

EXPERIMENT NO: - 04**Name:-** Tejas Gunjal**Class:-** D15A**Roll:No:-** 18**AIM:-** To create an interactive Form using form widget.

Theory:-

A form in Flutter is a structured container that collects user input through various fields like text fields, dropdowns, checkboxes, and buttons. It plays a crucial role in applications that require user data entry, such as login pages, registration forms, and feedback submissions. Flutter provides the Form widget, which works alongside TextFormField and other input elements to manage validation, state handling, and error messages efficiently. By using form validation techniques, developers can ensure data accuracy and enhance user experience.

When you create a form, it is necessary to provide the GlobalKey. This key uniquely identifies the form and allows you to do any validation in the form fields. The form widget uses child widget TextFormField to provide the users to enter the text field. This widget renders a material design text field and also allows us to display validation errors when they occur.

Creation of a Form

- While creating a form in Flutter, the **Form widget** is essential as it acts as a container for grouping multiple form fields and managing validation.
- A **GlobalKey<FormState>** is required to uniquely identify the form and enable validation or data retrieval from the form fields.
- The **TextFormField widget** is used to provide input fields where users can enter data such as names, phone numbers, or email addresses.
- To enhance the appearance and usability of input fields, **InputDecoration** is used, allowing customization of labels, icons, borders, and hint text.
- Validation plays a crucial role in forms, and the **validator property** within **TextFormField** ensures user input meets specific criteria before submission.

- Different types of input require appropriate **keyboard types**, such as `TextInputType.number` for numeric fields or `TextInputType.emailAddress` for email fields.
- Proper **state management** is needed to store and retrieve user input, ensuring the form data is processed correctly.
- A **submit button** is necessary to trigger form validation and submit the collected data for further processing.

Some Properties of Form Widget

- **key:** A `GlobalKey` that uniquely identifies the Form. You can use this key to interact with the form, such as validating, resetting, or saving its state.
- **child:** The child widget that contains the form fields. Typically, this is a `Column`, `ListView`, or another widget that allows you to arrange the form fields vertically.
- **autovalidateMode:** An enum that specifies when the form should automatically validate its fields.

Some Methods of Form Widget

- **validate():** This method is used to trigger the validation of all the form fields within the Form. It returns `true` if all fields are valid, otherwise `false`. You can use it to check the overall validity of the form before submitting it.
- **save():** This method is used to save the current values of all form fields. It invokes the `onSaved` callback for each field. Typically, this method is called after validation succeeds.
- **reset():** Resets the form to its initial state, clearing any user-entered data.
- **currentState:** A getter that returns the current `FormState` associated with the Form.

Code: -

login_page.dart

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

class LoginPage extends StatefulWidget {
  @override
  _LoginPageState createState() =>
    _LoginPageState();
}

class _LoginPageState extends
State<LoginPage> {
  final _formKey = GlobalKey<FormState>();

  @override
  Widget build(BuildContext context) {
    return Scaffold(
      backgroundColor: Colors.white,
      body: SafeArea(
        child: SingleChildScrollView(
          child: Padding(
            padding: const EdgeInsets.all(16.0),
            child: Column(
              crossAxisAlignment:
CrossAxisAlignment.stretch,
              children: [
                SizedBox(height: 50),
                // Logo
                Center(
                  child: Image.asset(
                    'assets/images/logo.png',
                    height: 150,
                  ),
                ),
                SizedBox(height: 16),
                // Title
                Text(
                  'AgriApp: The mix of Agriculture &
Smart, Scientific, Sustainable, Modern
Technology Methods for Precision Farming.',
                  textAlign: TextAlign.center,
                  style: TextStyle(
                    fontSize: 15,
                    color: Colors.black,
                  ),
                ),
              ],
            ),
          ),
        ),
      ),
    );
  }
}
```

