

**LAPORAN PRAKTIKUM**  
**Modul 7**  
**“Navigasi dan Notifikasi”**



**Disusun Oleh:**  
**Muhammad Ralfi - 2211104054**  
**Kelas SE-06-2**

**Dosen :**  
**Yudha Islami Sulistya, S.Kom., M.Cs.**

**PROGRAM STUDI S1 SOFTWARE ENGINEERING**  
**FAKULTAS INFORMATIKA**  
**TELKOM UNIVERSITY**  
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## 1. Tujuan

- Mahasiswa mampu memahami konsep layout pada Flutter
- Mahasiswa dapat mengimplementasikan desain user interface pada Flutter

## 2. Landasan Teori

### Model

Model dalam konteks Flutter adalah cara menyusun data yang akan digunakan aplikasi. Model kustom memungkinkan pengembang untuk menentukan struktur dan aturan tertentu untuk memanipulasi data dalam aplikasi Flutter mereka

### Navigasi

Kelas Navigator adalah inti dari navigasi di Flutter. Kelas ini adalah widget yang mengontrol pengelolaan tumpukan objek Route, yang memudahkan pergantian layar dalam aplikasi Anda. Anda dapat menganggap Navigator sebagai tumpukan struktur data, tempat Anda dapat memasukkan rute baru ke dalamnya dan mengeluarkan rute yang sudah ada darinya. Untuk menavigasi ke layar baru di Flutter, Anda dapat menggunakan metode Navigator.push(). Metode ini memungkinkan Anda untuk mendorong rute baru ke tumpukan dan beralih ke layar baru.

### Notifikasi

Notifikasi lokal Flutter digunakan untuk melibatkan dan memberi tahu pengguna tentang setiap peristiwa atau tindakan yang dilakukan dalam aplikasi. Dengan paket notifikasi lokal Flutter, Anda dapat menampilkan notifikasi dalam aplikasi seluler apa pun, baik di Android maupun iOS. Untuk mengirimkan notifikasi dalam aplikasi Flutter, dapat digunakan package bernama flutter\_local\_notifications.

## 3. Guided

### a. Model

```
class Product {
  final int id;
  final String nama;
  final double harga;
  final String gambarUrl;
  final String deskripsi;

  Product({
    required this.id,
    required this.nama,
    required this.harga,
    required this.gambarUrl,
    required this.deskripsi
  });

  factory Product.fromJson(Map<String, dynamic> json) {
    return Product(
      id: json['id'],
      nama: json['nama'],
      harga: json['harga'],
      gambarUrl: json['gambarUrl'],
      deskripsi: json['deskripsi']
    );
  }

  Map<String, dynamic> toJson() {
    return {
```

```
"id": id,  
"nama": nama,  
"harga": harga,  
"gambagambarUrl":gambarUrl,  
"deskrdeskripsi":deskripsi,  
};  
}  
}
```

## b. Navigasi

### File untuk membuat halaman list produk

```
import 'package:flutter/material.dart';  
import 'package:gd_07/detailpage.dart';  
import 'package:gd_07/product.dart';  
  
class Mypage extends StatelessWidget {  
  Mypage({super.key});  
  
  final List<Product> products = [  
    Product(  
      id: 1,  
      nama: 'mouse',  
      harga: 150000,  
      gambarUrl: 'https://encrypted-  
tbn0.gstatic.com/images?q=tbn:ANd9GcTGwizempt1APRptrWToDLNA  
9QSqX04MlFxUw&s',  
      deskripsi: 'Mouse Razer Kualitas Nomer 1'),  
    Product(  
      id: 2,  
      nama: 'Keyboard',  
      harga: 250000,  
      gambarUrl: 'https://encrypted-  
tbn0.gstatic.com/images?q=tbn:ANd9GcTGwizempt1APRptrWToDLNA  
9QSqX04MlFxUw&s',  
      deskripsi: 'Keyboard Mechanical'),  
    Product(  
      id: 3,  
      nama: 'Monitor 4K',  
      harga: 4000000,  
      gambarUrl: 'https://encrypted-  
tbn0.gstatic.com/images?q=tbn:ANd9GcTGwizempt1APRptrWToDLNA  
9QSqX04MlFxUw&s',  
      deskripsi: 'Monitor Eksternal Samsung 4k'),  
  ];  
  
  @override  
  Widget build(BuildContext context) {  
    return Scaffold(  
      appBar: AppBar(  
        title: Text('Class model'),  
        centerTitle: true,  
        backgroundColor: Colors.blue,  
      ),  
      body: ListView.builder(  
        itemCount: products.length,  
        itemBuilder: (context, index) {  
          final Product = products[index];  
          return ListTile(  

