 'assets/images/services/massage.jpeg',
    },
  ];

  final filteredServices = services
        .where((service) => service['category'] ==
selectedCategory)
      .toList();

  return Scaffold(
    appBar: AppBar(
      title: Text('$selectedCategory Services'),
    ),
    body: SingleChildScrollView(
      child: Column(
        children: [
          Image.asset(
            'assets/images/services/${selectedCategory.t
oLowerCase()}_banner.jpeg',
            width: double.infinity,
            height: 200,
            fit: BoxFit.cover,
          ),
          Padding(
            padding: const EdgeInsets.all(16.0),
            child: Column(
              crossAxisAlignment:
CrossAxisAlignment.start,
              children: [
                const Text(
                  'Available Services',
                  style: TextStyle(
                    fontSize: 18,
                    fontWeight: FontWeight.bold,
                  ),
                ),
                const SizedBox(height: 16),
                Column(
                  children: filteredServices.map((service)
{
                    return ServiceCard(
                      title: service['title']!,
                      duration: service['duration']!,
                      price: service['price']!,
                      rating: double.parse(service['rating']!),
                      reviews: service['reviews']!,
                      image: service['image']!,
                    );
                  }).toList(),
                ),
              ],
            ),
          ),
        ],
      ),
    ),
  );
```

```
  }
}


Service_card:

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


class ServiceCard extends StatelessWidget {
 final String title;
 final String duration;
 final String price;
 final double rating;
 final String reviews;
 final String image;


 const ServiceCard({
  required this.title,
  required this.duration,
  required this.price,
  required this.rating,
  required this.reviews,
  required this.image,
 });


 @override
 Widget build(BuildContext context) {
  return Card(
    margin: const EdgeInsets.symmetric(vertical:
8.0),
    shape: RoundedRectangleBorder(borderRadius:
BorderRadius.circular(12)),
   child: Padding(
      padding: const EdgeInsets.all(12.0),
    child: Row(
     children: [
      ClipRRect(
        borderRadius: BorderRadius.circular(8),
       child: Image.asset(
        image,
        width: 80,
        height: 80,
        fit: BoxFit.cover,
       ),
      ),
      const SizedBox(width: 12),
      Expanded(
       child: Column(
             crossAxisAlignment:
CrossAxisAlignment.start,
        children: [
         Text(
          title,
          style: const TextStyle(
           fontSize: 16,
           fontWeight: FontWeight.bold,
          ),
         ),
         const SizedBox(height: 8),
         Text(duration),
         const SizedBox(height: 8),
         Text(
          price,
          style: const TextStyle(
           fontSize: 14,
```

```
                fontWeight: FontWeight.bold,                        MaterialPageRoute(builder: (context) =>
                                                          SummaryPage()),
                color: Colors.green,
                                                                );
              ),
                                                              },
            ),
                                                            style: ElevatedButton.styleFrom(
            const SizedBox(height: 8),
                                                              backgroundColor: Colors.purple,
            Row(
                                                              shape: RoundedRectangleBorder(
              children: [
                                                                borderRadius: BorderRadius.circular(8),
                const Icon(Icons.star, size: 16, color:
        Colors.orange),                                           ),
                Text('$rating ($reviews reviews)'),              ),
              ],                                                child: const Text('Add'),
            ),                                              ),
          ),                                              ],
        ),                                              ),
        ElevatedButton(                                 ),
          onPressed: () {                              );
          Navigator.push(                            }
            context,                                }
```

OUTPUT: -

Urban Company

Wedding special

Elevate your wedding glow

Salon for women

Book now

✨ **Handyman Services**

Quick fixes for your home! →

🔍 Search for services...

All Services

Women's Salon
★ 4.5

Men's Salon
★ 4.5

🏠 Home   📖 Bookings   ❓ Get Help   👤 Profile

← **MSaloon Services**

Available Services

Haircut + Beard grooming
45 mins
₹499
★ 4.8 (1.2K reviews)

Add

1:11

Bookings & Plans

UPCOMING   HISTORY

Picture Hanging
Date: 2025-02-26 09:38:00.000
Price: ₹200

Picture Hanging
Date: 2025-02-27 05:51:00.000
Price: ₹200

Furniture Assembly
Date: 2025-02-26 01:10:00.000
Price: ₹300

Furniture Assembly
Date: 2025-02-26 04:32:00.000
Price: ₹300