```

        SizedBox(height: 32),
        // Form
        Form(
          key: _formKey,
          child: Column(
            children: [
              _buildTextField(
                label: 'Email',
                hint: 'Enter your email',
                icon: Icons.email,
                validator: (value) {
                  if (value == null ||
value.isEmpty) {
                    return 'Email is required';
                  } else if
(!RegExp(r'^[@]+\@[^\@]+\.[^\@]+').hasMatch(
value)) {
                    return 'Enter a valid email
address';
                  }
                  return null;
                },
              ),
              SizedBox(height: 16),
              _buildTextField(
                label: 'Password',
                hint: 'Enter your password',
                icon: Icons.lock,
                isPassword: true,
                validator: (value) {
                  if (value == null ||
value.isEmpty) {
                    return 'Password is required';
                  } else if (value.length < 6) {
                    return 'Password must be at
least 6 characters';
                  }
                  return null;
                },
              ),
            ],
          ),
        ),
        SizedBox(height: 32),

```

```

        // Login Button
        ElevatedButton(
          onPressed: () {
            if
(_formKey.currentState!.validate()) {

Navigator.pushReplacementNamed(context,
'/home');

      },
      style: ElevatedButton.styleFrom(
        backgroundColor: Colors.green,
        minimumSize: Size(double.infinity,
50),
        shape: RoundedRectangleBorder(
          borderRadius:
BorderRadius.circular(8),
        ),
        child: Text(
          'Login',
          style: TextStyle(fontSize: 18, color:
Colors.white),
        ),
      ),
      SizedBox(height: 16),
      // Registration link
      Center(
        child: TextButton(
          onPressed: () {
            Navigator.pushNamed(context,
'/register'); // Add registration route later
          },
          child: Text(
            'Don't have an account? Register',
            style: TextStyle(color:
Colors.green), // Green color applied
          ),
        ),
      ),
    ],
  ),
),
);
}

```

