Experiment 2

Shashwat Tripathi
D15A   Batch C
Roll No: 64

AIM: To design Flutter UI by including common widgets.

THEORY:
Flutter Widgets: An Overview
Flutter widgets are the basic building blocks that construct the user interface of a Flutter application. They are responsible for defining the structure, appearance, and behavior of the app. Here are some fundamental widgets:

StatelessWidget and StatefulWidget:
StatelessWidget:
Represents an immutable part of the user interface.
It does not change over time and does not depend on any mutable state.

StatefulWidget:
Represents a mutable part of the user interface.
Can change over time based on user interactions or other factors.

1. Flutter Scaffold:
The Scaffold widget is the basic structure for a Flutter app, providing a layout for the visual elements.
It includes an AppBar, BottomNavigationBar, and a body for the main content.

2. Flutter Container:
The Container widget is a versatile box model that can contain other widgets.
It's used for layout, padding, margin, decoration, and constraints.

3. Flutter Row & Column:
Row and Column widgets help in arranging child widgets horizontally (Row) or vertically (Column).
Useful for creating flexible and responsive layouts.

4. Flutter Text:
The Text widget is used to display text on the screen.
It supports various styling options like font size, color, and alignment.

5. Flutter TextField:
TextField is a widget for capturing user input, such as text, numbers, or passwords.
The onChanged property is commonly used for dynamic updates based on user input.

6. Flutter Buttons:

Button widgets, such as ElevatedButton or TextButton, trigger actions when pressed.
Provide a way for users to interact with the app.

7. Flutter Forms:

The Form widget helps in managing a group of TextFormField widgets.
Facilitates the validation and submission of user input.

8. Flutter Icons:

The Icon widget displays icons from various icon libraries, such as Material Icons or custom icons.
Enhances visual elements and conveys meaning through symbols.

Key Design Principles:

Consistency: Use of common widgets fosters a consistent design language throughout the app.

Responsive Layouts: Row and Column help create responsive and flexible layouts, adapting to different screen sizes.

User Input Handling: TextField and Form widgets facilitate user input handling, ensuring data integrity and validation.

Interactive Elements: Buttons and icons contribute to the interactivity and user engagement of the app.

Visual Styling: Container and styling properties of widgets allow for visual customization and theming.

Code:

main.dart : Main entry point of our flutter app

```
import 'package:flutter/material.dart';
import 'package:tiktok_shashwat/constants.dart';
import
'package:tiktok_shashwat/views/screens/auth/login_screen.dart';

void main() => runApp(MyApp());

class MyApp extends StatelessWidget {
  const MyApp({super.key});
  // This widget is the root of your application.
  @override
  Widget build(BuildContext context) {
    return MaterialApp(
      debugShowCheckedModeBanner: false,
      // Application name
      title: 'TikTok Clone',
      theme: ThemeData.dark().copyWith(
        scaffoldBackgroundColor: backgroundColor,
      ),
      // A widget which will be started on application startup
      home: LoginScreen(),
    );
  }
}
```

constants.dart : Here the colors are defined to maintain consistency throughout the app.

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

// COLORS
const backgroundColor = Colors.black;
var buttonColor = Colors.red[400];
const borderColor = Colors.grey;
```

login_screen.dart : This contains the login page UI and functionalities, at the moment it is not connected to the firebase.

```
import 'package:flutter/material.dart';
import 'package:tiktok_shashwat/constants.dart';
import
'package:tiktok_shashwat/views/screens/auth/signup_screen.dart';
import 'package:tiktok_shashwat/views/widgets/text_input_field.dart';

class LoginScreen extends StatelessWidget {
  LoginScreen({Key? key}) : super(key: key);

  final TextEditingController _emailController =
TextEditingController();
  final TextEditingController _passwordController =
TextEditingController();

