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D15A 46

Batch B

Experiment no 4

Aim - To create an interactive Form using form widget

Theory -

Interactive Form Creation in Flutter

Flutter offers an array of powerful widgets and techniques to build adaptable and user-friendly forms that seamlessly integrate with your app's design and functionality. This guide delves into the key concepts and strategies involved in crafting interactive forms.

Fundamental Widgets:

- **Form:** The overarching container that encompasses form fields and manages validation. Create a unique `GlobalKey<FormState>` for global access and validation.
- **FormField:** A base class for input widgets, providing styling, validation, and error handling. Choose the appropriate concrete widget based on the input type (e.g., `TextField`, `Checkbox`, `DropDownButton`).
- **TextInputAction:** Set the `textInputAction` property on `TextField` to control the on-screen keyboard's behavior (e.g., `TextInputAction.next`, `TextInputAction.done`).
- **FocusNode:** Control keyboard focus navigation between form fields or widgets within a field (e.g., for multi-line text editing). Use `FocusNode` objects with `FocusManager` for management.

Dynamic Form Building:

- **ListViews:** Dynamically render form fields by creating a `ListView.builder` that builds `FormField` instances based on data (e.g., from a list or JSON). Customize field types and validation based on data properties.
- **State Management:** Employ state management solutions like `Bloc`, `Provider`, or raw `setState` to handle form state effectively. Store form data, validation errors, and other state information dynamically.

User Interaction and Validation:

- **Input Validation:** Implement validation rules within `FormField` or its descendant widgets using a validator callback. Provide clear error messages for invalid input to guide users.
- **Focus Management:** Use `FocusNode` to control keyboard focus flow, enabling a natural form-filling experience. Consider using packages like `auto_animated` for field auto-focusing when entering the screen.

- Interactive UI: Incorporate widgets like Checkbox, DropdownButton, Radio, and custom interactive elements to offer a variety of input options and enhance user engagement.

Additional Considerations:

- Performance: For large forms, consider techniques like lazy loading or pagination to manage memory and rendering overhead.
- Accessibility: Ensure your forms are accessible to users with disabilities by following WCAG guidelines and using appropriate semantic elements.
- Styling: Customize form aesthetics using Flutter's rich customization options to match your app's design and provide visual feedback (e.g., underline active fields, highlight errors)

Code:

Login Page:

```
import 'package:flutter/material.dart';
import 'package:my_project/screens/dashboard.dart';
import 'package:my_project/screens/sign_up.dart';
import 'package:my_project/services/auth_service.dart';
import 'package:my_project/utils/appvalidator.dart';
```

```
class LoginView extends StatefulWidget {
  LoginView({super.key});

  @override
  State<LoginView> createState() => _LoginViewState();
}
```

```
class _LoginViewState extends State<LoginView> {
  final GlobalKey<FormState> _formkey = GlobalKey<FormState>();
  final _emailController = TextEditingController();
  final _passwordController = TextEditingController();
  var isLoading = false;
  var authService = AuthService();
  Future<void> _submitform() async {
    if (_formkey.currentState!.validate()) {
      setState(() {
        isLoading = true;
      });

      var data = {
        "email": _emailController.text,
        "password": _passwordController.text,
```

```

};

await authServices.login(data, context);
Navigator.of(context).pushReplacement(
  MaterialPageRoute(builder: (context) => Dashboard()));
setState(() {
  isLoading = false;
});
}
}

```

```

var appValidator = AppValidator();

```

```

@override
Widget build(BuildContext context) {
  return Scaffold(
    backgroundColor: Color(0xFF000000),
    body: Padding(
      padding: const EdgeInsets.all(16.0),
      child: Form(
        key: _formkey,
        child: Column(
          children: [
            SizedBox(
              height: 80.0,
            ),
            SizedBox(
              width: 250,
              child: Text(
                "Login Account",
                textAlign: TextAlign.center,
                style: TextStyle(
                  color: Colors.white,
                  fontSize: 28,
                  fontWeight: FontWeight.bold),
              ),
            ),

            TextFormField(
              controller: _emailController,
              keyboardType: TextInputType.emailAddress,

