```
//P1 Hello Flutter Emoji App : Build a simple app showing a big emoji       //in the center with a “Tap Me” button
//that changes the emoji randomly.
//Main.dart
import 'dart:math';
import 'package:flutter/material.dart';
 void main() {
  runApp(const EmojiApp());
}
 class EmojiApp extends StatelessWidget {
  const EmojiApp({super.key});
  @override
  Widget build(BuildContext context) {
    return MaterialApp(
      debugShowCheckedModeBanner: false,
      title: 'Emoji App',
      home: const EmojiHome(),
    );
  }
}
class EmojiHome extends StatefulWidget {
  const EmojiHome({super.key});
  @override
  State<EmojiHome> createState() => _EmojiHomeState();
}
class _EmojiHomeState extends State<EmojiHome> {
  final List<String> emojis = [
    '    ','      ','    ','   ','       ','     ','     ','   ','    '
  ];
  String currentEmoji = '    ';
  final Random random = Random();
  void changeEmoji() {
    setState(() {
```

```
    currentEmoji = emojis[random.nextInt(emojis.length)];
   });
  }
  @override
  Widget build(BuildContext context) {
   return Scaffold(
    appBar: AppBar(
     title: const Text('Hello Emoji App'),
     centerTitle: true,
    ),
    body: Center(
     child: Column(
      mainAxisAlignment: MainAxisAlignment.center,
      children: [
       Text(
        currentEmoji,
        style: const TextStyle(fontSize: 120),
       ),
       const SizedBox(height: 30),
       ElevatedButton(
        onPressed: changeEmoji,
        child: const Text(
         'Tap Me',
         style: TextStyle(fontSize: 18),
        ),
       ),
      ],
     ),
    ),
   );
  }
}
```

//P2

//Simple Login UI (No Backend) Create a login screen using two TextFields. If both fields are non-//empty, show a green “Welcome!” message using SnackBar.

```
import 'package:flutter/material.dart';
void main() {
  runApp(const LoginApp());
}
class LoginApp extends StatelessWidget {
  const LoginApp({super.key});
  @override
  Widget build(BuildContext context) {
    return MaterialApp(
      debugShowCheckedModeBanner: false,
      title: 'Login Screen',
      home: const LoginScreen(),
    );
  }
}
class LoginScreen extends StatefulWidget {
  const LoginScreen({super.key});
  @override
  State<LoginScreen> createState() => _LoginScreenState();
}
class _LoginScreenState extends State<LoginScreen> {
  final TextEditingController usernameController = TextEditingController();
  final TextEditingController passwordController = TextEditingController();
  void login() {
    if (usernameController.text.isNotEmpty &&
        passwordController.text.isNotEmpty) {
      ScaffoldMessenger.of(context).showSnackBar(
        const SnackBar(
          content: Text('Welcome!'),
```

```
        backgroundColor: Colors.green,
      ),
    );
  } else {
    ScaffoldMessenger.of(context).showSnackBar(
      const SnackBar(
        content: Text('Please enter all fields'),
        backgroundColor: Colors.red,
      ),
    );
  }
}
@override
Widget build(BuildContext context) {
  return Scaffold(
    appBar: AppBar(
      title: const Text('Login Screen'),
      centerTitle: true,
    ),
    body: Padding(
      padding: const EdgeInsets.all(20),
      child: Column(
        mainAxisAlignment: MainAxisAlignment.center,
        children: [
          TextField(
            controller: usernameController,
            decoration: const InputDecoration(
              labelText: 'Username',
              border: OutlineInputBorder(),
            ),
          ),
          const SizedBox(height: 20),
```

```
          TextField(
            controller: passwordController,
            obscureText: true,
            decoration: const InputDecoration(
              labelText: 'Password',
              border: OutlineInputBorder(),
            ),
          ),
          const SizedBox(height: 30),
          ElevatedButton(
            onPressed: login,
            child: const Text('Login'),
          ),
        ],
      ),
    ),
  );
 }
}
```