  @override
  Widget build(BuildContext context) {
    return Scaffold(
      body: Container(
        alignment: Alignment.center,
        child: Column(
          mainAxisAlignment: MainAxisAlignment.center,
          children: [
            Text(
              'Tiktok Clone',
              style: TextStyle(
                fontSize: 35,
                color: buttonColor,
                fontWeight: FontWeight.w900,
              ),
            ),
            const Text(
              'Login',
              style: TextStyle(
                fontSize: 25,
                fontWeight: FontWeight.w700,
              ),
            ),
            const SizedBox(
              height: 25,
            ),
            Container(
              width: MediaQuery.of(context).size.width,
              margin: const EdgeInsets.symmetric(horizontal: 20),
              child: TextInputField(
                controller: _emailController,
                labelText: 'Email',
                icon: Icons.email,
              ),
            ),
            const SizedBox(
              height: 25,
            ),
            Container(
              width: MediaQuery.of(context).size.width,
              margin: const EdgeInsets.symmetric(horizontal: 20),
              child: TextInputField(
                controller: _passwordController,
                labelText: 'Password',
                icon: Icons.lock,
                isObscure: true,
              ),
            ),
            const SizedBox(
              height: 30,
            ),
            Container(
              width: MediaQuery.of(context).size.width - 40,
              height: 50,
              decoration: BoxDecoration(
                color: buttonColor,
                borderRadius: const BorderRadius.all(
                  Radius.circular(5),
                ),
              ),
              child: InkWell(
                // onTap: () => authController.loginUser(
                //   _emailController.text,
                //   _passwordController.text,
                // ),
                child: const Center(
                  child: Text(
                    'Login',
                    style: TextStyle(
                      fontSize: 20,
                      fontWeight: FontWeight.w700,
                    ),
                  ),
                ),
              ),
            ),
            const SizedBox(
              height: 15,
            ),
            Row(
              mainAxisAlignment: MainAxisAlignment.center,
              children: [
                const Text(
                  'Don\'t have an account? ',
                  style: TextStyle(
                    fontSize: 20,
                  ),
                ),
                InkWell(
                  // onTap: () => Navigator.of(context).push(
                  //   MaterialPageRoute(
                  //       builder: (context) => SignupScreen(),
                  //       ),
                  // ),
                  child: Text(
                    'Register',
                    style: TextStyle(fontSize: 20, color:
borderColor),
                  ),
                ),
              ],
            ),
          ],
        ),
      ),
    );
  }
}
```

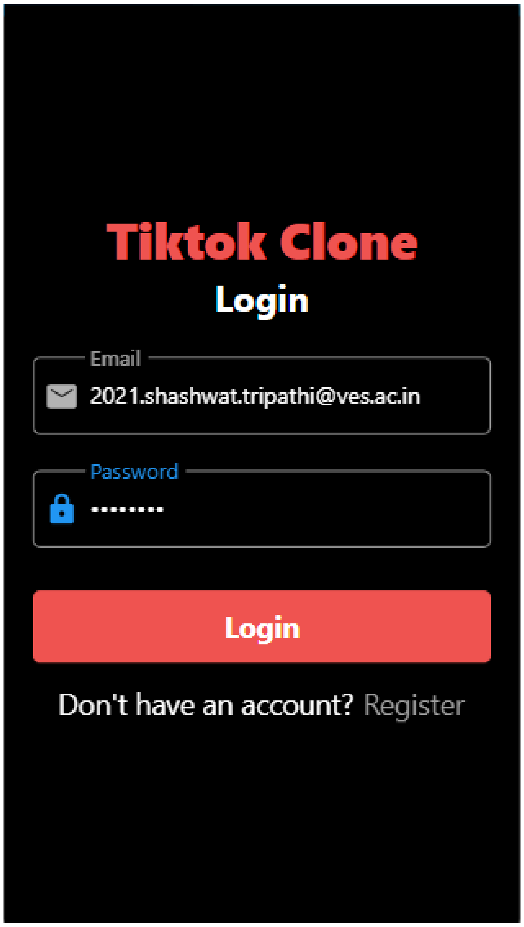
text_input_field.dart : This contains the text input field box code which is used in our login page and will be used further in our application, hence created a separate block of code for it.

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

class TextInputField extends StatelessWidget {
  final TextEditingController controller;
  final String labelText;
  final bool isObscure;
  final IconData icon;
  const TextInputField({
    Key? key,
    required this.controller,
    required this.labelText,
    this.isObscure = false,
    required this.icon,
  }) : super(key: key);

  @override
  Widget build(BuildContext context) {
    return TextField(
      controller: controller,
      decoration: InputDecoration(
        labelText: labelText,
        prefixIcon: Icon(icon),
        labelStyle: const TextStyle(
          fontSize: 20,
        ),
        enabledBorder: OutlineInputBorder(
            borderRadius: BorderRadius.circular(5),
            borderSide: const BorderSide(
              color: borderColor,
            )),
        focusedBorder: OutlineInputBorder(
            borderRadius: BorderRadius.circular(5),
            borderSide: const BorderSide(
              color: borderColor,
            )),
      ),
      obscureText: isObscure,
    );
  }
}
```

OUTPUT :



Tiktok Clone

Login

Email

2021.shashwat.tripathi@ves.ac.in

Password

••••••••

Don't have an account? Register

CONCLUSION: Thus, we have used some common widgets like Scaffold, Textinputfield, Icon, Container, Button, etc. to create our login page of the application.