

LAPORAN PRAKTIKUM
Modul 06
“INTERAKSI PENGGUNA”



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Tujuan

1. Mahasiswa mampu memahami konsep layout pada Flutter.
2. Mahasiswa dapat mengimplementasikan desain user interface pada Flutter.

Landasan Teori

1. Packages

Dart package adalah direktori yang berisi file `pubspec.yaml` dan digunakan untuk mengelola dependensi dalam proyek. Contoh penggunaan package adalah untuk mengirim request ke server menggunakan http atau menangani navigasi menggunakan fluro. Langkah penggunaan package:

- Akses **pub.dev** untuk mencari package yang diperlukan.
- Tambahkan package dalam file `pubspec.yaml` di bawah dependencies, lalu lakukan `pub get`.

```
# pubspec.yaml
dependencies:
  flutter:
    sdk: flutter
google_fonts: ^5.0.0 # Tambahkan package di
sini
```

- Import package ke dalam file Dart untuk digunakan

```
// Import package dan penggunaannya
import 'package:flutter/material.dart';
import
'package:google_fonts/google_fonts.dart';

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

class MyApp extends StatelessWidget {
  @override
  Widget build(BuildContext context) {
    return MaterialApp(
      home: Scaffold(
        appBar: AppBar(
          title: Text('Google Fonts Example',
style: GoogleFonts.lato()),
        ),
        body: Center(
          child: Text('Hello World', style:
```

```
        GoogleFonts.lobster(fontSize: 24)),  
        ),  
    ),  
);  
}  
}
```

2. User Interaction

a. Stateful & Stateless Widgets

- **Stateless widgets:** Tidak pernah berubah (contoh: Text, Icon). Subkelasnya adalah StatelessWidget.

```
class MyStatelessWidget extends  
  StatelessWidget {  
  @override  
  Widget build(BuildContext  
    context) {  
    return Text('This is a  
      stateless widget');  
  }  
}
```

- **Stateful widgets:** Dapat berubah sesuai interaksi pengguna (contoh: Checkbox, Slider). Subkelasnya adalah StatefulWidget

```
class MyStatefulWidget extends  
  StatefulWidget {  
  @override  
  _MyStatefulWidgetState  
  createState() =>  
    _MyStatefulWidgetState();  
}  
  
class _MyStatefulWidgetState  
  extends State<MyStatefulWidget> {  
  int _counter = 0;  
  
  void _incrementCounter() {  
    setState(() {  
      _counter++;  
    });  
  }  
}
```

```
@override
Widget build(BuildContext
context) {
  return Column(
    children: [
      Text('Counter:
$_counter'),
      ElevatedButton(onPressed:
_incrementCounter, child:
Text('Increment')),
    ],
  );
}
```

b. Form

Form digunakan untuk mengelola input pengguna dengan field seperti TextFormField, Checkbox, dll. Semua field dikelompokkan dalam widget Form.

```
class FormExample extends StatefulWidget {
  @override
  _FormExampleState createState() =>
    _FormExampleState();
}

class _FormExampleState extends State<FormExample> {
  @override
  Widget build(BuildContext context) {
    return Scaffold(
      body: Padding(
        padding: const EdgeInsets.all(12),
        child: Column(
          children: [
            TextField(decoration:
InputDecoration(hintText: 'Enter Name')),
            SizedBox(height: 16),
            TextField(decoration:
InputDecoration(hintText: 'Enter Email')),
          ],
        ),
      ),
    );
  }
}
```

```
    );  
  }  
}
```

c. Menu

- **TabBar:** Menggunakan TabController dan TabBarView untuk menampilkan konten sesuai dengan tab yang dipilih.

```
class MyTabBarExample extends StatelessWidget {  
  @override  
  Widget build(BuildContext context) {  
    return DefaultTabController(  
      length: 3,  
      child: Scaffold(  
        appBar: AppBar(  
          bottom: TabBar(  
            tabs: [  
              Tab(icon:  
Icon(Icons.directions_car)),  
              Tab(icon:  
Icon(Icons.directions_transit)),  
              Tab(icon:  
Icon(Icons.directions_bike)),  
            ],  
          ),  
          title: Text('TabBar Example'),  
        ),  
        body: TabBarView(  
          children: [  
            Icon(Icons.directions_car),  
            Icon(Icons.directions_transit),  
            Icon(Icons.directions_bike),  
          ],  
        ),  
      ),  
    );  
  }  
}
```