// P3 Email Validation

```
import 'package:flutter/material.dart';
import 'package:fluttertoast/fluttertoast.dart';
void main() {
 runApp(const SmartLoginApp());
}
class SmartLoginApp extends StatelessWidget {
 const SmartLoginApp({super.key});
 @override
 Widget build(BuildContext context) {
  return const MaterialApp(
```

```
    debugShowCheckedModeBanner: false,
    home: LoginForm(),
   );
  }
}
class LoginForm extends StatefulWidget {
  const LoginForm({super.key});
  @override
  State<LoginForm> createState() => _LoginFormState();
}
class _LoginFormState extends State<LoginForm> {
  final TextEditingController emailController = TextEditingController();
  final TextEditingController passwordController = TextEditingController();
  bool isButtonEnabled = false;
  void validateForm() {
   setState(() {
    isButtonEnabled =
       emailController.text.contains('@') &&
       passwordController.text.length >= 6;
   });
  }
  void showToast() {
   Fluttertoast.showToast(
    msg: "Great! You typed a real email!    ",
    toastLength: Toast.LENGTH_SHORT,
    gravity: ToastGravity.BOTTOM,
    backgroundColor: Colors.green,
    textColor: Colors.white,
    fontSize: 16,
   );
  }
```

```
@override
Widget build(BuildContext context) {
 return Scaffold(
  appBar: AppBar(
   title: const Text("Smart Login Form"),
   centerTitle: true,
  ),
  body: Padding(
   padding: const EdgeInsets.all(20),
   child: Column(
    mainAxisAlignment: MainAxisAlignment.center,
    children: [
     TextField(
      controller: emailController,
      onChanged: (_) => validateForm(),
      decoration: const InputDecoration(
       labelText: 'Email',
       border: OutlineInputBorder(),
      ),
     ),
     const SizedBox(height: 20),
     TextField(
      controller: passwordController,
      onChanged: (_) => validateForm(),
      obscureText: true,
      decoration: const InputDecoration(
       labelText: 'Password',
       border: OutlineInputBorder(),
      ),
     ),
     const SizedBox(height: 30),
     ElevatedButton(
```

```
            onPressed: isButtonEnabled ? showToast : null,
            child: const Text("Login"),
          ),
        ],
      ),
    ),
  );
 }
}
```

//P 4 Theme Color Changer : Add 3 Colored Buttons (Blue, Orange, Green).Tapping a button changes //the screen background instantly.

```
import 'package:flutter/material.dart';
void main() {
 runApp(const ThemeChangerApp());
}
class ThemeChangerApp extends StatelessWidget {
 const ThemeChangerApp({super.key});
 @override
 Widget build(BuildContext context) {
  return const MaterialApp(
   debugShowCheckedModeBanner: false,
   home: ThemeChangerScreen(),
  );
 }
}
class ThemeChangerScreen extends StatefulWidget {
 const ThemeChangerScreen({super.key});
 @override
 State<ThemeChangerScreen> createState() => _ThemeChangerScreenState();
}
```

```
class _ThemeChangerScreenState extends State<ThemeChangerScreen> {
  Color backgroundColor = Colors.white;
  void changeColor(Color color) {
    setState(() {
      backgroundColor = color;
    });
  }
  @override
  Widget build(BuildContext context) {
    return Scaffold(
      backgroundColor: backgroundColor,
      appBar: AppBar(
        title: const Text("Theme Color Changer"),
        centerTitle: true,
      ),
      body: Center(
        child: Row(
          mainAxisAlignment: MainAxisAlignment.spaceEvenly,
          children: [
            ElevatedButton(
              style: ElevatedButton.styleFrom(
                backgroundColor: Colors.blue,
              ),
              onPressed: () => changeColor(Colors.blue.shade100),
              child: const Text("Blue"),
            ),
            ElevatedButton(
              style: ElevatedButton.styleFrom(
                backgroundColor: Colors.orange,
              ),
              onPressed: () => changeColor(Colors.orange.shade100),
              child: const Text("Orange"),
```

```
          ),
          ElevatedButton(
            style: ElevatedButton.styleFrom(
              backgroundColor: Colors.green,
            ),
            onPressed: () => changeColor(Colors.green.shade100),
            child: const Text("Green"),
          ),
        ],
      ),
    ),
  );
 }
}
```

