MAD PWA Lab

EXPERIMENT NO.4

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AIM : To create an interactive form using form widget in flutter.

THEORY :

Form Widget in Flutter:

The 'Form' widget in Flutter is a container for form elements, managing their state, validation, and submission. It allows the grouping of multiple form fields, enabling easy interaction and validation. The 'Form' widget requires a 'GlobalKey<FormState>' to uniquely identify the form and provide access to its state.

1. TextFormField:

- Represents an input field within a form.
- Utilizes validation logic through the 'validator' property.
- Captures user input and updates the form state via the 'onSaved' callback.

2. GlobalKey<FormState>:

- A key uniquely identifying the 'Form' widget.
- Allows access to the form's state for validation and submission.

3. ElevatedButton:

- A button widget used for submitting the form.
- Triggers the form's validation and submission when pressed.

4. AlertDialog:

- A dialog widget for displaying messages.
- Utilized to show a sign-up completion message upon successful form submission.

5. Controller (TextEditingController):

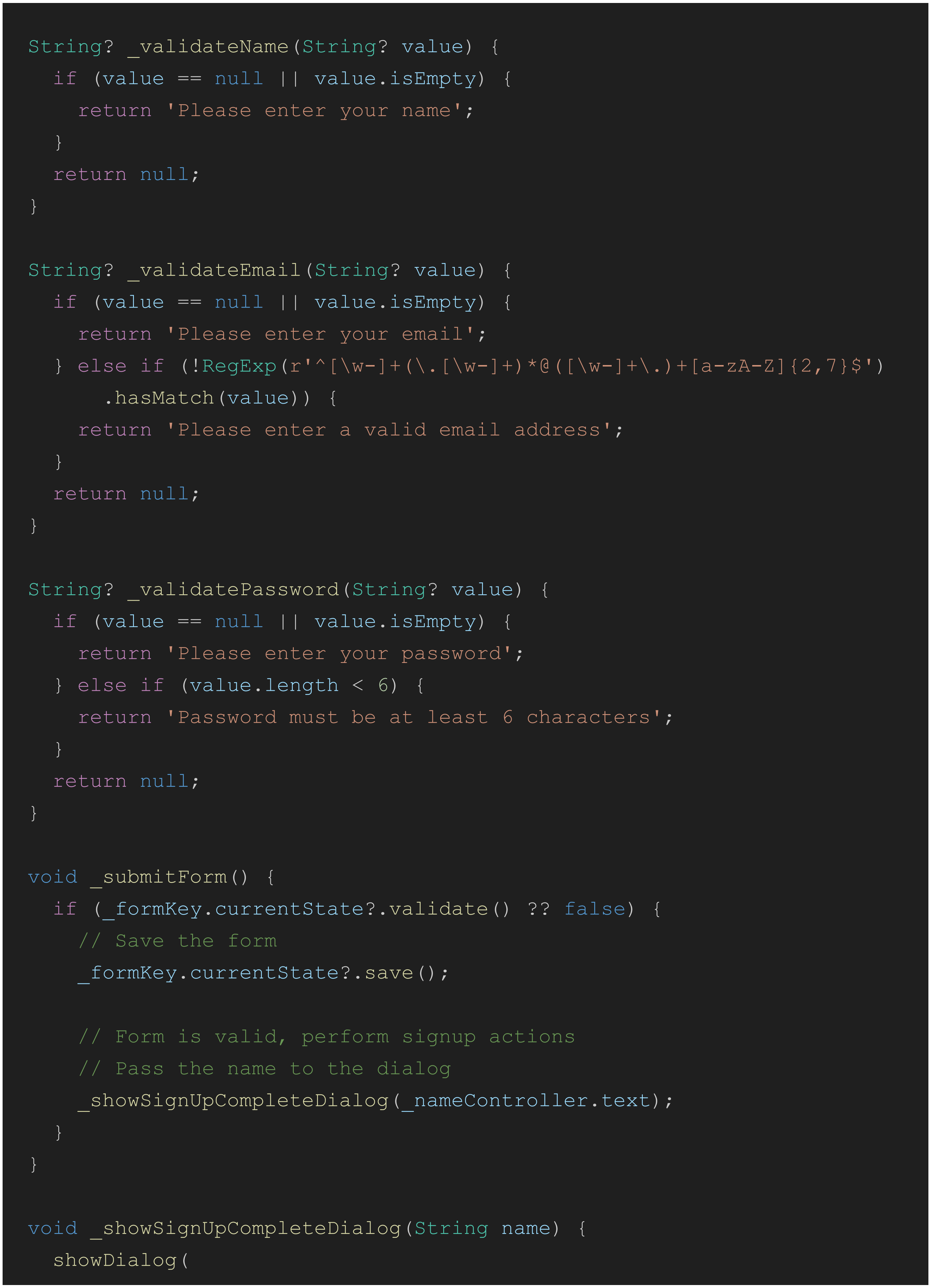
- Manages the text input for a 'TextFormField'.
- Used for capturing and manipulating the entered text, especially when updating state.

