EXPERIMENT 2

Aim : To design Flutter UI by including common widgets.
        To include icons, images, fonts in Flutter app

Theory:

- Flutter is Google's UI toolkit for crafting beautiful, natively compiled iOS and Android apps from a single code base. 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 app is a tree of widgets.

Category of Widgets:

There are mainly 14 categories in which the flutter widgets are divided. They are mainly segregated on the basis of the functionality they provide in a flutter application.

1. *Accessibility*: These are the set of widgets that make a flutter app more easily accessible.
2. *Animation and Motion:* These widgets add animation to other widgets.
3. *Assets, Images, and Icons*: These widgets take charge of assets such as display images and show icons.
4. *Async*: These provide async functionality in the flutter application.
5. *Basics:* These are the bundle of widgets that are absolutely necessary for the development of any flutter application.
6. *Cupertino*: These are the iOS designed widgets.
7. *Input*: This set of widgets provides input functionality in a flutter application.

8. *Interaction Models:* These widgets are here to manage touch events and route users to different views in the application.
9. *Layout:* This bundle of widgets helps in placing the other widgets on the screen as needed.
10.   *Material Components:* This is a set of widgets that mainly follow material design by Google.
11. *Painting and effects:* This is the set of widgets that apply visual changes to their child widgets without changing their layout or shape.
12.   *Scrolling:* This provides scrollability of to a set of other widgets that are not scrollable by default.
13.   *Styling:* This deals with the theme, responsiveness, and sizing of the app.
14.   *Text*: This displays text.

Types of Widgets:

There are broadly two types of widgets in the flutter:
1. Stateless Widget - These are immutable widgets that don't change over time.
*   The UI of a stateless widget is defined based on the configuration information passed to it during its creation.
*   Example: Container, Text, Icon.

2. Stateful Widget - These are mutable widgets that can change dynamically.
*   Stateful widgets maintain a mutable state that might change during the widget's lifetime.
*   Example: TextField, ListView, Form.
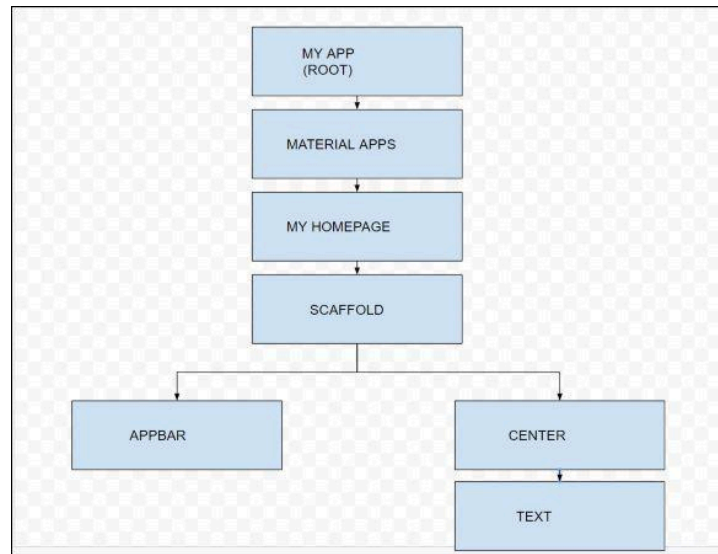
WIDGET

Code:

1. **Login Page -**

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

import 'package:loginagain/components/myText_Field.dart';

import 'package:loginagain/components/my_button.dart';

import 'package:loginagain/components/square_tile.dart';


class LoginPage extends StatelessWidget {

  LoginPage({super.key});


  //text editing controller


  final usernameController = TextEditingController();

  final passwordController = TextEditingController();
```

```dart
//sign user in method

void signUserIn() {}


@override

Widget build(BuildContext context) {

  return Scaffold(

    backgroundColor: Colors.grey[300],

    body: SafeArea(

      child: Center(

        child: Column(

          children: [

            const SizedBox(height: 50),

            //logo

            const Icon(

              Icons.lock,

              size: 100,

            ),

            const SizedBox(height: 50),

            //welcome

            Text(

              'Welcome to VESIT\'s grievance system',

              style: TextStyle(

                color: Colors.grey[700],

                fontSize: 16,

              ),

            ),
```

```dart
            const SizedBox(height: 25),


            //username
            MyTextField(
              controller: usernameController,

              hintText: 'Username',

              obscureText: false,
            ),


            const SizedBox(height: 10),


            //password
            MyTextField(
              controller: passwordController,

              hintText: 'Password',

              obscureText: true,
            ),


            const SizedBox(height: 10),


            //forgot password?
            Padding(
              padding: const EdgeInsets.symmetric(horizontal:
25.0),

