EXPERIMENT NO: - 02

Name:- Himesh Pathai Class:- D15A Roll:No: - 34

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

Theory: -

Understanding Widgets in Flutter

In Flutter, every UI element is a widget, and the entire app structure is a tree of nested widgets. The appearance and functionality of a screen are determined by the selection and arrangement of these widgets. Whenever code changes occur, Flutter recalculates the differences between the previous and updated widgets to apply minimal UI updates efficiently. Since widgets are deeply nested, the root of the app itself is a widget, with every subsequent element also being a widget. These can be responsible for rendering visuals, defining layout structures, handling interactions, and more.

Types of Layout Widgets

Single-Child Layout Widgets

Single-child widgets allow only one child element within the parent widget. These widgets often provide specialized layout functionalities that enhance UI design, improve readability, and optimize development time.

Multi-Child Layout Widgets

Multi-child widgets contain multiple child elements and follow unique layout patterns.

- Row – Arranges child widgets horizontally.
- Column – Arranges child widgets vertically.
- Combination of Row & Column – Enables complex UI structures by nesting these widgets together.

Types of Widgets StatefulWidget

- Maintains state information that can change during the widget's lifecycle.
- Comprises two key classes: the widget itself and a separate state object.
- Uses createState() instead of build(), which returns a class extending Flutter’s State class.
- Examples: Checkbox, Radio, Slider, InkWell, Form, TextField.

StatelessWidget

- Does not hold any state; remains constant throughout its lifecycle.
- Uses the build() method directly to define UI elements.
- Examples: Text, Row, Column, Container.

Commonly Used Widgets

- Container – A box-like widget for layout styling (padding, margins, colors, borders).
- Row & Column – Used for horizontal and vertical alignment of widgets.
- Stack – Overlaps widgets to create layered designs.
- Text – Displays stylized text.
- Image – Loads images from assets, networks, or memory.
- Scaffold – Provides a basic screen layout with an app bar, body, and navigation elements.
- ListView – Creates a scrollable list, ideal for dynamic content.
- GridView – Arranges content in a grid, useful for galleries and dashboards.
- SizedBox – Defines space between elements or sets fixed dimensions.
- ElevatedButton – A button with elevation and customization options.
- TextField – Accepts user text input with keyboard configurations.
- AppBar – A top navigation bar with a title and actions.
- BottomNavigationBar – A bottom navigation panel for switching between app sections.
- Drawer – A side menu panel for navigation.
- Card – A material design component for displaying content in an elevated box.

Code:

main_screen.dart

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

import 'package:get/get.dart';

import 'package:inventory/lumina/src/common_widgets/app_bar.dart';

import 'package:inventory/lumina/src/common_widgets/bottom_navigation_bar.dart';

import 'package:inventory/lumina/src/common_widgets/side_drawer.dart';

import 'package:inventory/lumina/src/features/authentication/controllers/emailcontroller.dart';

import 'package:inventory/lumina/src/features/main_app/dashboard/dashboard_screen.dart';

import 'package:inventory/lumina/src/features/main_app/menu_screen/menu_Screen.dart';

import 'package:inventory/lumina/src/features/main_app/search_screen/search_screen.dart';

import 'package:inventory/lumina/src/features/main_app/more.dart';

import
'package:inventory/lumina/src/features/main_app/transactions_screen/transaction_screen.dart';

import 'package:supabase_flutter/supabase_flutter.dart';


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


  static  List<Widget> _screenOptions = <Widget>[
    Dashboard(),
    SearchScreen(),
    MenuScreen()
   , MoreScreen()
  ];


  @override
  State<MainScreen> createState() => _DashboardState();
}


class _DashboardState extends State<MainScreen> {
  int _selectedIndex = 0;
```

```
final _supabase = Supabase.instance.client;
final Emailcontroller emailGet = Get.put(Emailcontroller());

void _onItemTapped(int index) {
  if (index == 2) {
    // Custom action for the middle "Add" button
     Navigator.of(context).push(MaterialPageRoute(builder: (context)=>TransactionScreen()));
  } else {
    setState(() {
      _selectedIndex = index >= 2 ? index - 1 : index;
    });
  }
}

void naamkaran() async {
  final response = await _supabase
      .from('admins')
      .select()
      .eq('emailid', emailGet.emailget.value);
  final data = response;
  emailGet.Namefrommail.value ;
}

@override
void initState() {
  // TODO: implement initState
  super.initState();
  naamkaran();
}