- **Bottom Navigation Bar:** Menampilkan navigasi di bagian bawah layar menggunakan BottomNavigationBar.

```
class MyBottomNavBar extends
```

```
StatefulWidget {  
  @override  
  _MyBottomNavBarState  
  createState() =>  
  _MyBottomNavBarState();  
}  
  
class _MyBottomNavBarState  
extends State<MyBottomNavBar> {  
  int _selectedIndex = 0;  
  
  static const List<Widget>  
  _widgetOptions = <Widget>[  
    Text('Home Page'),  
    Text('Business Page'),  
    Text('School Page'),  
  ];  
  
  void _onItemTapped(int index) {  
    setState(() {  
      _selectedIndex = index;  
    });  
  }  
  
  @override  
  Widget build(BuildContext  
context) {  
    return Scaffold(  
      appBar: AppBar(title:  
Text('Bottom Navigation  
Example')),  
      body: Center(child:  
_widgetOptions.elementAt(_selecte  
dIndex)),  
      bottomNavigationBar:  
BottomNavigationBar(  
        items: const  
<BottomNavigationBarItem>[  
  
BottomNavigationBarItem(icon:  
Icon(Icons.home), label: 'Home'),
```

```
BottomNavigationBarItem(icon:
Icon(Icons.business), label:
'Business'),

BottomNavigationBarItem(icon:
Icon(Icons.school), label:
'School'),
      ],
      currentIndex:
      _selectedIndex,
      onTap: _onItemTapped,
    ),
  );
}
```

3. Buttons

a. Elevated Button

Tombol dengan efek bayangan, digunakan untuk aksi penting.

```
ElevatedButton(
  onPressed: () {
    print('Elevated Button Pressed');
  },
  child: Text('Click Me'),
)
```

b. TextButton

Tombol teks sederhana untuk aksi yang tidak mencolok.

```
TextButton(
  onPressed: () {
    print('Text Button Pressed');
  },
  child: Text('Submit'),
)
```

c. DropdownButton

Menu dropdown yang memungkinkan pengguna memilih dari beberapa opsi.

```
String? selectedValue;
DropdownButton<String>(
```

```
value: selectedValue,  
hint: Text('Choose Option'),  
onChanged: (String? newValue) {  
  setState(() {  
    selectedValue = newValue;  
  });  
},  
items: <String>['Option 1', 'Option 2', 'Option 3']  
  .map<DropdownMenuItem<String>>((String value) {  
    return DropdownMenuItem<String>(  
      value: value,  
      child: Text(value),  
    );  
  }).toList(),  
)
```