```

```

        style: TextStyle(color: Colors.white),
        autovalidateMode: AutovalidateMode.onUserInteraction,
        decoration: _buildInputDecoration("Email", Icons.email),
        validator: appValidator.validateEmail),
    SizedBox(
      height: 16.0,
    ),

    TextFormField(
      controller: _passwordController,
      keyboardType: TextInputType.phone,
      autovalidateMode: AutovalidateMode.onUserInteraction,
      decoration: _buildInputDecoration("Password", Icons.lock),
      validator: appValidator.validatePassword),
    SizedBox(
      height: 40.0,
    ),
    SizedBox(
      height: 50,
      width: double.infinity,
      child: ElevatedButton(
        style: ElevatedButton.styleFrom(
          backgroundColor: Color(0xFFFF75104)),
        onPressed: () {
          isLoader ? print("Loading") : _submitform();
        },
        // _submitform,
        child: isLoader
          ? Center(child: CircularProgressIndicator())
          : Text("Login")),
    SizedBox(
      height: 20.0,
    ),
    TextButton(
      onPressed: () {
        Navigator.push(
          context,
          MaterialPageRoute(builder: (context) => SignUpView()),
        );
      },
      child: Text(

```

```

        "Create new Account",
        style: TextStyle(color: Color(0xFFFF75104), fontSize: 25),
      ))
    // Text(
    //   "Login",
    //   style: TextStyle(color: Color(0xFFFF75104), fontSize: 25 ),
    // )
  ],
)),
),
);
}

```

```

InputDecoration _buildInputDecoration(String label, IconData suffixIcon) {
  return InputDecoration(
    fillColor: Color(0xAA494A59),
    enabledBorder: OutlineInputBorder(
      borderSide: BorderSide(color: Color(0x35949494)),
    focusedBorder:
      OutlineInputBorder(borderSide: BorderSide(color: Colors.white)),
    filled: true,
    labelStyle: TextStyle(color: Color(0xff949494)),
    labelText: label,
    suffixIcon: Icon(
      suffixIcon,
      color: Color(0xFF949494),
    ),
    border: OutlineInputBorder(borderRadius: BorderRadius.circular(10.0)));
}
}

```

Signup Page:

```

import 'package:flutter/material.dart';
import 'package:my_project/screens/dashboard.dart';
import 'package:my_project/screens/login_screen.dart';
import 'package:my_project/services/auth_service.dart';
import 'package:my_project/utills/appvalidator.dart';

```

```

class SignUpView extends StatefulWidget {
  SignUpView({super.key});

```

```

@override
State<SignUpView> createState() => _SignUpViewState();
}

class _SignUpViewState extends State<SignUpView> {
  final GlobalKey<FormState> _formkey = GlobalKey<FormState>();

  final _userNameController = TextEditingController();

  final _emailController = TextEditingController();

  final _phoneController = TextEditingController();

  final _passwordController = TextEditingController();

  var authServices = AuthServices();
  var isLoading = false;

  Future<void> _submitform() async {
    if (_formkey.currentState!.validate()) {
      setState(() {
        isLoading = true;
      });

      var data = {
        "username": _userNameController.text,
        "email": _emailController.text,
        "password": _passwordController.text,
        "phone": _phoneController.text
      };

      await authServices.createUser(data, context);
      Navigator.pushReplacement(
        context,
        MaterialPageRoute(builder: (context) => Dashboard()),
      );
      setState(() {
        isLoading = false;
      }); // ScaffoldMessenger.of(_formkey.currentContext!).showSnackBar(
      //   const SnackBar(content: Text('Form submitted successfully')),
      // );
    }
  }
}

```

```
}  
}
```

```
var appValidator = AppValidator();
```

```
@override
```

