

## Experiment 2: Exploring Flutter Widgets

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

### Theory:

Designing a Flutter UI involves combining and customizing a variety of common widgets to create a visually appealing and functional user interface.

### Widgets

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.

#### **1. StatelessWidget:**

- A basic building block in Flutter.
- Represents part of the user interface that can be described by a configuration that cannot change over time.
- Example: Container, Icon, Text.

#### **2. StatefulWidget:**

- Represents part of the user interface that can change dynamically.
- Has mutable state that affects its appearance.
- Example: TextField, Checkbox, Radio.

### **BASIC WIDGETS**

Container: Box model for layout and styling.

Row and Column: Horizontal and vertical layout.

Stack: Stacks widgets on top of each other.

ListView: Scrollable list of widgets.

GridView: Scrollable grid layout.

Card: Material design card for grouping info.

AppBar: Top app bar with title and actions.  
TextField: User text input field.  
Buttons: ElevatedButton, TextButton, OutlinedButton.  
Icon: Displays material design icons.  
Image: Displays images with various sources.  
Divider: Creates horizontal or vertical lines.  
SizedBox: Box with specified width and height.  
Expanded: Takes up remaining space.  
Flexible: Adjusts flex factor in a Flex widget.  
PageRouteBuilder: Customizable page transitions.  
ClipRRect and ClipOval: Clipping with rounded corners or oval shape.  
Sliver Widgets: Advanced scrolling in CustomScrollView.

Code:

Make a folder screens in the lib folder.

Under screens folder make a

home.dart, feed.dart, post\_screen.dart, favorite\_screen.dart, post\_screen.dart, search.dart, profile\_screen.dart

### Main.dart

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

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

```
class MyApp extends StatelessWidget {  
  const MyApp({super.key});
```

```
  @override
```

```
  Widget build(BuildContext context) {  
    return MaterialApp(  
      title: 'Flutter Demo',  
      theme: ThemeData(),  
      home: const LoginScreen(),  
    );  
  }  
}
```

```
);  
}  
}
```

### Home.dart

```
import 'package:flutter/material.dart';  
import 'package:my_app/screens/favorite_screen.dart';  
import 'package:my_app/screens/feed.dart';  
import 'package:my_app/screens/post_screen.dart';  
import 'package:my_app/screens/profile_screen.dart';  
import 'package:my_app/screens/search.dart';
```

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

```
  @override  
  State<Home> createState() => _HomeState();  
}
```

```
class _HomeState extends State<Home> {  
  int selectedIndex = 0;  
  List<Widget> pages = [  
    const FeedScreen(),  
    const SearchScreen(),  
    const PostScreen(),  
    const FavoriteScreen(),  
    const ProfileScreen(),  
  ]; // You need to populate this list with your pages
```

```
  @override  
  Widget build(BuildContext context) {  
    return Scaffold(  
      body: pages[selectedIndex],  
      bottomNavigationBar: BottomNavigationBar(  
        currentIndex: selectedIndex,  
        selectedItemColor: Colors.black,  
        unselectedItemColor: Colors.grey,  
        showSelectedLabels: false,  
        showUnselectedLabels: false,  
        onTap: (index){  
          setState(() {  
            selectedIndex=index;  
          });  
        }  
      );  
    );  
  }  
}
```

```

    },
    type: BottomNavigationBarType.fixed,

    items: const [
      BottomNavigationBarItem(icon: Icon(Icons.home),label: 'Feed',),
      BottomNavigationBarItem(icon: Icon(Icons.search),label: 'Search',),
      BottomNavigationBarItem(icon: Icon(Icons.add),label: 'post',),
      BottomNavigationBarItem(icon: Icon(Icons.favorite),label: 'favorite',),
      BottomNavigationBarItem(icon: Icon(Icons.person),label: 'profile',),

    ],
  ),
);
}
}

```

### feed.dart

```

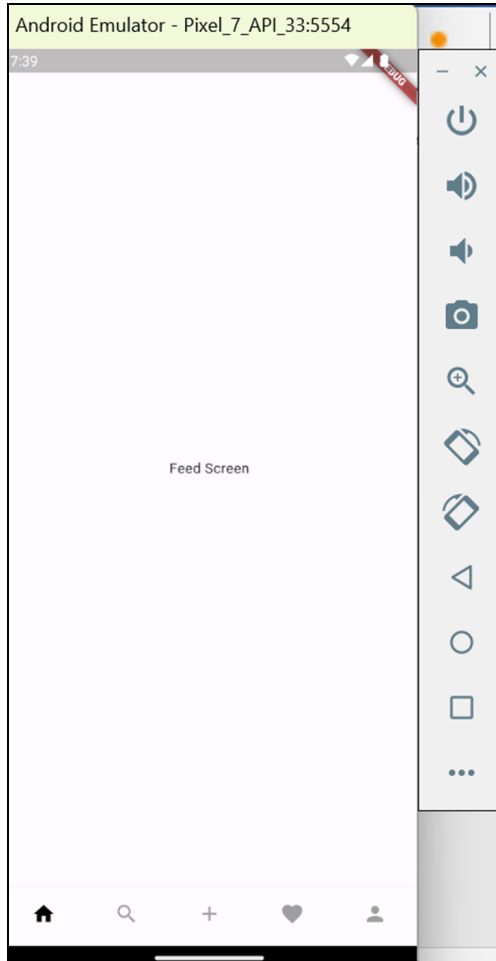
import 'package:flutter/material.dart';

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

  @override
  State<FeedScreen> createState() => _FeedScreenState();
}

class _FeedScreenState extends State<FeedScreen> {
  @override
  Widget build(BuildContext context) {
    return const Scaffold(
      body: Center(
        child: Text("Feed Screen"),
      ),
    );
  }
}

