

Experiment 4

Form Widgets

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Aim: To create an interactive Form using form widget.

Introduction:

Mobile Application Development (MAD) focuses on creating applications that run on mobile devices, utilizing frameworks such as Flutter. We implemented fundamental concepts of mobile app development, including user input handling, validation, and navigation between screens. The primary objective was to enhance the user experience by implementing structured forms and ensuring seamless transitions between different pages.

General Overview:

In mobile app development, forms play a crucial role in collecting user input. A well-designed form includes input fields, validation checks, and submission mechanisms to ensure data integrity. TextFormField widgets in Flutter allow validation logic to be embedded directly within the UI components. Error messages guide users in entering correct information, ensuring smooth app interactions. Additionally, navigation between screens is essential for multi-page applications, achieved using Navigator methods in Flutter.

Implementation Details:

In this experiment, we designed a Login and Signup Screen using Flutter. The user interface was enhanced with a background image, translucent text fields, and a clean layout. A GlobalKey was used to manage the form state, ensuring proper validation of input fields.

- **Login Screen:** It includes email and password fields with validation logic. The password field has a toggle feature for visibility control. Upon successful validation, the user is redirected to the home screen.
- **Signup Screen:** It collects user details like name, email, and password. The password validation enforces security constraints such as length, special characters, and numeric values.
- **Navigation & UI Enhancements:** A visually appealing design was implemented, maintaining consistency in color schemes (blue, light blue, and white). The Navigator class was used to manage screen transitions seamlessly.

Code:

Login_screen.dart

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

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

  @override
  LoginScreenState createState() => LoginScreenState();
}

class LoginScreenState extends State<LoginScreen> {
  final _formKey = GlobalKey<FormState>();
  final _emailController = TextEditingController();
  final _passwordController = TextEditingController();
  bool _obscurePassword = true;

  @override
  void dispose() {
    _emailController.dispose();
    _passwordController.dispose();
    super.dispose();
  }

  @override
  Widget build(BuildContext context) {
    return Scaffold(
      body: Stack(
        fit: StackFit.expand,
        children: [
          Image.asset("assets/images/dr1.jpg", fit: BoxFit.cover),
          Container(color: Colors.black.withOpacity(0.4)),
          Center(
            child: Padding(
              padding: EdgeInsets.all(20),
              child: Form(
                key: _formKey,
                child: Column(
```

```

mainAxisSize: MainAxisSize.min,
children: [
  Text("Welcome to Lifeline",
    style: TextStyle(fontSize: 24, fontWeight:
FontWeight.bold, color: Colors.white)),
  SizedBox(height: 20),
  _buildTextField(_emailController, "Email",
Icons.email, false),
  SizedBox(height: 10),
  _buildTextField(_passwordController, "Password",
Icons.lock, true),
  SizedBox(height: 20),
  ElevatedButton(
    style: ElevatedButton.styleFrom(backgroundColor:
Colors.blue),
    onPressed: () {
      if (_formKey.currentState!.validate()) {
        Navigator.pushReplacement(context,
MaterialPageRoute(builder: (context) => HomeScreen()));
      }
    },
    child: Text("Login", style: TextStyle(color:
Colors.white)),
  ),
  TextButton(
    onPressed: () => Navigator.pushNamed(context,
'/signup'),
    child: Text("Don't have an account? Sign Up", style:
TextStyle(color: Colors.white)),
  ),
],
),
),
),
),
),
],
),
);
}

```

