

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

**THEORY :**

To build any application we start with widgets – The building block of flutter applications.

Widgets describe what their view should look like given their current configuration and state.

It includes a text widget, row widget, column widget, container widget, and many more.

Widgets: Each element on a 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 an apps is a tree of widgets.

Row and Column are the two most important and powerful widgets in Flutter. These widgets let you align children horizontally and vertically as per the requirement

There are broadly two types of widgets in the flutter:

1. Stateless Widget
2. Stateful Widget

Description of the widgets used are as follows:

- Scaffold – Implements the basic material design visual layout structure.
- App-Bar – To create a bar at the top of the screen.
- Text To write anything on the screen.
- Container – To contain any widget.
- Center – To provide center alignment to other widgets.

Some of the commonly used widgets are :

1. Container:

- A box model that can contain other widgets, providing customization for size, padding, margin, and decoration.

2. Row:

- A widget that displays its children in a horizontal array.

3. Column:

- A widget that displays its children in a vertical array.

4. ListView:

- A scrollable list of widgets.

5. Stack:

- A widget that overlays multiple children widgets.

6. AppBar:

- A material design app bar that typically contains the page title and some action buttons.

#### 7. Scaffold:

- Implements the basic material design layout structure, providing a top bar (app bar), a bottom bar, and a body.

#### 8. Text:

- A widget for displaying a short piece of text.

#### 9. Image:

- A widget for displaying images.

#### 10. Button Widgets (E.g., ElevatedButton, TextButton, OutlinedButton):

- Widgets for creating interactive buttons with different styles.

#### 11. TextField:

- A widget for user input of text.

#### 12. Card:

- A material design card. A card has slightly rounded corners and a shadow.

### CODE :

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

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

class MyApp extends StatelessWidget {
  @override
  Widget build(BuildContext context) {
    return MaterialApp(
      title: 'Quiz App',
      theme: ThemeData(
        primarySwatch: Colors.blue,
      ),
      home: UserLandingPage(),
    );
  }
}

class UserLandingPage extends StatelessWidget {
  @override
  Widget build(BuildContext context) {
    return Scaffold(
      appBar: AppBar(
        title: Text('User Landing Page'),
        actions: [
          IconButton(
            icon: Icon(Icons.search),
            onPressed: () {
              // Expand search bar
            },
          ),
        ],
      ),
      body: SingleChildScrollView(
        child: Padding(
          padding: EdgeInsets.all(20),
          child: Column(
            crossAxisAlignment:
              CrossAxisAlignment.stretch,
            children: [
              // First Card
              Card(
                child: Padding(
                  padding: EdgeInsets.all(20),

```

```

child: Column(
  children: [
    Text(
      'Welcome to Quiz App!',
      style: TextStyle(
        fontSize: 24,
        fontWeight: FontWeight.bold,
      ),
    ),
    SizedBox(height: 10),
    Text(
      'This app is designed to help you
test your knowledge in various subjects.',
      style: TextStyle(fontSize: 16),
    ),
  ],
),
),
SizedBox(height: 20),
// Quiz Categories
Row(
  mainAxisAlignment:
MainAxisAlignment.spaceBetween,
  children: [
    // Science Quiz
    _buildCategoryBox(context,
'Science', 'assets/science.jpg'),
    // Maths Quiz
    _buildCategoryBox(context,
'Maths', 'assets/math.jpg'),
  ],
),
SizedBox(height: 20),
Row(
  mainAxisAlignment:
MainAxisAlignment.spaceBetween,
  children: [
    // History Quiz
    _buildCategoryBox(context,
'History', 'assets/history.png'),
    // Literature Quiz
    _buildCategoryBox(context,
'Literature', 'assets/literature.jpg'),
  ],
),
SizedBox(height: 20),
],

```