Validation in Flutter:

Validation in Flutter ensures that user input meets predefined criteria, enhancing the reliability of data. The ‘validator’ property in ‘TextFormField’ is a callback function used for input validation. It returns a string error message if the input is invalid or ‘null’ if valid. The ‘Form’ widget, along with ‘GlobalKey<FormState>’, manages the overall form validation process, allowing developers to implement custom logic for ensuring accurate and secure user data entry.

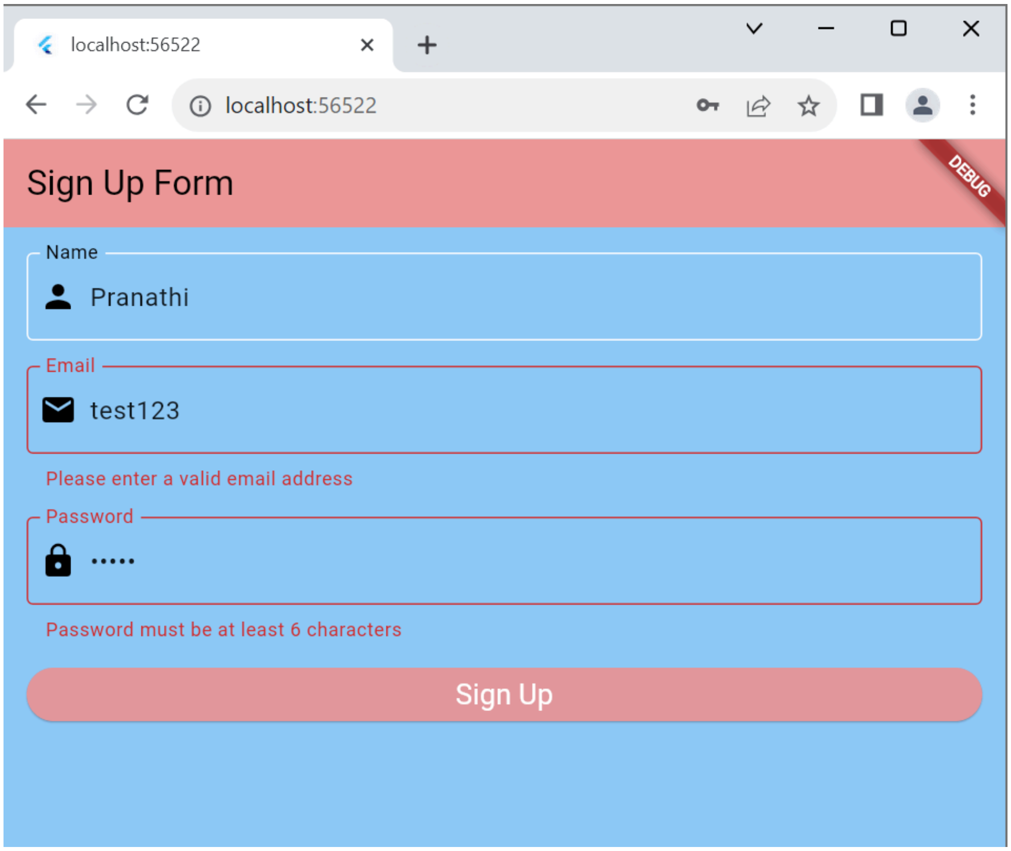
INPUT :

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

void main() {
  runApp(MyApp());
}

class MyApp extends StatelessWidget {
  @override
  Widget build(BuildContext context) {
    return MaterialApp(
      home: MySignUpForm(),
      theme: ThemeData(
        primaryColor: Colors.blue,
        colorScheme: ColorScheme.fromSwatch(primarySwatch: Colors.blue),
        fontFamily: 'Arial',
      ),
    );
  }
}

class MySignUpForm extends StatefulWidget {
  @override
  _MySignUpFormState createState() => _MySignUpFormState();
}

class _MySignUpFormState extends State<MySignUpForm> {
  final GlobalKey<FormState> _formKey = GlobalKey<FormState>();
  final TextEditingController _nameController = TextEditingController();
  String _email = '';
  String _password = '';
```



```dart
String? _validateName(String? value) {
  if (value == null || value.isEmpty) {
    return 'Please enter your name';
  }
  return null;
}