Guided

Main.dart

```
import 'package:flutter/material.dart';  
import 'package:google_fonts/google_fonts.dart';  
import 'package:prak6/my_navbar.dart';  
import 'package:prak6/my_package.dart';  
import 'package:prak6/my_tabbar.dart';  
  
void main() {  
  runApp(const MyApp());  
}  
  
class MyApp extends StatelessWidget {  
  const MyApp({super.key});  
  
  // This widget is the root of your application.  
  @override  
  Widget build(BuildContext context) {  
    return MaterialApp(  
      title: 'Flutter Demo',  
      debugShowCheckedModeBanner: false,  
      theme: ThemeData(  
        colorScheme: ColorScheme.fromSeed(seedColor: Colors.deepPurple),  
        useMaterial3: true,  
        textTheme: GoogleFonts.poppinsTextTheme(),  
      ),  
      home:  
        myPackage(),  
        // myTabbar(),  
        // myNavbar(),  
    );  
  }  
}
```



```
class MyHomePage extends StatefulWidget {  
  const MyHomePage({super.key, required this.title});  
  
  final String title;  
  
  @override  
  State<MyHomePage> createState() => _MyHomePageState();  
}  
  
class _MyHomePageState extends State<MyHomePage> {  
  int _counter = 0;  
  
  void _incrementCounter() {  
    setState(() {  
      _counter++;  
    });  
  }  
}
```

```
@override  
Widget build(BuildContext context) {  
  return Scaffold(  
    appBar: AppBar(  
      backgroundColor: Theme.of(context).colorScheme.inversePrimary,  
      title: Text(widget.title),  
    ), // AppBar  
    body: Center(  
      child: Column(  
        mainAxisAlignment: MainAxisAlignment.center,  
        children: <Widget>[  
          const Text(  
            'You have pushed the button this many times:',  
          ), // Text  
          Text(  
            '$_counter',  
            style: Theme.of(context).textTheme.headlineMedium,  
          ), // Text  
        ], // <Widget>[]  
      ), // Column  
    ), // Center  
    floatingActionButton: FloatingActionButton(  
      onPressed: _incrementCounter,  
      tooltip: 'Increment',  
      child: const Icon(Icons.add),  
    ), // FloatingActionButton  
  ); // Scaffold  
}
```

Input :

- my_package.dart

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

class myPackage extends StatefulWidget {  The type nam
  const myPackage({super.key});

  @override
  State<myPackage> createState() => _myPackageState();
}

class _myPackageState extends State<myPackage> {  The
  String? selectedValue;

  @override
  Widget build(BuildContext context) {
    return Scaffold(
      appBar: AppBar(
        title: const Text("Dashboard"),
        centerTitle: true,
        backgroundColor: Colors.amber,
      ), // AppBar
      body: Padding(
        padding: const EdgeInsets.all(16.0),
        child: Column(
          children: [
            TextField(  Use 'const' with the construct
              obscureText: false,
              obscuringCharacter: '*',
              decoration: InputDecoration(  Use 'const
                prefixIcon: Icon(Icons.person), // Insid
                hintText: 'Input Username',
                border: OutlineInputBorder(),  Use 'co
```

```

    ), // InputDecoration
  ), // TextField
  SizedBox(height: 16), // Use 'const' with
  TextField( // Use 'const' with the constru
    obscureText: true,
    obscuringCharacter: '*',
    decoration: InputDecoration( // Use 'con
      prefixIcon: Icon(Icons.lock), // Insid
      hintText: 'Input Password',
      border: OutlineInputBorder(), // Use '
    ), // InputDecoration
  ), // TextField
  SizedBox(height: 15), // Use 'const' with
  ElevatedButton(
    onPressed: () {},
    child: Text( // The 'child' argument sho
      'This is Elevated Button',
      style: TextStyle(color: Colors.white
    ), // Text
    style: ElevatedButton.styleFrom(
      backgroundColor: Colors.blueAccent,
    ),
  ), // ElevatedButton
  SizedBox(height: 15), // Use 'const' with
  TextButton(
    onPressed: () {},
    child: Text( // Use 'const' with the con
      'Ini adalah Text Button',
      style: TextStyle(fontSize: 20), // Use
    ), // Text
  ), // TextButton
), // Text
), // TextButton
SizedBox(height: 15), // Use 'const' with the constru
DropdownButton<String>(
  value: selectedValue,
  isExpanded: true,
  hint: Text('Pilih Opsi'), // Use 'const' with the c
  items: <String>['Opsi 1', 'Opsi 2', 'Opsi 3']
    .map<DropdownMenuItem<String>>((String value) {
      return DropdownMenuItem<String>(
        value: value,
        child: Text(value),
      ); // DropdownMenuItem
    }).toList(),
  onChanged: (String? newvalue){
    setState(() {
      selectedValue = newvalue;
    });
  },
), // DropdownButton
],
), // Column
), // Padding
); // Scaffold
}

```

- my_tabbar.dart

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

class myTabbar extends StatelessWidget {  The t
  const myTabbar({super.key});

  @override
  Widget build(BuildContext context) {
    return DefaultTabController(
      length: 3,
      child: Scaffold(
        appBar: AppBar(
          title:
            const Text("Menu Tab Bar"),
          bottom: const TabBar(tabs: [
            Tab(
              icon: Icon(Icons.food_bank),
              text: "Menu",
            ), // Tab
            Tab(
              icon: Icon(Icons.calendar_month),
              text: "Calendar",
            ), // Tab
            Tab(
              icon: Icon(Icons.history),
              text: "History",
            ), // Tab
          ]), // TabBar
        backgroundColor: Colors.amber,
      ), // AppBar
      body: const TabBarView(children: [
        Center(
          child: Text("Ini Konten Menu"),
        ), // Center
        Center(
          child: Text("Ini Konten Calendar"),
        ), // Center
        Center(
          child: Text("Ini Konten History"),
        ), // Center
      ]) // TabBarView
    ), // Scaffold
  ); // DefaultTabController
}
```