```

Widget _buildTextField({
  required String label,
  required String hint,
  required IconData icon,
  bool isPassword = false,
  required String? Function(String?) validator,
}) {
  return TextFormField(
    obscureText: isPassword,
    decoration: InputDecoration(
      labelText: label,
      hintText: hint,
      prefixIcon: Icon(icon, color: Colors.green),
      border: OutlineInputBorder(
        borderRadius: BorderRadius.circular(8),
      ),
      focusedBorder: OutlineInputBorder(
        borderSide: BorderSide(color:
Colors.green), // Green color applied
        borderRadius: BorderRadius.circular(8),
      ),
      validator: validator,
    );
  }
}

```

register_page.dart

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

class RegistrationPage extends StatefulWidget {
  @override
  _RegistrationPageState createState() =>
  _RegistrationPageState();
}

class _RegistrationPageState extends
State<RegistrationPage> {
  final _formKey = GlobalKey<FormState>();
  bool _isLoading = false; // State to track
loading status

  String _name = "";
  String _email = "";
  String _state = "";
  String _district = "";
  String _password = "";

  void _handleRegistration() async {
    if (_formKey.currentState!.validate()) {
      setState() {
        _isLoading = true; // Set loading to true
      };

      // Simulate a network request
      await Future.delayed(Duration(seconds: 2));

      setState() {
        _isLoading = false; // Set loading to false
        after request is done
      };

      // Navigate to the home screen after
      successful registration
      Navigator.pushReplacementNamed(context,
        '/otp');
    }
  }

  @override
  Widget build(BuildContext context) {
```

```
    return Scaffold(
      backgroundColor: Colors.white,
      body: SafeArea(
        child: SingleChildScrollView(
          child: Padding(
            padding: const EdgeInsets.all(16.0),
            child: Column(
              crossAxisAlignment:
                CrossAxisAlignment.stretch,
              children: [
                SizedBox(height: 50),
                // Logo
                Center(
                  child: Image.asset(
                    'assets/images/logo.png',
                    height: 150,
                  ),
                ),
                SizedBox(height: 16),

                Text(
                  'AgriApp: The mix of Agriculture &
                  Smart, Scientific, Sustainable, Modern
                  Technology Methods for Precision Farming.',
                  textAlign: TextAlign.center,
                  style: TextStyle(
                    fontSize: 15,
                    color: Colors.black,
                  ),
                ),
                SizedBox(height: 32),

                Form(
                  key: _formKey,
                  child: Column(
                    children: [
                      _buildTextField(
                        label: 'Name',
                        hint: 'Enter your name',
                        icon: Icons.person,
                        validator: (value) {
                          if (value == null ||
                            value.isEmpty) {
```

```

        return 'Name is required';
      }
      return null;
    },
    onChanged: (value) {
      _name = value;
    },
  ),
  SizedBox(height: 16),

  // Email Field
  _buildTextField(
    label: 'Email',
    hint: 'Enter your email',
    icon: Icons.email,
    validator: (value) {
      if (value == null ||
value.isEmpty) {
        return 'Email is required';
      } else if
(!RegExp(r'^^[^@]+@[^@]+\.[^@]+').hasMatch(
value)) {
        return 'Enter a valid email
address';
      }
      return null;
    },
    onChanged: (value) {
      _email = value;
    },
  ),
  SizedBox(height: 16),

  // State Field (TextField or
Dropdown)
  _buildTextField(
    label: 'State',
    hint: 'Enter your state',
    icon: Icons.location_on,
    validator: (value) {
      if (value == null ||
value.isEmpty) {
        return 'State is required';
      }
      return null;
    },
    onChanged: (value) {
        _state = value;
      },
    ),
    SizedBox(height: 16),

    // District Field (TextField or
Dropdown)
    _buildTextField(
      label: 'District',
      hint: 'Enter your district',
      icon: Icons.location_city,
      validator: (value) {
        if (value == null ||
value.isEmpty) {
          return 'District is required';
        }
        return null;
      },
      onChanged: (value) {
        _district = value;
      },
    ),
    SizedBox(height: 16),

    // Password Field
    _buildTextField(
      label: 'Password',
      hint: 'Enter your password',
      icon: Icons.lock,
      isPassword: true,
      validator: (value) {
        if (value == null ||
value.isEmpty) {
          return 'Password is required';
        } else if (value.length < 6) {
          return 'Password must be at
least 6 characters';
        }
        return null;
      },
      onChanged: (value) {
        _password = value;
      },
    ),
  ],
),
),

```

```

        SizedBox(height: 32),
        // Register Button
        ElevatedButton(
          onPressed: _handleRegistration,
          style: ElevatedButton.styleFrom(
            backgroundColor: Colors.green, //
Green color applied
            minimumSize: Size(double.infinity,
50),
            shape: RoundedRectangleBorder(
              borderRadius:
BorderRadius.circular(8),
            ),
          ),
          child: _isLoading
            ? CircularProgressIndicator(color:
Colors.white) // Show loading spinner
            : Text(
              'Next',
              style: TextStyle(fontSize: 18, color:
Colors.white),
            ),
          ),
        ),
        SizedBox(height: 16),
        // Login link (If user already has an
account)
        Center(
          child: TextButton(
            onPressed: () {
              Navigator.pushNamed(context,
'/login'); // Add login route later
            },
            child: Text(
              'Already have an account? Login',
              style: TextStyle(color:
Colors.green), // Green color applied
            ),
          ),
        ),
      ],
    ),
  ),
);
}

```

```

Widget _buildTextField({
  required String label,
  required String hint,
  required IconData icon,
  bool isPassword = false,
  required String? Function(String?) validator,
  required Function(String) onChanged,
}) {
  return TextFormField(
    obscureText: isPassword,
    decoration: InputDecoration(
      labelText: label,
      hintText: hint,
      prefixIcon: Icon(icon, color: Colors.green),
      border: OutlineInputBorder(
        borderRadius: BorderRadius.circular(8),
      ),
      focusedBorder: OutlineInputBorder(
        borderSide: BorderSide(color:
Colors.green),
        borderRadius: BorderRadius.circular(8),
      ),
    ),
    validator: validator,
    onChanged: onChanged,
  );
}

