

MPL Lab 2

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Aim: To design flutter UI using common widgets

Theory: Flutter is a UI toolkit by Google used to build natively compiled applications using a single codebase. Flutter provides a rich set of **predefined widgets** that follow a declarative approach to UI design. Widgets like Text, Container, Row, Column, Image, and ListView are the building blocks of any UI in Flutter. These widgets can be combined, styled, and customized to build responsive and attractive user interfaces.

Flutter apps are structured as a **widget tree**, where each UI component is a widget (even layouts and styling). Using these widgets, developers can design both simple and complex UIs efficiently.

Steps to Design Flutter UI Using Common Widgets

1. **Set Up Flutter Project:**
2. **Use MaterialApp as Root Widget:**
3. **Design UI with Common Widgets in HomePage:**
4. **Use Layout Widgets for Positioning:**
 - Column and Row for vertical/horizontal layout.
 - Padding, SizedBox, and Align for spacing and alignment.
5. **Style UI Elements:**
 - Use TextStyle, BoxDecoration, and ButtonStyle.
 - Customize using ThemeData in MaterialApp.

Code :

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

class LoginScreen extends StatefulWidget {
  @override
  _LoginScreenState createState() => _LoginScreenState();
}

class _LoginScreenState extends State<LoginScreen> {
  final TextEditingController emailController = TextEditingController();
  final TextEditingController passwordController = TextEditingController();
  bool isLoading = false;
```

```

void loginUser(BuildContext context) async {
  setState(() => isLoading = true);
  try {
    await Provider.of<AuthProvider>(context, listen: false)
      .login(emailController.text, passwordController.text);
    Navigator.pushReplacementNamed(context, '/home');
  } catch (e) {
    ScaffoldMessenger.of(context).showSnackBar(
      SnackBar(
        content: Text("Login Failed: ${e.toString()}"),
        backgroundColor: Colors.redAccent,
      ),
    );
  }
  setState(() => isLoading = false);
}

```

```

@override
Widget build(BuildContext context) {
  return Scaffold(
    body: Container(
      width: double.infinity,
      decoration: BoxDecoration(
        gradient: LinearGradient(
          begin: Alignment.topCenter,
          end: Alignment.bottomCenter,
          colors: [Colors.blueAccent, Colors.lightBlue.shade200],
        ),
      ),
    child: Center(
      child: Padding(
        padding: EdgeInsets.all(20.0),
        child: Card(
          shape: RoundedRectangleBorder(
            borderRadius: BorderRadius.circular(20),
          ),
          elevation: 8,
          color: Colors.white,
          child: Padding(
            padding: EdgeInsets.all(25.0),
            child: Column(
              mainAxisAlignment: MainAxisAlignment.min,
              children: [
                SizedBox(height: 20),
                Text(
                  "Welcome Back!",
                  style: TextStyle(

```

```

        fontSize: 24,
        fontWeight: FontWeight.bold,
        color: Colors.blueAccent,
      ),
    ),
    SizedBox(height: 20),
    _buildTextField(
      controller: emailController,
      label: "Email"),
    SizedBox(height: 15),
    _buildTextField(
      controller: passwordController,
      label: "Password",
      isPassword: true),
    SizedBox(height: 20),
    isLoading
      ? CircularProgressIndicator()
      : ElevatedButton(
          onPressed: () => loginUser(context),
          child: Text("Login"),
          style: ElevatedButton.styleFrom(
            padding: EdgeInsets.symmetric(vertical: 12, horizontal: 60),
            backgroundColor: Colors.transparent, // Make background transparent
            side: BorderSide(color: Colors.blueAccent), // Optional: Adds a border to the button
          ),
        ),
    SizedBox(height: 15),
    TextButton(
      onPressed: () {}, // Add forgot password logic
      child: Text(
        "Forgot Password?",
        style: TextStyle(color: Colors.blueAccent),
      ),
    ),
  ],
),
),
),
),
),
),
),
),
);
}

```

```

Widget _buildTextField(
  {required TextEditingController controller, required String label, bool isPassword = false}) {
  return TextField(
    controller: controller,

```

```
obscureText: isPassword,
decoration: InputDecoration(
  labelText: label,
  filled: true,
  fillColor: Colors.white,
  contentPadding: EdgeInsets.symmetric(horizontal: 20, vertical: 14),
  border: OutlineInputBorder(
    borderRadius: BorderRadius.circular(12),
    borderSide: BorderSide(color: Colors.blueAccent),
  ),
  enabledBorder: OutlineInputBorder(
    borderRadius: BorderRadius.circular(12),
    borderSide: BorderSide(color: Colors.blueAccent.shade100),
  ),
  focusedBorder: OutlineInputBorder(
    borderRadius: BorderRadius.circular(12),
    borderSide: BorderSide(color: Colors.blueAccent, width: 2),
  ),
),
);
}
```

Output:

localhost:8025/#/login

Welcome Back!

Email

Password

Login

Forgot Password?