@override
```

```
  Widget build(BuildContext context) {
    return Scaffold(
      appBar: CustomAppBar(),
      drawer: CustomSideDrawer(),
      body: Center(
        child: MainScreen._screenOptions.elementAt(_selectedIndex),
      ),
      bottomNavigationBar: CustomBottomNavigationBar(
        currentIndex: _selectedIndex >= 2 ? _selectedIndex + 1 : _selectedIndex,
        onTap: _onItemTapped,
      ),
    );
  }
}
```

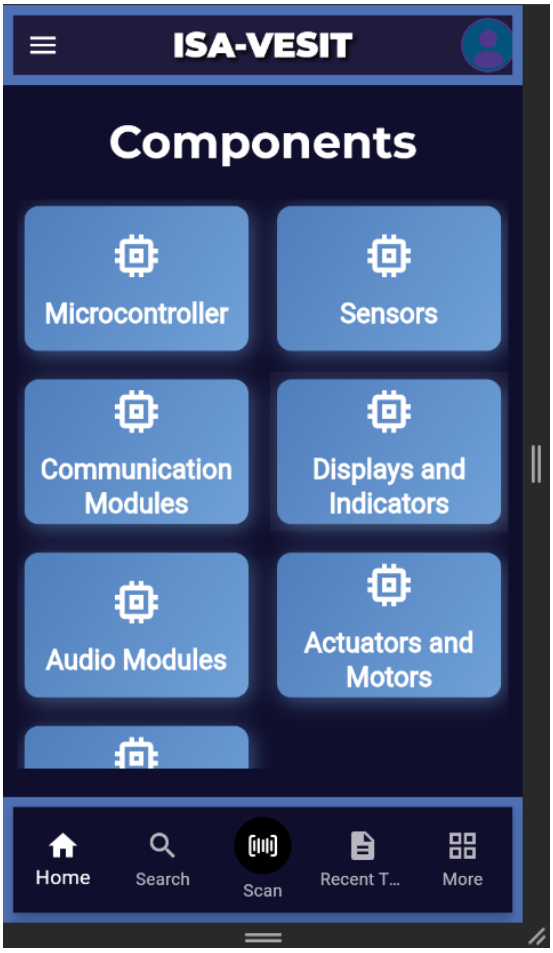
dashboard_screen.dart

```
import 'package:flutter/material.dart';
import 'package:get/get.dart';
import 'package:inventory/lumina/src/common_widgets/app_bar.dart';
import 'package:inventory/lumina/src/common_widgets/bottom_navigation_bar.dart';
import 'package:inventory/lumina/src/common_widgets/side_drawer.dart';
import 'package:inventory/lumina/src/features/authentication/controllers/emailcontroller.dart';
import 'package:inventory/lumina/src/features/main_app/dashboard/dashboard_screen.dart';
import 'package:inventory/lumina/src/features/main_app/menu_screen/menu_Screen.dart';
import 'package:inventory/lumina/src/features/main_app/search_screen/search_screen.dart';
import 'package:inventory/lumina/src/features/main_app/more.dart';
import
'package:inventory/lumina/src/features/main_app/transactions_screen/transaction_screen.dart';
import 'package:supabase_flutter/supabase_flutter.dart';

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

```
 static  List<Widget> _screenOptions = <Widget>[
   Dashboard(),
   SearchScreen(),
   MenuScreen()
  , MoreScreen()
 ];

 @override
 State<MainScreen> createState() => _DashboardState();
}

class _DashboardState extends State<MainScreen> {
 int _selectedIndex = 0;

 final _supabase = Supabase.instance.client;
 final Emailcontroller emailGet = Get.put(Emailcontroller());

 void _onItemTapped(int index) {
  if (index == 2) {
    // Custom action for the middle "Add" button
     Navigator.of(context).push(MaterialPageRoute(builder: (context)=>TransactionScreen()));
  } else {
    setState(() {
      _selectedIndex = index >= 2 ? index - 1 : index;
    });
  }
 }

 void naamkaran() async {
  final response = await _supabase
      .from('admins')
```

```
      .select()
      .eq('emailid', emailGet.emailget.value);
  final data = response;
  emailGet.Namefrommail.value ;
 }

 @override
 void initState() {
  // TODO: implement initState
  super.initState();



  naamkaran();
 }

 @override
 Widget build(BuildContext context) {
  return Scaffold(
   appBar: CustomAppBar(),
   drawer: CustomSideDrawer(),
   body: Center(
    child: MainScreen._screenOptions.elementAt(_selectedIndex),
   ),
   bottomNavigationBar: CustomBottomNavigationBar(
    currentIndex: _selectedIndex >= 2 ? _selectedIndex + 1 : _selectedIndex,
    onTap: _onItemTapped,
   ),
  );
 }
}
```

Output :


ISA-VESIT
Components
Microcontroller
Sensors
Communication Modules
Displays and Indicators
Audio Modules
Actuators and Motors
Home
Search
Scan
Recent T...
More