```

),
),
),
bottomNavigationBar: BottomAppBar(
  child: Row(
    mainAxisAlignment:
MainAxisAlignment.spaceAround,
    children: [
      IconButton(
        icon: Icon(Icons.calendar_today),
        onPressed: () {
          // Calendar icon pressed
        },
      ),
      IconButton(
        icon: Icon(Icons.notifications),
        onPressed: () {
          // Notifications icon pressed
        },
      ),
      IconButton(
        icon: Icon(Icons.settings),
        onPressed: () {
          // Settings icon pressed
        },
      ),
    ],
  ),
),
drawer: Drawer(
  child: ListView(
    padding: EdgeInsets.zero,
    children: <Widget>[
      DrawerHeader(
        decoration: BoxDecoration(
          color: Colors.blue,
        ),
        child: Column(
          crossAxisAlignment:
CrossAxisAlignment.start,
          children: [
            Padding(
              padding: EdgeInsets.only(bottom:
10),
              child: CircleAvatar(
                radius: 50,
                backgroundImage:
AssetImage('assets/profile_image.jpg'),

```

```

    ),
  ),
  Text(
    'Username',
    style: TextStyle(
      color: Colors.white,
      fontSize: 18,
      fontWeight: FontWeight.bold,
    ),
  ),
],
),
),
ListTile(
  leading: Icon(Icons.account_circle),
  title: Text('Profile'),
  onTap: () {
    // Profile tapped
  },
),
ListTile(
  leading: Icon(Icons.emoji_events),
  title: Text('Ranking'),
  onTap: () {
    // Ranking tapped
  },
),
ListTile(
  leading: Icon(Icons.emoji_events),
  title: Text('Achievements'),
  onTap: () {
    // Achievements tapped
  },
),
ListTile(
  leading: Icon(Icons.edit),
  title: Text('Edit Profile'),
  onTap: () {
    // Edit Profile tapped
  },
),
],
),
),
);
}

```

```

Widget _buildCategoryBox(BuildContext
context, String categoryName, String
imagePath) {
  return Expanded(
    child: GestureDetector(
      onTap: () {
        // Navigate to quiz page for the selected
        category (question.dart)
        Navigator.push(
          context,
          MaterialPageRoute(builder: (context)
=> QuizPage(categoryName)),
        );
      },
      child: Card(
        elevation: 4,
        child: Column(
          mainAxisAlignment:
MainAxisAlignment.center,
          children: [
            Text(
              categoryName,
              style: TextStyle(
                fontSize: 20,
                fontWeight: FontWeight.bold,
              ),
            ),
            SizedBox(height: 10),
            Image.asset(
              imagePath,
              height: 120,
              width: 120,
              fit: BoxFit.cover,
            ),
            SizedBox(height: 10),
            ElevatedButton(
              onPressed: () {
                // Navigate to quiz page for the
                selected category (question.dart)
                Navigator.push(
                  context,
                  MaterialPageRoute(builder:
(context) => QuizPage(categoryName)),
                );
              },
              child: Text('Play'),
            ),
          ],
        ),
      ),
    ),
  );
}

```