- my_navbar.dart

```
import 'package:flutter/material.dart';
import 'package:prak6/my_package.dart';
import 'package:prak6/my_tabbar.dart';

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

  @override
  State<myNavbar> createState() => _myNavbarState();
}

class _myNavbarState extends State<myNavbar> {
  int _selectedIndex = 0;

  void _onTappedItem(int index){
    setState(() {
      _selectedIndex = index;
    });
  }

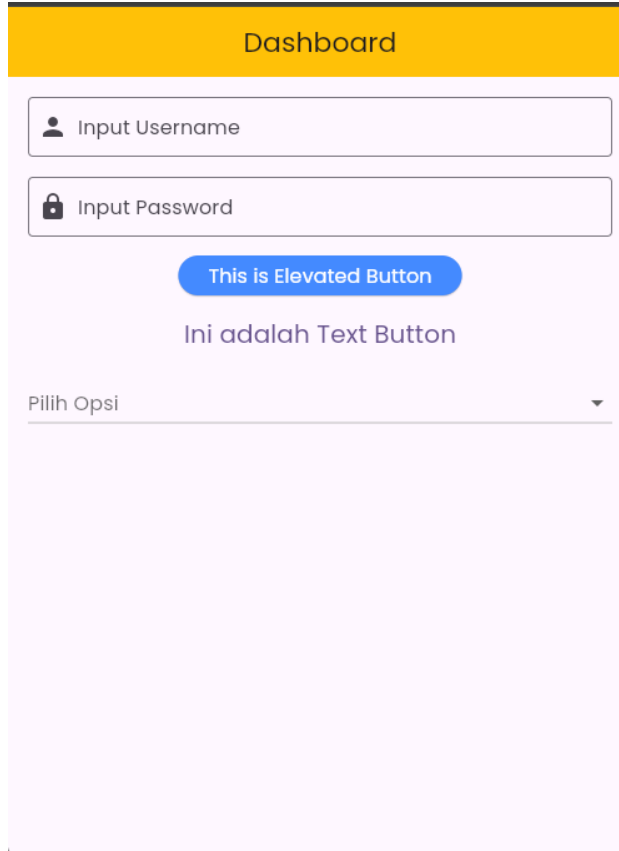
  List<Widget> _pages = <Widget>[
    myTabbar(),
    myPackage(),
    myPackage(),
  ]; // <Widget>[]

  @override
  Widget build(BuildContext context) {
    return Scaffold(
      appBar: AppBar(
        title: Text("Button Navigation Bar"),
        centerTitle: true,
        backgroundColor: Colors.blue,
      ), // AppBar

      body: _pages[_selectedIndex],
      bottomNavigationBar: BottomNavigationBar(
        items: <BottomNavigationBarItem>[
          BottomNavigationBarItem(
            icon: Icon(Icons.home_max_rounded),
            label: 'My TabBar'), // BottomNavigationBa
          BottomNavigationBarItem(
            icon: Icon(Icons.adb_rounded),
            label: 'My Package 1'), // BottomNavigatio
          BottomNavigationBarItem(
            icon: Icon(Icons.local_activity_rounded),
            label: 'My Package 2'), // BottomNavigatio
        ], // <BottomNavigationBarItem>[]
        selectedItemColor: Colors.amber,
        currentIndex: _selectedIndex,
        onTap: _onTappedItem,
      ), // BottomNavigationBar
    ); // Scaffold
  }
}
```