```

otp_verification_page.dart

```

import 'package:flutter/material.dart';

class OtpVerificationPage extends
StatefulWidget {
  @override
  _OtpVerificationPageState createState() =>
  _OtpVerificationPageState();
}

class _OtpVerificationPageState extends
State<OtpVerificationPage> {
  final _formKey = GlobalKey<FormState>();
  String _otp = "";

  void _verifyOtp() {
    if (_formKey.currentState!.validate()) {

      ScaffoldMessenger.of(context).showSnackBar(
        SnackBar(content: Text('OTP Verified!')),
      );

      Navigator.pushReplacementNamed(context,
        '/home');
    }
  }
  @override
  Widget build(BuildContext context) {
    return Scaffold(
      backgroundColor: Colors.white,
      body: SafeArea(
        child: Padding(
          padding: const EdgeInsets.all(16.0),
          child: Column(
            crossAxisAlignment:
              CrossAxisAlignment.stretch,
            children: [
              SizedBox(height: 50),

              Center(
                child: Image.asset(
                  'assets/images/logo.png',
                  height: 100,
                ),
              ),
            ],
          ),
        ),
      ),
    );
  }
}

```

```

),
SizedBox(height: 16),
// App Description
Center(
  child: Text(
    'AgriApp: The mix of Agriculture &
    Smart, Scientific, Sustainable, Modern
    Technology Methods for Precision Farming.',
    textAlign: TextAlign.center,
    style: TextStyle(
      fontSize: 15,
      color: Colors.black,
    ),
  ),
),
SizedBox(height: 8),

SizedBox(height: 40),
// Title
Text(
  'OTP Verification',
  textAlign: TextAlign.center,
  style: TextStyle(
    fontSize: 24,
    fontWeight: FontWeight.bold,
    color: Colors.green, // Green color
  ),
),
SizedBox(height: 24),
// Instructions
Text(
  'Enter the OTP sent to your registered
  email or phone number.',
  textAlign: TextAlign.center,
  style: TextStyle(fontSize: 16, color:
    Colors.black),
),
SizedBox(height: 24),
Form(
  key: _formKey,
  child: TextFormField(
    maxLength: 6,
    keyboardType:
      TextInputType.number,
    decoration: InputDecoration(
      labelText: 'OTP',
    ),
  ),
),

```



```

        hintText: 'Enter 6-digit OTP',
        prefixIcon: Icon(Icons.lock, color:
Colors.green),
        border: OutlineInputBorder(
          borderRadius:
BorderRadius.circular(8),
        ),
        focusedBorder: OutlineInputBorder(
          borderSide: BorderSide(color:
Colors.green),
          borderRadius:
BorderRadius.circular(8),
        ),
        validator: (value) {
          if (value == null || value.isEmpty) {
            return 'OTP is required';
          } else if (value.length != 6) {
            return 'Enter a valid 6-digit OTP';
          }
          return null;
        },
        onChanged: (value) {
          _otp = value;
        },
      ),
    ),
    SizedBox(height: 24), ElevatedButton(
      onPressed: _verifyOtp,
      style: ElevatedButton.styleFrom(
        backgroundColor: Colors.green,
        minimumSize: Size(double.infinity,
50),
        shape: RoundedRectangleBorder(
          borderRadius:
BorderRadius.circular(8),
        ),
      ),
      child: Text(
        'Verify OTP',
        style: TextStyle(fontSize: 18, color:
Colors.white),
      ),
    ),
    SizedBox(height: 16),
    Center(
      child: TextButton(
        onPressed: () {
          ScaffoldMessenger.of(context).showSnackBar(
            SnackBar(content: Text('OTP
Resent!'))),
        );
      },
      child: Text(
        'Resend OTP',
        style: TextStyle(color:
Colors.green), // Green color applied
      ),
    ),
  ],
),
),
);
}
}