```



### search.dart

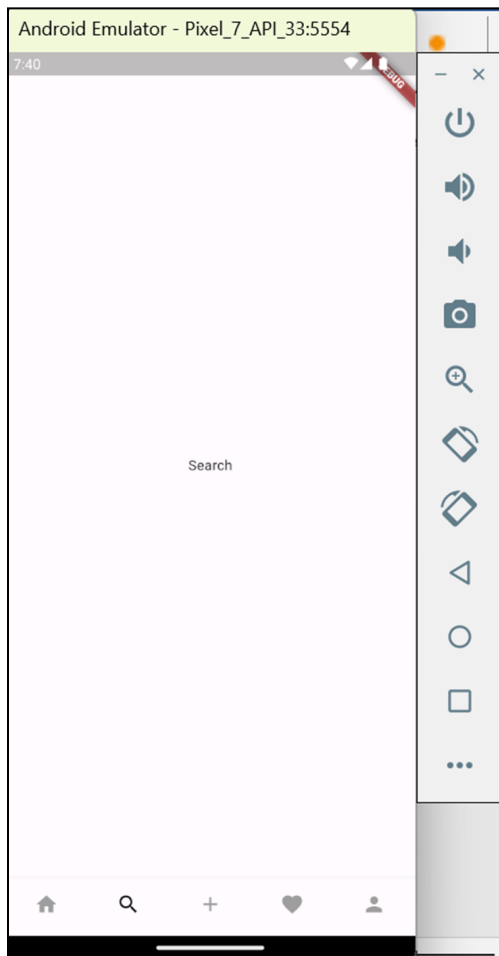
```
import 'package:flutter/material.dart';
```

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

```
  @override  
  State<SearchScreen> createState() => _SearchScreenState();  
}
```

```
class _SearchScreenState extends State<SearchScreen> {  
  @override  
  Widget build(BuildContext context) {  
    return const Scaffold(  
      body: Center(  
        child: Text('Search'),  
      ),  
    );  
  }  
}
```

```
}  
}  
}
```



### favorite\_screen.dart

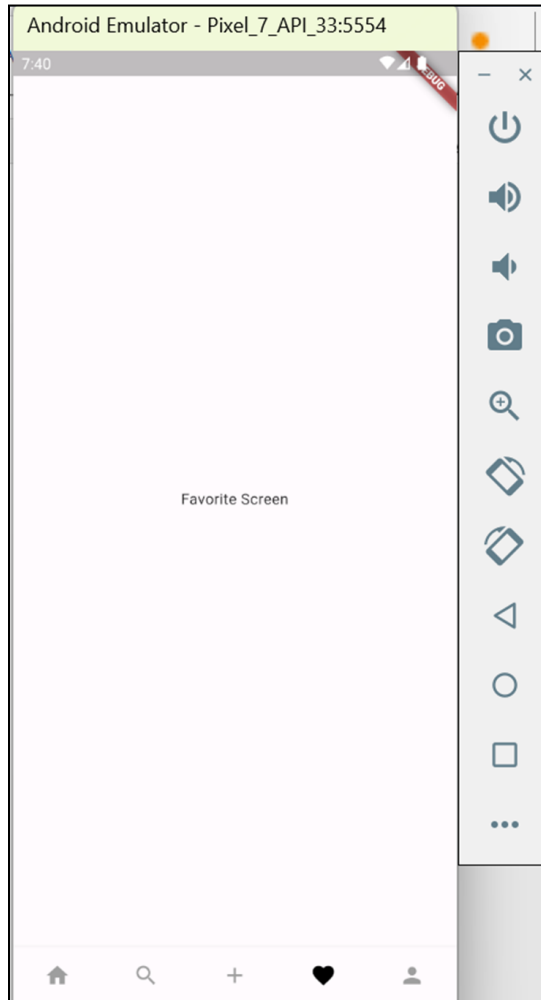
```
import 'package:flutter/material.dart';
```

```
class FavoriteScreen extends StatefulWidget {  
  const FavoriteScreen({super.key});  
  
  @override  
  State<FavoriteScreen> createState() => _FavoriteScreenState();  
}
```

```
class _FavoriteScreenState extends State<FavoriteScreen> {  
  @override  
  Widget build(BuildContext context) {  
    return const Scaffold(  

```

```
body: Center(  
  child: Text('Favorite Screen'),  
),  
);  
}  
}
```



## CONCLUSION

In conclusion, the process of designing a Flutter UI by incorporating common widgets has proven to be effective and user-friendly. I learned many new concepts in flutter widgets.