//P 5 Counter with Auto Increment

```
import 'dart:async';
import 'package:flutter/material.dart';
 void main() {
  runApp(const CounterApp());
}
class CounterApp extends StatelessWidget {
  const CounterApp({super.key});
  @override
  Widget build(BuildContext context) {
    return const MaterialApp(
      debugShowCheckedModeBanner: false,
      home: CounterScreen(),
    );
  }
}
```

```
class CounterScreen extends StatefulWidget {
  const CounterScreen({super.key});
  @override
  State<CounterScreen> createState() => _CounterScreenState();
}
class _CounterScreenState extends State<CounterScreen> {
  int counter = 0;
  Timer? timer;
  void startCounter() {
    timer ??= Timer.periodic(
      const Duration(seconds: 1),
      (Timer t) {
        setState(() {
          counter++;
        });
      },
    );
  }
  void pauseCounter() {
    timer?.cancel();
    timer = null;
  }
  void resetCounter() {
    pauseCounter();
    setState(() {
      counter = 0;
    });
  }
  @override
  void dispose() {
    timer?.cancel();
```

```
  super.dispose();
}
@override
Widget build(BuildContext context) {
  return Scaffold(
    appBar: AppBar(
      title: const Text("Auto Increment Counter"),
      centerTitle: true,
    ),
    body: Column(
      mainAxisAlignment: MainAxisAlignment.center,
      children: [
        Text(
          counter.toString(),
          style: const TextStyle(
            fontSize: 80,
            fontWeight: FontWeight.bold,
          ),
        ),
        const SizedBox(height: 40),
        Row(
          mainAxisAlignment: MainAxisAlignment.spaceEvenly,
          children: [
            ElevatedButton(
              onPressed: startCounter,
              child: const Text("Start"),
            ),
            ElevatedButton(
              onPressed: pauseCounter,
              child: const Text("Pause"),
            ),
            ElevatedButton(
```

```
            onPressed: resetCounter,
            child: const Text("Reset"),
          ),
        ],
      ),
    ],
  ),
 );
 }
}
```

// P 6 Loading Screen (Progress Bar)

```
import 'dart:async';
import 'package:flutter/material.dart';
void main() {
 runApp(const LoadingApp());
}
class LoadingApp extends StatelessWidget {
 const LoadingApp({super.key});
 @override
 Widget build(BuildContext context) {
  return const MaterialApp(
   debugShowCheckedModeBanner: false,
   home: LoadingScreen(),
  );
 }
}
class LoadingScreen extends StatefulWidget {
 const LoadingScreen({super.key});
 @override
 State<LoadingScreen> createState() => _LoadingScreenState();
```

```
}
class _LoadingScreenState extends State<LoadingScreen> {
 double progress = 0.0;
 String message = "";
 Timer? timer;
 void startLoading() {
  setState(() {
   progress = 0.0;
   message = "Loading your awesome content...";
  });
  timer?.cancel();
  timer = Timer.periodic(const Duration(milliseconds: 100), (Timer t) {
   setState(() {
    progress += 0.01;
    if (progress >= 1.0) {
     progress = 1.0;
     message = "Finished!      ";
     t.cancel();
    }
   });
  });
 }
 @override
 void dispose() {
  timer?.cancel();
  super.dispose();
 }
 @override
 Widget build(BuildContext context) {
  return Scaffold(
   appBar: AppBar(
    title: const Text("Loading Screen"),
```

```
        centerTitle: true,
      ),
      body: Padding(
        padding: const EdgeInsets.all(20),
        child: Column(
          mainAxisAlignment: MainAxisAlignment.center,
          children: [
            LinearProgressIndicator(
              value: progress,
              minHeight: 20,
              color: Colors.blue,
              backgroundColor: Colors.grey.shade300,
            ),
            const SizedBox(height: 20),
            Text(
              message,
              style: const TextStyle(fontSize: 18),
            ),
            const SizedBox(height: 40),
            ElevatedButton(
              onPressed: startLoading,
              child: const Text("Start Loading"),
            ),
          ],
        ),
      ),
    );
  }
}
```