Output :

- my_package.dart



Dashboard

Input Username

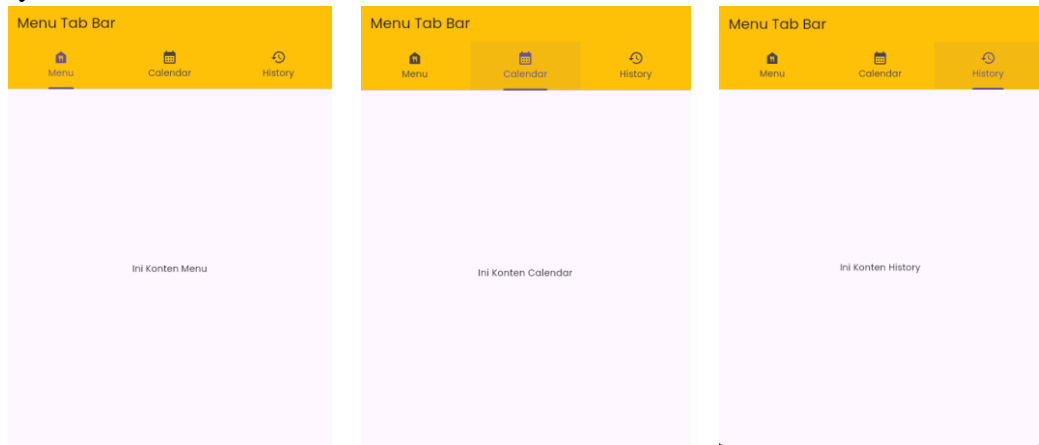
Input Password

This is Elevated Button

Ini adalah Text Button

Pilih Opsi

- my_tabbar.dart



Menu Tab Bar

Menu Calendar History

Ini Konten Menu

Menu Tab Bar

Menu Calendar History

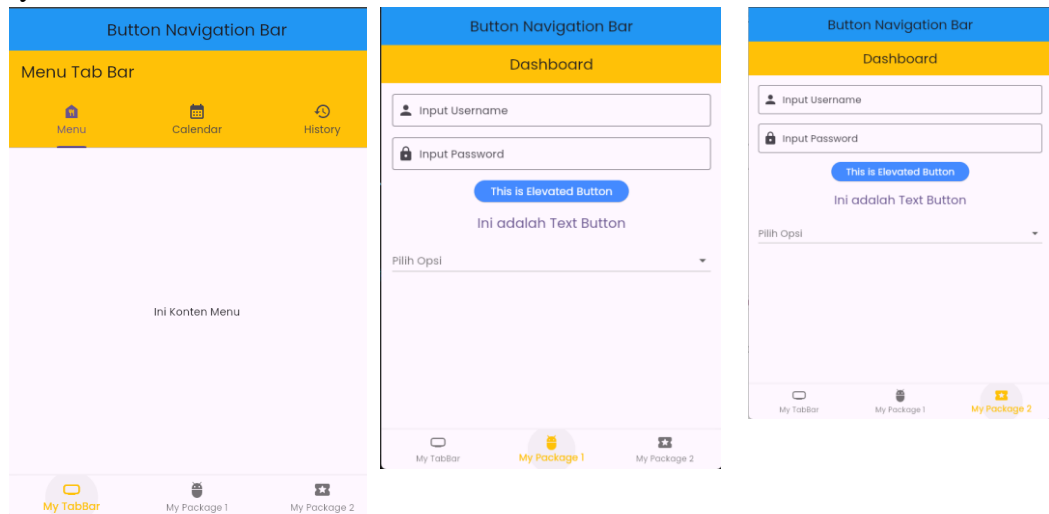
Ini Konten Calendar

Menu Tab Bar

Menu Calendar History

Ini Konten History

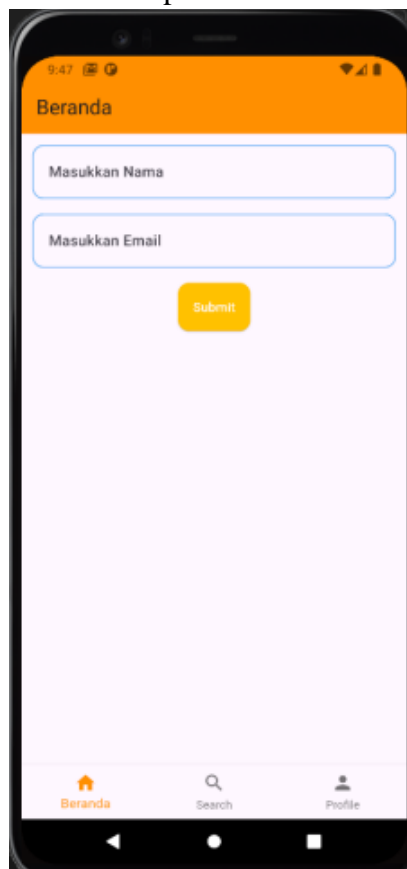
- my_navbar.dart



Unguided

1. Modifikasi project TP 06 (Tugas Pendahuluan) Interaksi Pengguna, dengan mengimplementasikan penggunaan form dan button.

Contoh Output :



Input :

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

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

class MyApp extends StatelessWidget {
  @override
  Widget build(BuildContext context) {
    return MaterialApp(
      debugShowCheckedModeBanner: false,
      title: 'Aplikasi Wisata',
      theme: ThemeData(
        primarySwatch: Colors.orange,
        scaffoldBackgroundColor: Colors.grey[200],
      ),
      home: MyHomePage(),
    );
  }
}

class MyHomePage extends StatefulWidget {
  @override
  _MyHomePageState createState() => _MyHomePageState();
}

class _MyHomePageState extends State<MyHomePage> {
  int _selectedIndex = 0;

  // Data Dropdown
  String? _selectedCategory;
  List<String> _categories = ['Pantai', 'Gunung', 'Desa Wisata', 'Sejarah'];

  // fungsi nav
  void _onItemTapped(int index) {
    setState(() {
      _selectedIndex = index;
    });
  }

  // halaman
  static const TextStyle optionStyle = TextStyle(fontSize: 18, fontWeight:
    FontWeight.bold);

  // Halaman Home: form kota, dropdown kategori wisata, button cari
  Widget _buildHomePage() {
    return Padding(
      padding: const EdgeInsets.all(16.0),
      child: Card(
        elevation: 5,
        shape: RoundedRectangleBorder(borderRadius: BorderRadius.circular(12)),
        child: Padding(
          padding: const EdgeInsets.all(20.0),
          child: Column(
```