```
Widget _buildTextField(TextEditingController controller, String label,
IconData icon, bool isPassword) {
  return TextFormField(
    controller: controller,
    obscureText: isPassword ? _obscurePassword : false,
    style: TextStyle(color: Colors.white),
    decoration: InputDecoration(
      labelText: label,
      labelStyle: TextStyle(color: Colors.white70),
      prefixIcon: Icon(icon, color: Colors.white),
      filled: true,
      fillColor: Colors.white.withOpacity(0.2),
      border: OutlineInputBorder(borderRadius:
BorderRadius.circular(10)),
      suffixIcon: isPassword
        ? IconButton(
            icon: Icon(_obscurePassword ? Icons.visibility_off :
Icons.visibility, color: Colors.white),
            onPressed: () => setState(() => _obscurePassword =
!_obscurePassword),
          )
        : null,
    ),
    validator: (value) => value == null || value.isEmpty ? "$label
cannot be empty" : null,
  );
}
```

Signup_screen.dart

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

class SignupScreen extends StatelessWidget {
  const SignupScreen({super.key});

  @override
  Widget build(BuildContext context) {
    final _formKey = GlobalKey<FormState>();
    final _nameController = TextEditingController();
    final _emailController = TextEditingController();
```

```
final _passwordController = TextEditingController();

return Scaffold(
  body: Stack(
    fit: StackFit.expand,
    children: [
      Image.asset("assets/images/dr1.jpg", fit: BoxFit.cover),
      Container(color: Colors.black.withOpacity(0.4)),
      Center(
        child: Padding(
          padding: EdgeInsets.all(20),
          child: Form(
            key: _formKey,
            child: Column(
              mainAxisAlignment: MainAxisAlignment.min,
              children: [
                Text("Create an Account", style: TextStyle(fontSize:
24, fontWeight: FontWeight.bold, color: Colors.white)),
                SizedBox(height: 20),
                _buildTextField(_nameController, "Full Name",
Icons.person, false),
                SizedBox(height: 10),
                _buildTextField(_emailController, "Email",
Icons.email, false),
                SizedBox(height: 10),
                _buildTextField(_passwordController, "Password",
Icons.lock, true),
                SizedBox(height: 20),
                ElevatedButton(
                  style: ElevatedButton.styleFrom(backgroundColor:
Colors.lightBlue),
                  onPressed: () {
                    if (_formKey.currentState!.validate()) {
                      Navigator.pushReplacementNamed(context,
'/'home');
                    }
                  },
                  child: Text("Sign Up", style: TextStyle(color:
Colors.white)),
                ),
              ],
            ),
          ),
        ),
      ],
    ),
  ),
```