              child: Row(

                mainAxisAlignment: MainAxisAlignment.end,
```

```
            children: [

              Text(

                'Forgot Password ?',

                style: TextStyle(color: Colors.grey[600]),

              ),

            ],

          ),

        ),

        const SizedBox(height: 25),


        //sign in

        MyButton(

          onTap: signUserIn,

        ),


        const SizedBox(height: 50),


        //or continue with

        Padding(

          padding: const EdgeInsets.symmetric(horizontal:
25.0),

          child: Row(

            children: [

              Expanded(

                child: Divider(

                  thickness: 0.5,
```

```dart
                      color: Colors.grey[400],

                    ),

                  ),

                Padding(

                  padding: const
EdgeInsets.symmetric(horizontal: 10.0),

                  child: Text(

                    'Or continue with',

                    style: TextStyle(color: Colors.grey[700]),

                  ),

                ),

                Expanded(

                  child: Divider(

                    thickness: 0.5,

                    color: Colors.grey[400],

                  ),

                ),

              ],

            ),

          ),

            const SizedBox(height: 10),

          //google+ apple sign in

          Row(

            mainAxisAlignment: MainAxisAlignment.center,

            //google button

            children: const [

              SquareTile(imagePath: 'lib/images/google.jpg'),
```

```
                    SizedBox(height: 10),

                    //apple button


                    SquareTile(imagePath: 'lib/images/apple.png'),
                  ],
                ),


              const SizedBox(height: 50),
            ],
          ),
        ),
      ),
    );
  }
}
```

2. myText_Field :

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


class MyTextField extends StatelessWidget {
  final controller;
  final String hintText;
  final bool obscureText;
  const MyTextField({
    super.key,
```

```dart
    required this.controller,

    required this.hintText,

    required this.obscureText,

  });


  @override

  Widget build(BuildContext context) {

    return Padding(

      padding: const EdgeInsets.symmetric(horizontal: 25.0),

      child: TextField(

        controller: controller,

        obscureText: obscureText,

        decoration: InputDecoration(

            enabledBorder: const OutlineInputBorder(

              borderSide: BorderSide(color: Colors.white),

            ),

            focusedBorder: OutlineInputBorder(

              borderSide: BorderSide(color: Colors.grey.shade400),

            ),

            fillColor: Colors.grey.shade200,

            filled: true,

            hintText: hintText,

            hintStyle: TextStyle(color: Colors.grey[500])

            ),

      ),

    );

  }
```

```
}
```

3. **My_button -**

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


class MyButton extends StatelessWidget {

  final Function()? onTap;


  const MyButton({super.key, required this.onTap});


  @override

  Widget build(BuildContext context) {

    return GestureDetector(

        onTap: onTap,

        child: Container(

          padding: const EdgeInsets.all(25),

          margin: const EdgeInsets.symmetric(horizontal: 25),

          decoration: BoxDecoration(

            color: Colors.black, borderRadius:
BorderRadius.circular(8)),

          child: const Center(

            child: Text(

              "Sign In",

              style: TextStyle(

                color: Colors.white,

                fontWeight: FontWeight.bold,

                fontSize: 16,

              ),
```
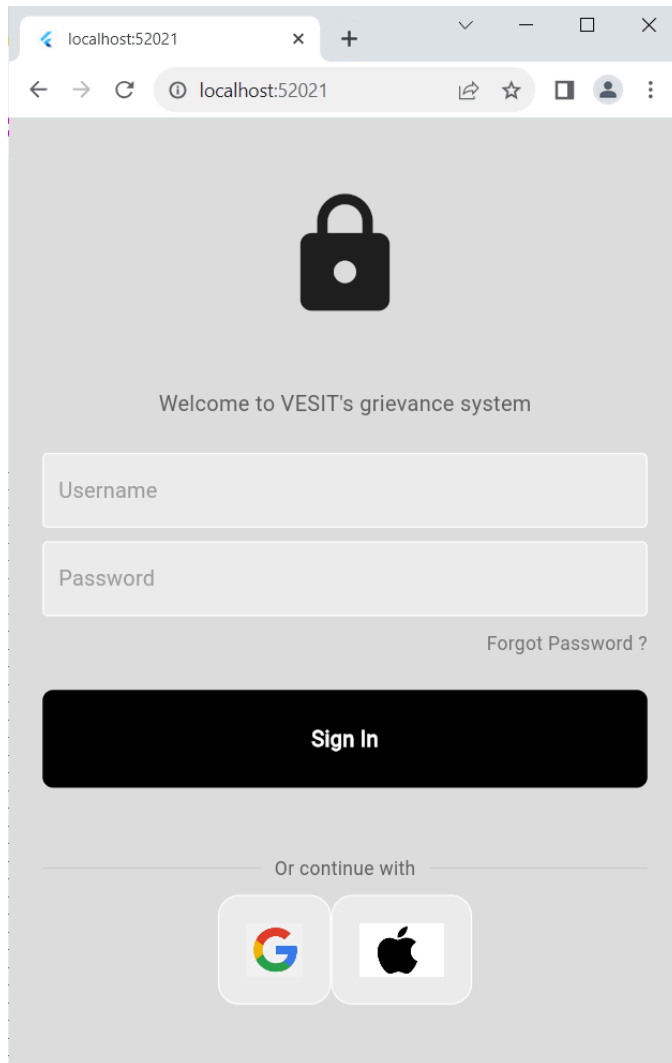
```
        ),
      ),
    ));
}}
```

Output :

Conclusion : Hence we have understood and studied about the basic widgets in flutter and made use of image, icons and fonts in flutter. With the help of this we have designed a simple login page.