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

```
  return Scaffold(  
    backgroundColor: Color(0xFF000000),  
    body: Padding(  
      padding: const EdgeInsets.all(16.0),  
      child: Form(  
        key: _formkey,  
        child: Column(  
          children: [  
            SizedBox(  
              height: 80.0,  
            ),  
            SizedBox(  
              width: 250,  
              child: Text(  
                "Create new Account",  
                textAlign: TextAlign.center,  
                style: TextStyle(  
                  color: Colors.white,  
                  fontSize: 28,  
                  fontWeight: FontWeight.bold),  
              ),  
            ),  
            SizedBox(  
              height: 16.0,  
            ),  
            TextFormField(  
              controller: _usernameController,  
              style: TextStyle(color: Colors.white),  
              autovalidateMode: AutovalidateMode.onUserInteraction,  
              decoration: _buildInputDecoration("UserName", Icons.person),  
              validator: appValidator.validateUsername),  
              // if (value!.isEmpty) {  
              //   return 'Please enter a username';  
              // }  
            ],  
          ),  
        ),  
      ),  
    ),  
  ),  
);
```

```

// return null;
// }),
SizedBox(
  height: 16.0,
),
TextFormField(
  controller: _emailController,
  keyboardType: TextInputType.emailAddress,
  style: TextStyle(color: Colors.white),
  autovalidateMode: AutovalidateMode.onUserInteraction,
  decoration: _buildInputDecoration("Email", Icons.email),
  validator: appValidator.validateEmail),
SizedBox(
  height: 16.0,
),
TextFormField(
  controller: _phoneController,
  keyboardType: TextInputType.phone,
  style: TextStyle(color: Colors.white),
  autovalidateMode: AutovalidateMode.onUserInteraction,
  decoration:
    _buildInputDecoration("Phone Number", Icons.call),
  validator: appValidator.validatePhoneNumber),
SizedBox(
  height: 16.0,
),
TextFormField(
  controller: _passwordController,
  keyboardType: TextInputType.phone,
  autovalidateMode: AutovalidateMode.onUserInteraction,
  decoration: _buildInputDecoration("Password", Icons.lock),
  validator: appValidator.validatePassword),
SizedBox(
  height: 40.0,
),
SizedBox(
  height: 50,
  width: double.infinity,
  child: ElevatedButton(
    style: ElevatedButton.styleFrom(
      backgroundColor: Color(0xFFFF75104)),

```



```

        onPressed: () {
          isLoader ? print("Loading") : _submitform();
        },
        // _submitform,
        child: isLoader
          ? Center(child: CircularProgressIndicator())
          : Text("Create")),
      SizedBox(
        height: 20.0,
      ),
      TextButton(
        onPressed: () {
          Navigator.push(
            context,
            MaterialPageRoute(builder: (context) => LoginView()),
          );
        },
        child: Text(
          "Login",
          style: TextStyle(color: Color(0xFFFF75104), fontSize: 25),
        ))
      // Text(
      //   "Login",
      //   style: TextStyle(color:Color(0xFFFF75104),fontSize: 25 ),
      // )
    ],
  )),
),
);
}

```

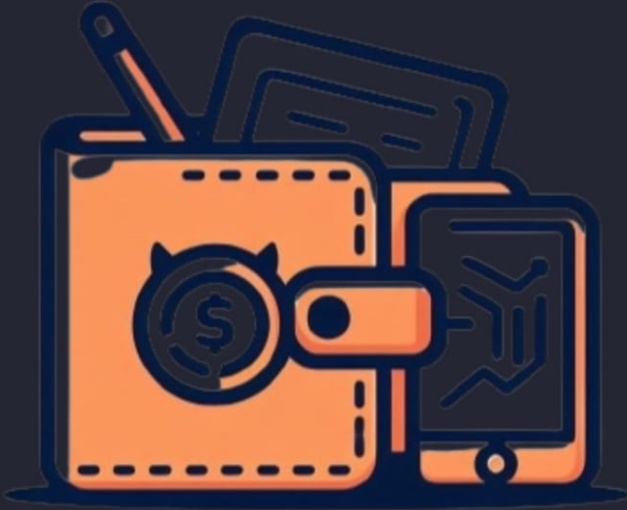
```

InputDecoration _buildInputDecoration(String label, IconData suffixIcon) {
  return InputDecoration(
    fillColor: Color(0xAA494A59),
    enabledBorder: OutlineInputBorder(
      borderSide: BorderSide(color: Color(0x35949494))),
    focusedBorder:
      OutlineInputBorder(borderSide: BorderSide(color: Colors.white)),
    filled: true,
    labelStyle: TextStyle(color: Color(0xff949494)),
    labelText: label,
  );
}

```

```
suffixIcon: Icon(  
  suffixIcon,  
  color: Color(0xFF949494),  
)  
border: OutlineInputBorder(borderRadius: BorderRadius.circular(10.0)));  
}  
}
```

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Login Account

Email



Password



Login

[Create new account](#)

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Create new Account

Username

Email

Phone number

Password

Create

Login

Conclusion:

Through this experiment we understood how to create interactive form using widgets in flutter and how to validate data input in the Text fields.We also learned dynamic Form building.