```

crossAxisAlignment: CrossAxisAlignment.start,
children: [
  Text('Cari Wisata', style: optionStyle),
  SizedBox(height: 16),
  TextField(
    decoration: InputDecoration(
      hintText: 'Masukkan Kota',
      border: OutlineInputBorder(borderRadius:
BorderRadius.circular(12)),
      contentPadding: EdgeInsets.all(16),
      filled: true,
      fillColor: Colors.white,
    ),
  ),
  SizedBox(height: 16),
  DropdownButtonFormField<String>(
    value: _selectedCategory,
    hint: Text('Pilih Kategori Wisata'),
    onChanged: (String? newValue) {
      setState(() {
        _selectedCategory = newValue;
      });
    },
    items: _categories.map<DropdownMenuItem<String>>((String value) {
      return DropdownMenuItem<String>(
        value: value,
        child: Text(value),
      );
    }).toList(),
    decoration: InputDecoration(
      border: OutlineInputBorder(borderRadius:
BorderRadius.circular(12)),
      contentPadding: EdgeInsets.symmetric(horizontal: 16, vertical:
12),
      filled: true,
      fillColor: Colors.white,
    ),
  ),
  SizedBox(height: 16),
  Center(
    child: ElevatedButton(
      onPressed: () {
        // temat wisata
      },
      style: ElevatedButton.styleFrom(
        shape: RoundedRectangleBorder(borderRadius:
BorderRadius.circular(12)),
        padding: EdgeInsets.symmetric(horizontal: 50, vertical: 16),
      ),
      child: Text('Cari', style: TextStyle(fontSize: 16)),
    ),
  ),
],
),
),

```

```

    ),
  );
}

// Halaman Wisata: form pencarian wisata, button cari
Widget _buildWisataPage() {
  return Padding(
    padding: const EdgeInsets.all(16.0),
    child: Card(
      elevation: 5,
      shape: RoundedRectangleBorder(borderRadius: BorderRadius.circular(12)),
      child: Padding(
        padding: const EdgeInsets.all(20.0),
        child: Column(
          crossAxisAlignment: CrossAxisAlignment.start,
          children: [
            Text('Pencarian Wisata', style: optionStyle),
            SizedBox(height: 16),
            TextField(
              decoration: InputDecoration(
                hintText: 'Masukkan Nama Wisata',
                border: OutlineInputBorder(borderRadius:
BorderRadius.circular(12)),
                contentPadding: EdgeInsets.all(16),
                filled: true,
                fillColor: Colors.white,
              ),
            ),
            SizedBox(height: 16),
            Center(
              child: ElevatedButton(
                onPressed: () {
                  // Pencarian
                },
                style: ElevatedButton.styleFrom(
                  shape: RoundedRectangleBorder(borderRadius:
BorderRadius.circular(12)),
                  padding: EdgeInsets.symmetric(horizontal: 50, vertical: 16),
                ),
              child: Text('Cari', style: TextStyle(fontSize: 16)),
            ),
          ],
        ),
      ),
    ),
  );
}

// Halaman Profil: form username, password, button login, textbutton lupa
password
Widget _buildProfilePage() {
  return Padding(
    padding: const EdgeInsets.all(16.0),
    child: Card(

```

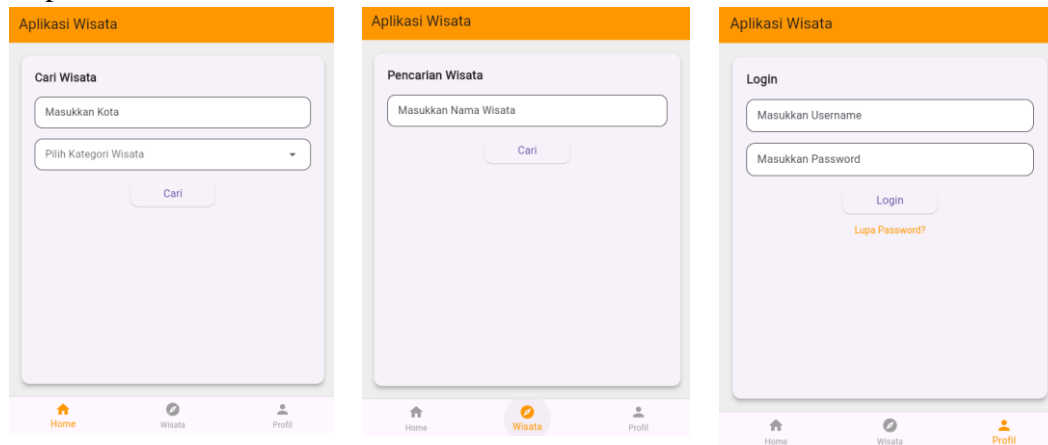
```