```

    ),
  ),
),
);
}
}

```

```

class QuizPage extends StatelessWidget {
  final String category;

```

```

  QuizPage(this.category);

```

```

  @override

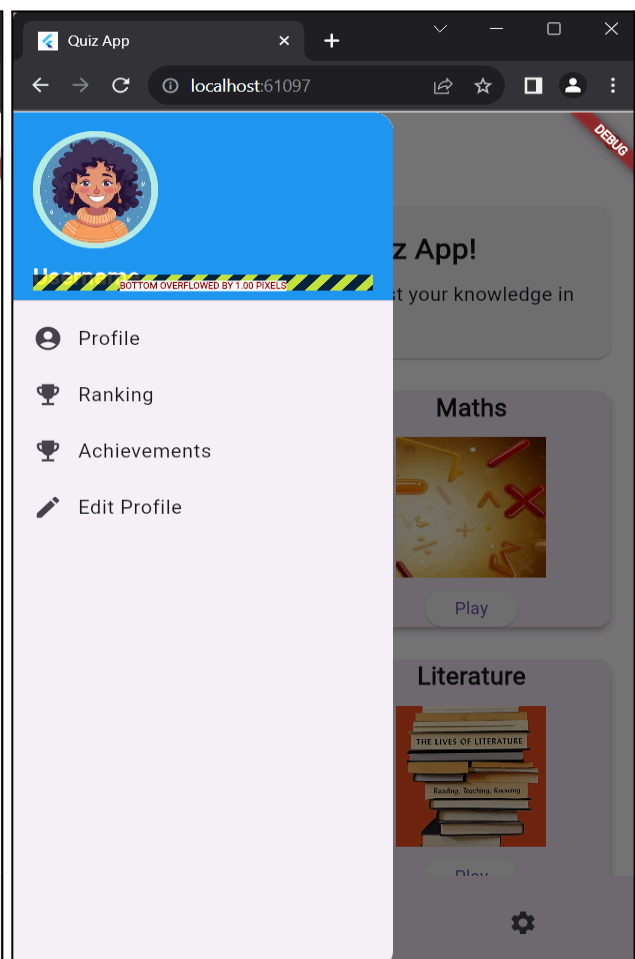
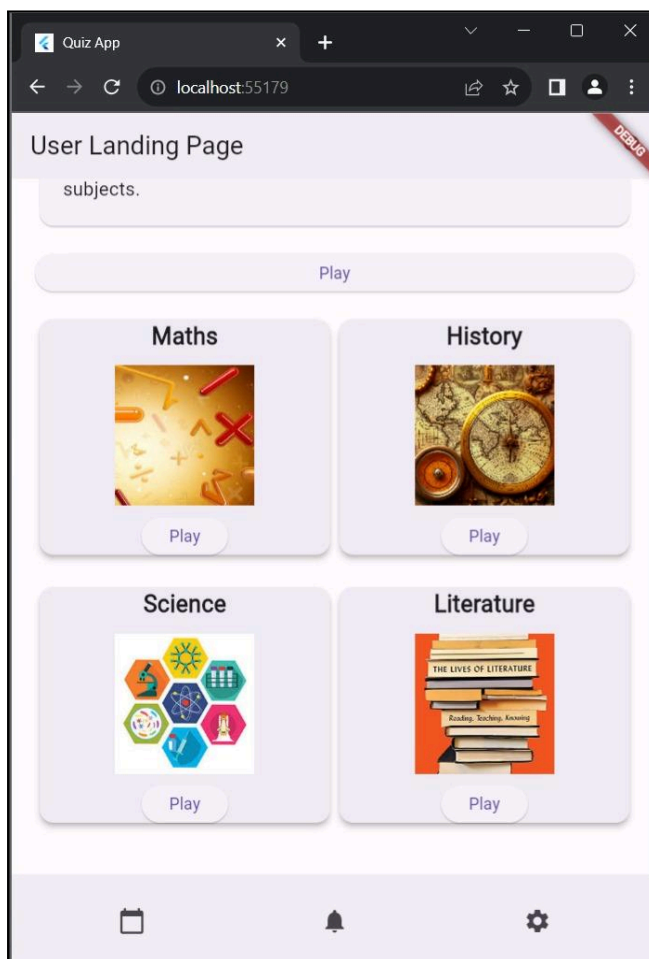
```

**OUTPUT :**

```

Widget build(BuildContext context) {
  return Scaffold(
    appBar: AppBar(
      title: Text('Quiz - $category'),
    ),
    body: Center(
      child: Text('Quiz Page for $category'),
    ),
  );
}
}

```



```
This app is linked to the debug service: ws://127.0.0.1:56071/D_Cd2-tSAKA=/ws
Debug service listening on ws://127.0.0.1:56071/D_Cd2-tSAKA=/ws
Debug service listening on ws://127.0.0.1:56071/D_Cd2-tSAKA=/ws
You pressed Profile Button
You pressed Blocked Profile Button
You pressed Notifications Button
You pressed Help Button
```