String? _validateEmail(String? value) {
  if (value == null || value.isEmpty) {
    return 'Please enter your email';
  } else if (!RegExp(r'^[\w-]+(\.[\w-]+)*@([\w-]+\.)+[a-zA-Z]{2,7}$')
      .hasMatch(value)) {
    return 'Please enter a valid email address';
  }
  return null;
}

String? _validatePassword(String? value) {
  if (value == null || value.isEmpty) {
    return 'Please enter your password';
  } else if (value.length < 6) {
    return 'Password must be at least 6 characters';
  }
  return null;
}

void _submitForm() {
  if (_formKey.currentState?.validate() ?? false) {
    // Save the form
    _formKey.currentState?.save();

    // Form is valid, perform signup actions
    // Pass the name to the dialog
    _showSignUpCompleteDialog(_nameController.text);
  }
}

void _showSignUpCompleteDialog(String name) {
  showDialog(
      context: context,
      builder: (BuildContext context) {
        return AlertDialog(
          title: Text('Sign Up Complete'),
          content: Text('Congratulations, $name! You have successfully
signed up.'),
          actions: <Widget>[
            TextButton(
              onPressed: () {
                Navigator.of(context).pop();
              },
              child: Text('OK'),
            ),
          ],
        );
      },
    );
  }

  @override
  Widget build(BuildContext context) {
    return Scaffold(
      appBar: AppBar(
        title: Text('Sign Up Form'),
        backgroundColor: Colors.red[200],
      ),
      body: Padding(
        padding: const EdgeInsets.all(16.0),
        child: Form(
          key: _formKey,
          child: Column(
            crossAxisAlignment: CrossAxisAlignment.stretch,
            children: [
              // Name TextFormField
              TextFormField(
                controller: _nameController,
                decoration: InputDecoration(
                  labelText: 'Name',
                  hintText: 'Enter your name',
                  border: OutlineInputBorder(),
                prefixIcon: Icon(Icons.person),
              ),
              style: TextStyle(
                fontSize: 16,
                color: Colors.black87,
              ),
              validator: _validateName,
              onSaved: (value) {
                _nameController.text = value ?? '';
              },
            ),

            SizedBox(height: 16),

            // Email TextFormField
            TextFormField(
              decoration: InputDecoration(
                labelText: 'Email',
                hintText: 'Enter your email',
                border: OutlineInputBorder(),
                prefixIcon: Icon(Icons.email),
              ),
              style: TextStyle(
                fontSize: 16,
                color: Colors.black87,
              ),
              validator: _validateEmail,
              onSaved: (value) {
                _email = value ?? '';
              },
            ),

            SizedBox(height: 16),

            // Password TextFormField
            TextFormField(
              obscureText: true,
              decoration: InputDecoration(
                labelText: 'Password',
                hintText: 'Enter your password',
         border: OutlineInputBorder(),
         prefixIcon: Icon(Icons.lock),
        ),
        style: TextStyle(
         fontSize: 16,
         color: Colors.black87,
        ),
        validator: _validatePassword,
        onSaved: (value) {
         _password = value ?? '';
        },
       ),