    elevation: 5,
    shape: RoundedRectangleBorder(borderRadius: BorderRadius.circular(12)),
    child: Padding(
      padding: const EdgeInsets.all(20.0),
      child: Column(
        crossAxisAlignment: CrossAxisAlignment.start,
        children: [
          Text('Login', style: optionStyle),
          SizedBox(height: 16),
          TextField(
            decoration: InputDecoration(
              hintText: 'Masukkan Username',
              border: OutlineInputBorder(borderRadius:
BorderRadius.circular(12)),
              contentPadding: EdgeInsets.all(16),
              filled: true,
              fillColor: Colors.white,
            ),
          ),
          SizedBox(height: 16),
          TextField(
            obscureText: true,
            decoration: InputDecoration(
              hintText: 'Masukkan Password',
              border: OutlineInputBorder(borderRadius:
BorderRadius.circular(12)),
              contentPadding: EdgeInsets.all(16),
              filled: true,
              fillColor: Colors.white,
            ),
          ),
          SizedBox(height: 16),
          Center(
            child: ElevatedButton(
              onPressed: () {
                // login
              },
              style: ElevatedButton.styleFrom(
                shape: RoundedRectangleBorder(borderRadius:
BorderRadius.circular(12)),
                padding: EdgeInsets.symmetric(horizontal: 50, vertical: 16),
              ),
            child: Text('Login', style: TextStyle(fontSize: 16)),
          ),
          SizedBox(height: 8),
          Center(
            child: TextButton(
              onPressed: () {
                //forgot password
              },
            child: Text('Lupa Password?', style: TextStyle(color:
Colors.orange)),
          ),
        ],
      ),
    ),
  ),

```

```
        ],  
        ),  
    ),  
    ),  
);  
}  
  
// List halaman  
List<Widget> _widgetOptions() {  
    return <Widget>[  
        _buildHomePage(),  
        _buildWisataPage(),  
        _buildProfilePage(),  
    ];  
}  
  
@override  
Widget build(BuildContext context) {  
    return Scaffold(  
        appBar: AppBar(  
            title: const Text('Aplikasi Wisata'),  
            backgroundColor: Colors.orange,  
        ),  
        body: Center(  
            child: _widgetOptions().elementAt(_selectedIndex),  
        ),  
        bottomNavigationBar: BottomNavigationBar(  
            items: const <BottomNavigationBarItem>[  
                BottomNavigationBarItem(  
                    icon: Icon(Icons.home),  
                    label: 'Home',  
                ),  
                BottomNavigationBarItem(  
                    icon: Icon(Icons.explore),  
                    label: 'Wisata',  
                ),  
                BottomNavigationBarItem(  
                    icon: Icon(Icons.person),  
                    label: 'Profil',  
                ),  
            ],  
            currentIndex: _selectedIndex,  
            selectedItemColor: Colors.orange,  
            unselectedItemColor: Colors.grey,  
            onTap: _onItemTapped,  
        ),  
    );  
}
```

Output :



Kesimpulan

Flutter adalah framework yang memungkinkan pengembang membangun aplikasi mobile dengan mudah menggunakan berbagai paket dan widget interaktif. Dengan dukungan paket seperti `google_fonts`, pengembang dapat memperkaya tampilan aplikasi tanpa harus memulai dari nol. Selain itu, perbedaan antara `StatelessWidget` dan `StatefulWidget` memungkinkan pengelolaan komponen yang statis dan dinamis sesuai dengan interaksi pengguna. Widget seperti `Form`, `TabBar`, dan `BottomNavigationBar` sangat berguna dalam mengatur navigasi dan interaksi dalam aplikasi, sementara berbagai jenis tombol seperti `ElevatedButton`, `TextButton`, dan `DropDownButton` memungkinkan tindakan yang jelas dan terstruktur. Dengan memanfaatkan fitur-fitur ini, pengembang dapat menciptakan aplikasi yang interaktif dan responsif dengan alur kerja yang terorganisir dan efisien.