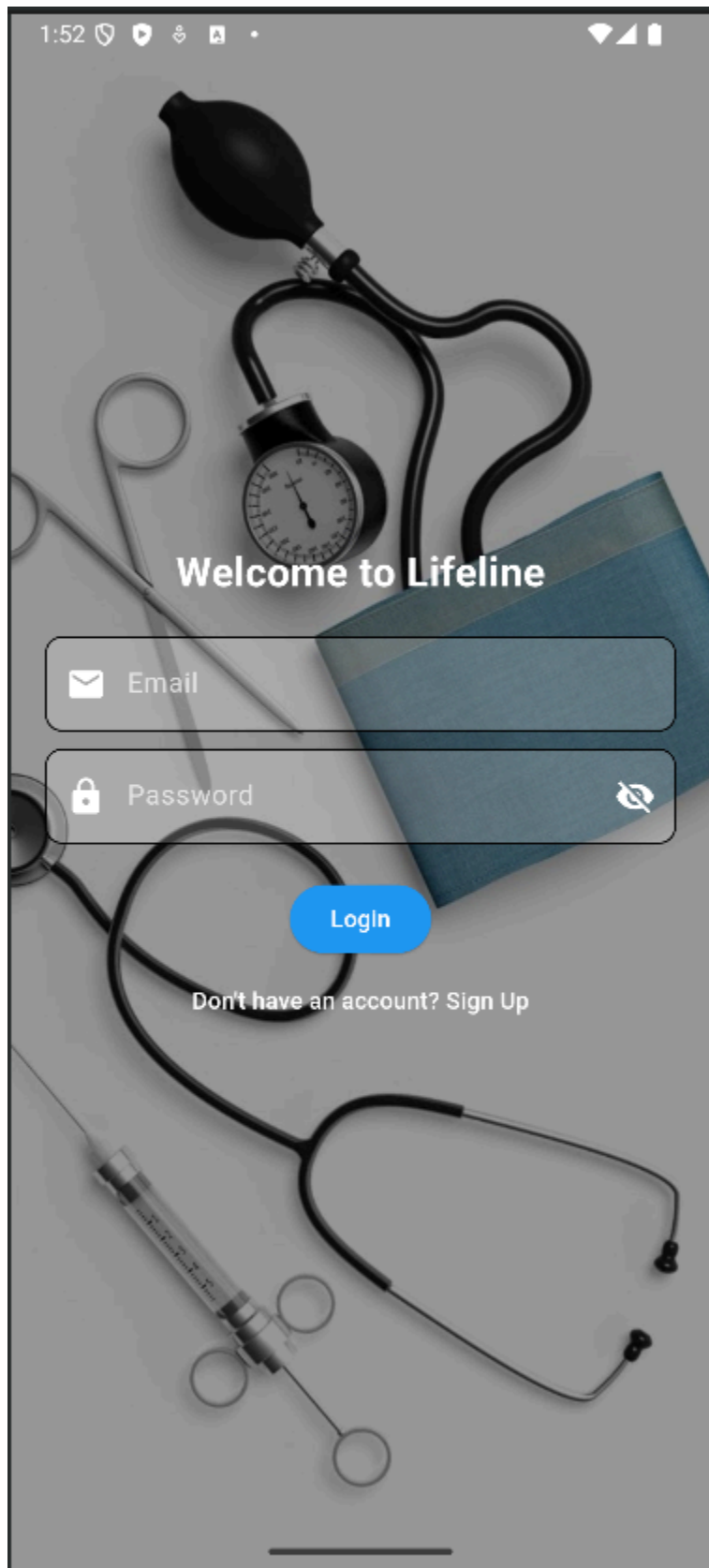
```

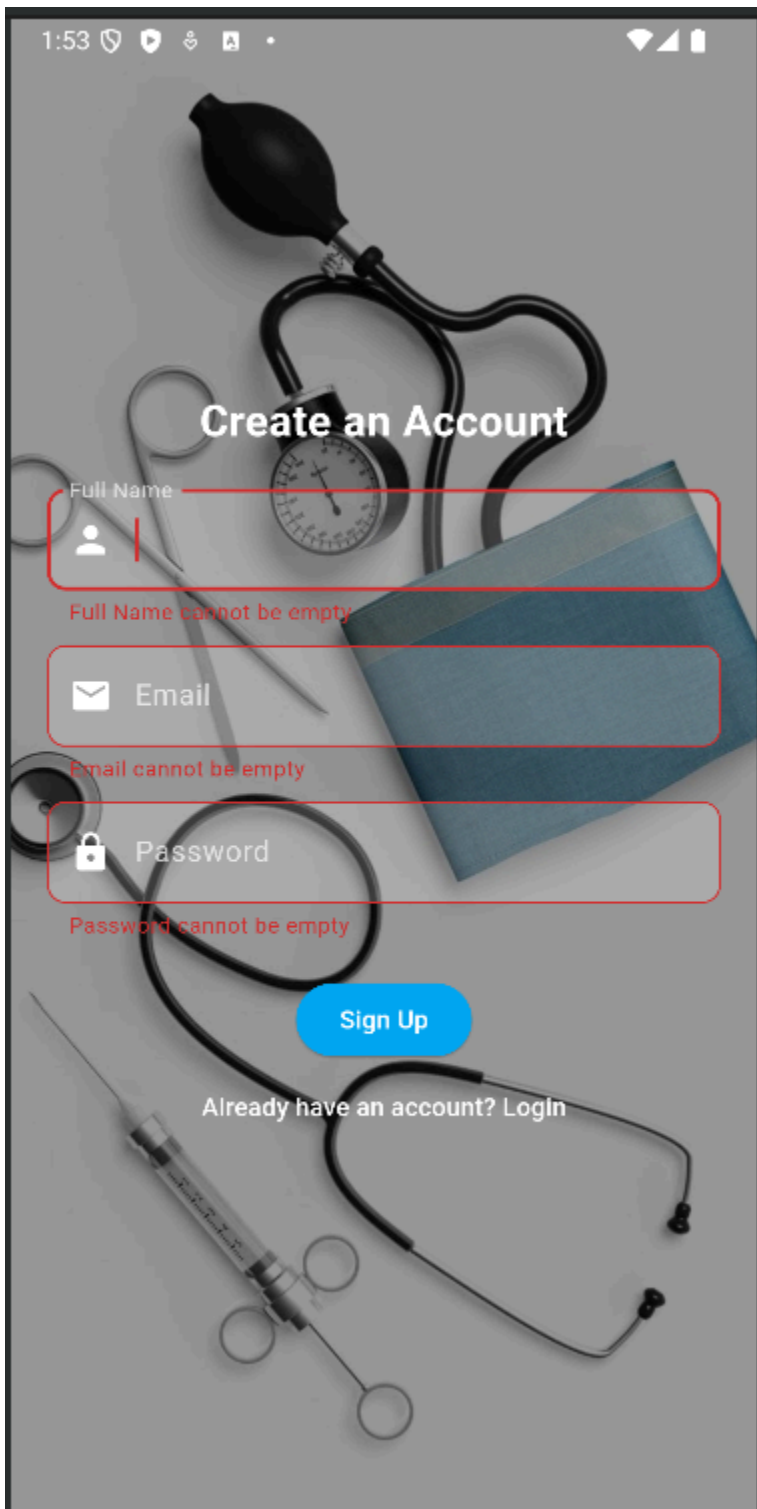
        TextButton(
          onPressed: () => Navigator.pushNamed(context,
            '/login'),
          child: Text("Already have an account? Login", style:
            TextStyle(color: Colors.white)),
        ),
      ],
    ),
  ),
),
],
),
);
}