       SizedBox(height: 16),

       // Submit Button
       ElevatedButton(
        onPressed: _submitForm,
        child: Text(
         'Sign Up',
         style: TextStyle(
          fontSize: 18,
          color: Colors.white,
         ),
        ),
        style: ButtonStyle(
         backgroundColor:
MaterialStateProperty.all(Colors.red[200]),
         padding: MaterialStateProperty.all(
          EdgeInsets.symmetric(vertical: 12),
         ),
        ),
       ),
      ],
     ),
    ),
   ),
  );
 }
}
```

OUTPUT :



Sign Up Form

Name: Pranathi

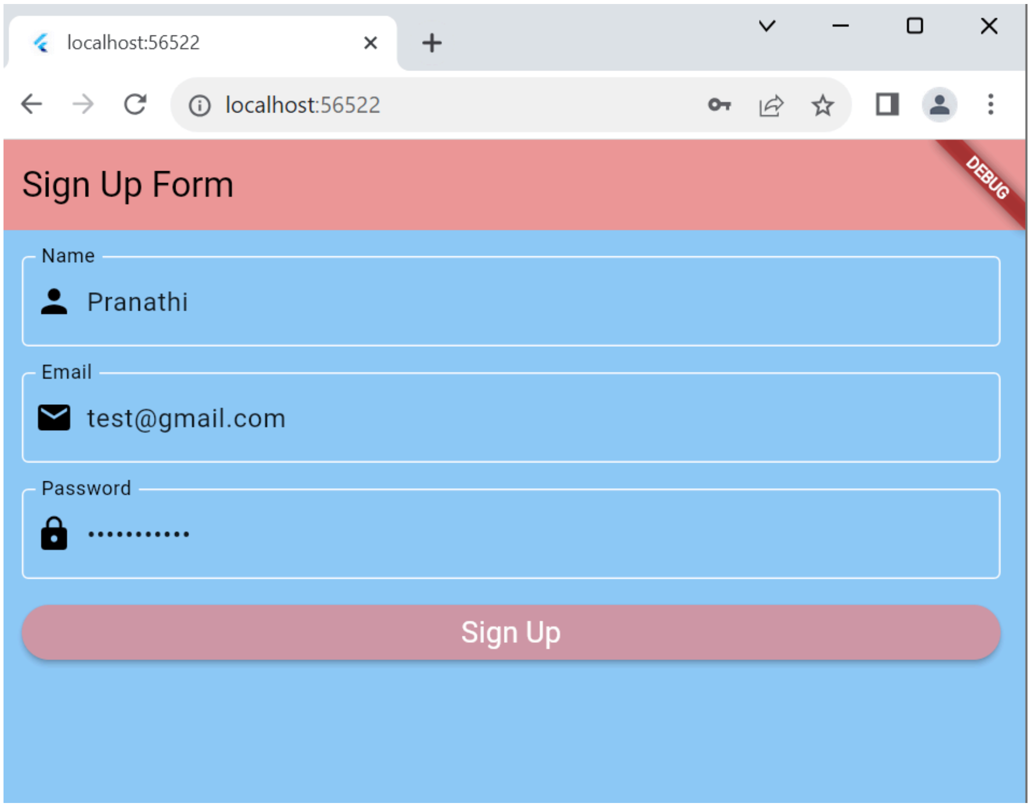
Email: test123

Please enter a valid email address

Password: •••••

Password must be at least 6 characters

Sign Up



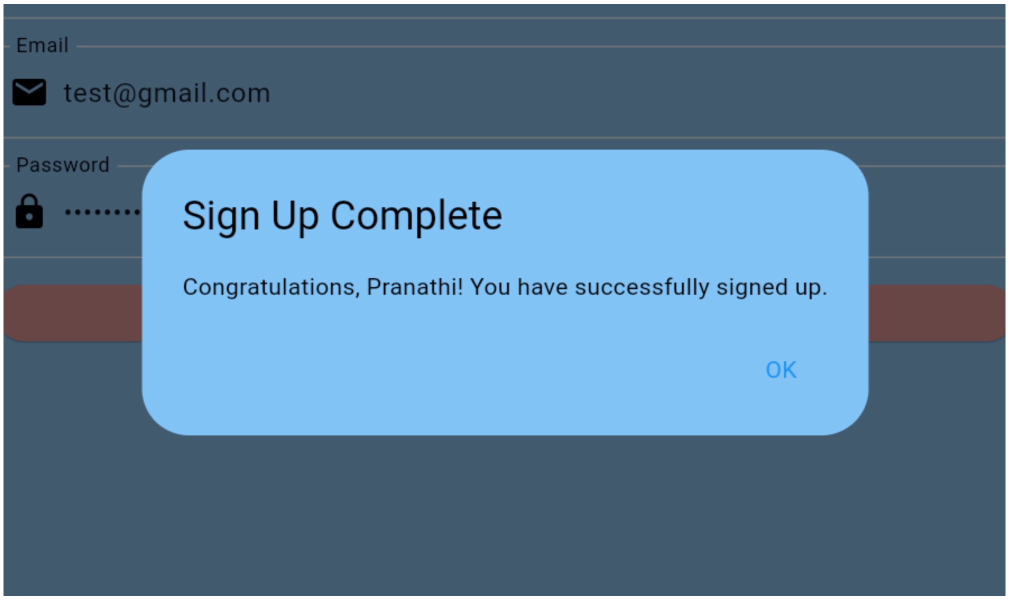
Sign Up Form

Name: Pranathi

Email: test@gmail.com

Password: •••••••••••

Sign Up



Email

test@gmail.com

Password

•••••••••

Sign Up Complete

Congratulations, Pranathi! You have successfully signed up.

CONCLUSION : Hence we have understood and implemented an interactive sign up form utilizing the 'Form' widget. Employing 'TextFormField' for input handling, 'GlobalKey<FormState>' for form state management, and 'ElevatedButton' for submission, we created an interactive form. The integration of an 'AlertDialog' enhanced user feedback. Understanding these components enables the development of efficient, validated, and visually pleasing forms, essential for effective user interaction in Flutter applications.