```

myaccountpage.dart

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

class MyAccountPage extends StatefulWidget {
  @override
  _MyAccountPageState createState() =>
  _MyAccountPageState();
}

class _MyAccountPageState extends
State<MyAccountPage> {
  final _formKey = GlobalKey<FormState>();
  String name = 'Tejas';
  String phone = '9082949011';
  String email = 'tejas@example.com';
  String state = 'Maharashtra';
  String language = 'English';
  List<String> myCrops = ['Beetroot', 'Brinjal',
'Onion', 'Soybean', 'Sugarcane'];

  @override
  Widget build(BuildContext context) {
    return Scaffold(
      backgroundColor: Colors.white,
      appBar: AppBar(
        title: Text('My Account'),
        leading: IconButton(
          icon: Icon(Icons.arrow_back),
          onPressed: () {
            Navigator.pop(context);
          },
        ),
      ),
      body: Padding(
        padding: const EdgeInsets.all(16.0),
        child: SingleChildScrollView(
          child: Column(
            crossAxisAlignment:
CrossAxisAlignment.start,
            children: [
              Center(
                child: CircleAvatar(
                  radius: 50,
                  backgroundColor: Colors.grey,
                  child: Icon(Icons.person, size: 50,
color: Colors.white),
```

```
                ),
              ),
              SizedBox(height: 20),
              _buildForm(),
              SizedBox(height: 50),
              Row(
                mainAxisAlignment:
MainAxisAlignment.spaceBetween,
                children: [
                  ElevatedButton(
                    onPressed: () {
                      // Reset changes logic here
                    },
                    style: ElevatedButton.styleFrom(
                      backgroundColor: Colors.grey, //
Corrected here
                    ),
                    child: Text('Reset'),
                  ),
                  ElevatedButton(
                    onPressed: () {
                    },
                    style: ElevatedButton.styleFrom(
                      backgroundColor: Colors.green,
                    ),
                    child: Text('Save Changes'),
                  ),
                ],
              ),
            ],
          );
        }

Widget _buildForm() {
  return Form(
    key: _formKey,
    child: Column(
      children: [
        _buildTextField(
          label: 'Name',
          initialValue: name,
          onSave: (value) {
```

```

        name = value!;
      },
    ),
    SizedBox(height: 20),
    _buildTextField(
      label: 'Phone',
      initialValue: phone,
      onSave: (value) {
        phone = value!;
      },
    ),
    SizedBox(height: 20),
    _buildTextField(
      label: 'Email',
      initialValue: email,
      onSave: (value) {
        email = value!;
      },
    ),
    SizedBox(height: 20),
    _buildTextField(
      label: 'State',
      initialValue: state,
      onSave: (value) {
        state = value!;
      },
    ),
    SizedBox(height: 20),
    DropdownButtonFormField<String>(
      value: language,
      items: ['English', 'Hindi',
'Marathi'].map((String language) {
        return DropdownMenuItem<String>(
          value: language,
          child: Text(language),
        );
      }).toList(),
      onChanged: (value) {
        setState(() {
          language = value!;
        });
      },
      decoration: InputDecoration(labelText:
'Language'),
    ),
    SizedBox(height: 16),
    Text('My Crops', style:

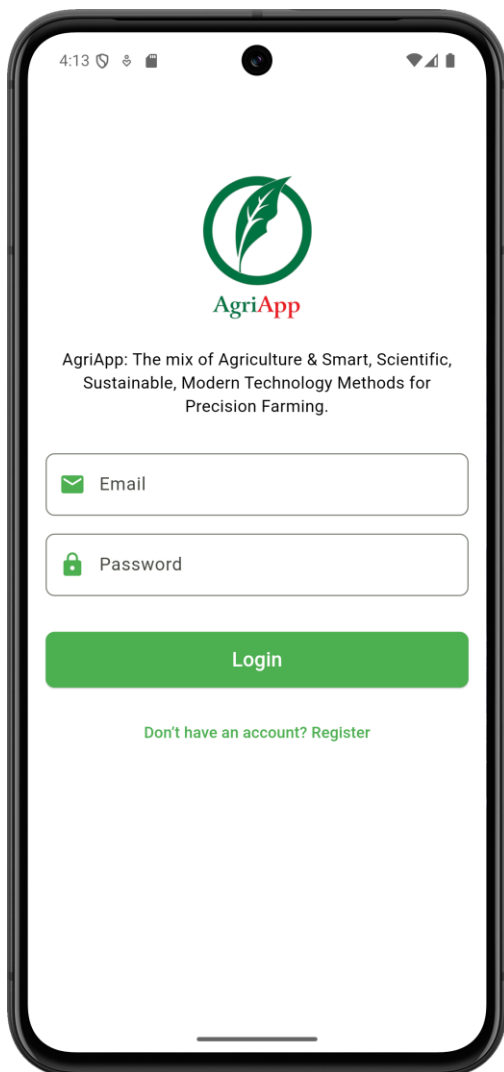
```

```


TextStyle(fontSize: 18)),
      Column(
        children: myCrops.map((crop) =>
Text(crop)).toList(),
      ),
    ],
  ),
);
}

Widget _buildTextField({
  required String label,
  required String initialValue,
  required Function(String?) onSave,
}) {
  return TextFormField(
    initialValue: initialValue,
    decoration: InputDecoration(
      labelText: label,
      border: OutlineInputBorder(),
    ),
    onSave: onSave,
  );
}
}


```


OUTPUT: -

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AgriApp

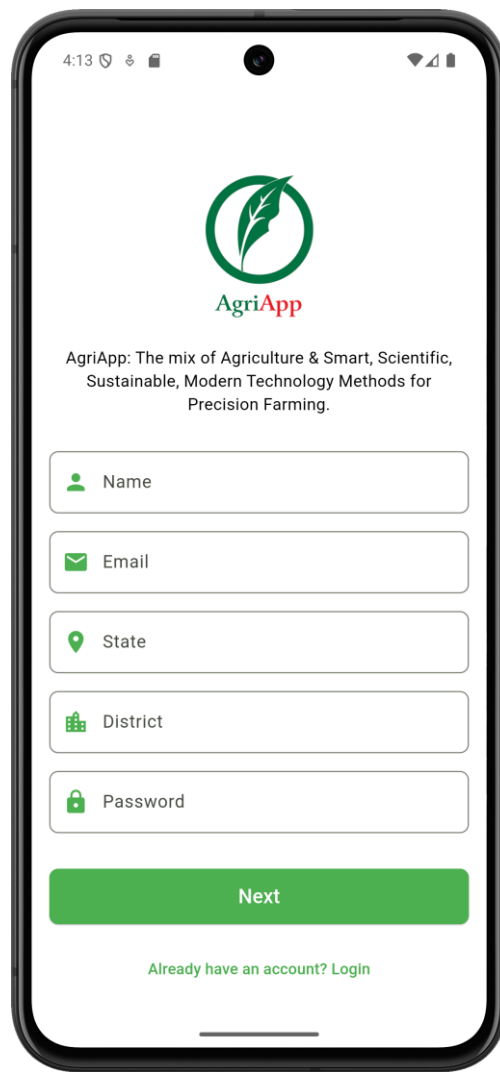
AgriApp: The mix of Agriculture & Smart, Scientific,
Sustainable, Modern Technology Methods for
Precision Farming.

 Email


 Password

Login


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Sustainable, Modern Technology Methods for
Precision Farming.

 Name

 Email

 State

 District

 Password

Next

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