```

```
Widget _buildTextField(TextEditingController controller, String label,
IconData icon, bool isPassword) {
  return TextFormField(
    controller: controller,
    obscureText: isPassword,
    style: TextStyle(color: Colors.white),
    decoration: InputDecoration(
      labelText: label,
      labelStyle: TextStyle(color: Colors.white70),
      prefixIcon: Icon(icon, color: Colors.white),
      filled: true,
      fillColor: Colors.white.withOpacity(0.2),
      border: OutlineInputBorder(borderRadius:
BorderRadius.circular(10)),
    ),
    validator: (value) => value == null || value.isEmpty ? "$label
cannot be empty" : null,
  );
}
```

Output:





1:53

Create an Account

Full Name

Full Name cannot be empty

Email

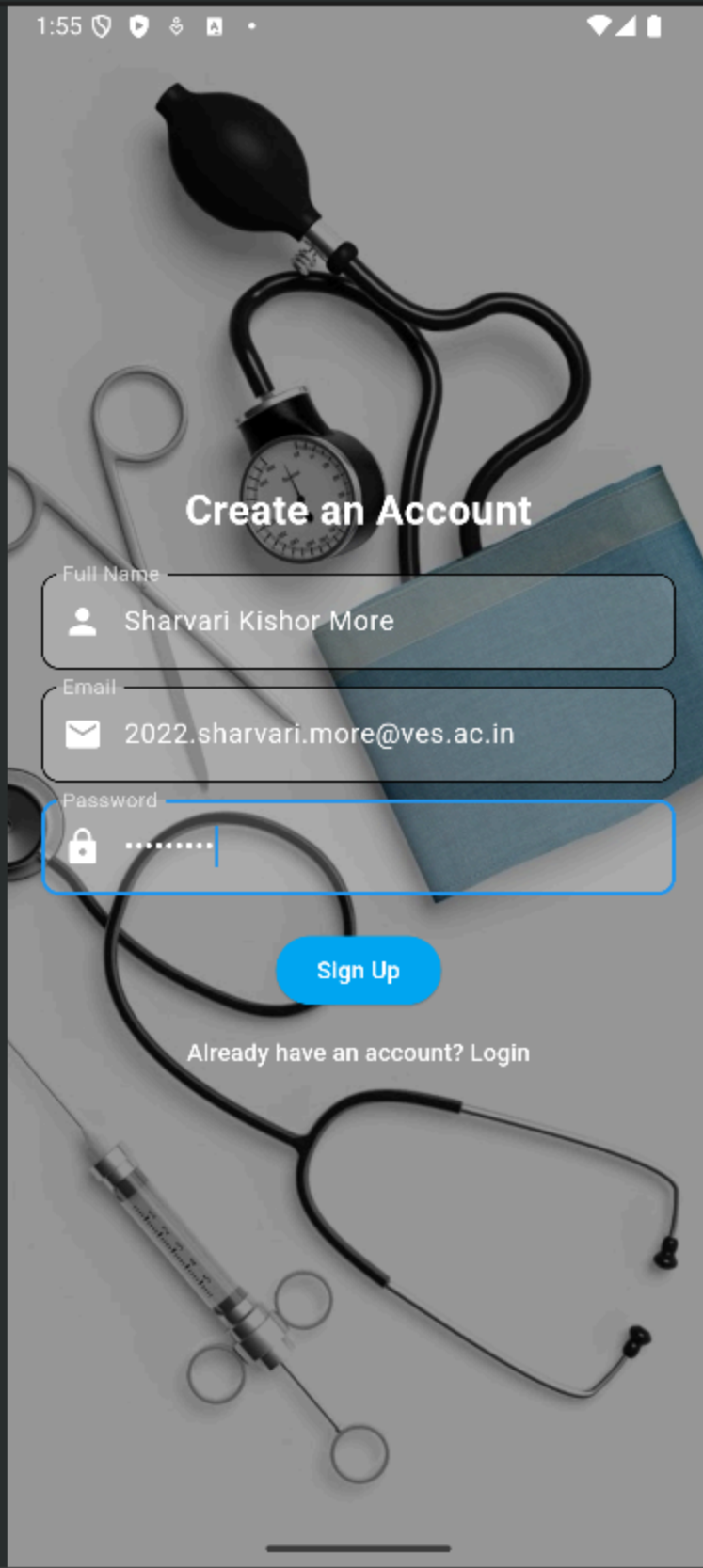
Email cannot be empty

Password

Password cannot be empty

[Sign Up](#)


[Already have an account? Login](#)




1:55

Create an Account


Full Name

 Sharvari Kishor More

Email

 2022.sharvari.more@ves.ac.in

Password



[Sign Up](#)

[Already have an account? Login](#)

Conclusion:

This experiment strengthened our understanding of form validation, state management, and navigation in Flutter. We encountered challenges such as handling input errors and UI design consistency, which were resolved through structured debugging and iterative design improvements.