```

```

        leading: Image.network(
          Product.gambarUrl,
          width: 70,
          height: 70,
        ),
        title: Text(Product.nama),
        subtitle: Column(
          crossAxisAlignment: CrossAxisAlignment.start,
          children: [
            Text('Rp ${Product.harga}'),
            Text(Product.deskripsi)
          ],
        ),
        onTap: () {
          print('Tap Layar berhasil');
          Navigator.push(context, MaterialPageRoute(
            builder: (_) => detailpage(data: 'this is
data from myPage',)));
        },
      );
    }
  )
);
}

```

File untuk detail product sekaligus untuk tujuan navigasi

```

import 'package:flutter/material.dart';

class detailpage extends StatelessWidget {
  const detailpage({super.key, required this.data});

  final String data;

  @override
  Widget build(BuildContext context) {
    return Scaffold(
      appBar: AppBar(
        title: Text('Navigation page'),
        backgroundColor: Colors.amber[400],
        centerTitle: true,
      ),
      body: Center(
        child:
          Text(
            data,
            style: TextStyle(
              fontSize: 24,
              fontWeight: FontWeight.w600
            ),
          ),
      ),
    );
  }
}

```

```

    ),
  ),
);
}
}

```

c. Notifikasi

Nb: This is complicated guided, because is so hard, udah ngikutin tutorial tapi tetep gabisa.

Buat folder notifikasi yg nantinya didalamnya ada file home.dart dan local\_notification.dart

Home.dart

```

import 'package:flutter/material.dart';
// import
'package:flutter_local_notifications/flutter_local_notifications.dart';
import
'package:gd_07/notification/local_notification.dart';

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

  @override
  State<Homepage> createState() => _HomepageState();
}

class _HomepageState extends State<Homepage> {
  void initState() {
    listenToNotifications();
    super.initState();
  }

  listenToNotifications() {
    print("Listening to notification");
    LocalNotifications.onClickNotification.stream.listen((
    event) {
      print(event);
      Navigator.pushNamed(context, '/another', arguments:
      event);
    });
  }

  @override
  Widget build(BuildContext context) {
    return Scaffold(
      appBar: AppBar(title: Text("Flutter Local
      Notifications")),
      body: Container(
        height: double.infinity,
        child: Center(
          child: Column(

```

```

mainAxisAlignment: MainAxisAlignment.center,
children: [
  ElevatedButton.icon(
    icon: Icon(Icons.notifications_outlined),
    onPressed: () {
      LocalNotifications.showSimpleNotification(
        title: "Simple Notification",
        body: "This is a simple notification",
        payload: "This is simple data");
    },
    label: Text("Simple Notification"),
  ),
  ElevatedButton.icon(
    icon: Icon(Icons.timer_outlined),
    onPressed: () {
      LocalNotifications.showPeriodicNotificat
ions(
        title: "Periodic Notification",
        body: "This is a Periodic Notification",
        payload: "This is periodic data");
    },
    label: Text("Periodic Notifications"),
  ),
  ElevatedButton.icon(
    icon: Icon(Icons.timer_outlined),
    onPressed: () {
      LocalNotifications.showScheduleNotificat
ion(
        title: "Schedule Notification",
        body: "This is a Schedule Notification",
        payload: "This is schedule data");
    },
    label: Text("Schedule Notifications"),
  ),
  // to close periodic notifications
  ElevatedButton.icon(
    icon: Icon(Icons.delete_outline),
    onPressed: () {
      LocalNotifications.cancel(1);
    },
    label: Text("Close Periodic
Notifications")),
  ElevatedButton.icon(
    icon: Icon(Icons.delete_forever_outlined),
    onPressed: () {
      LocalNotifications.cancelAll();
    },
    label: Text("Cancel All Notifcations"))
],
),
),
),

```

```

    ),
  );
}
}

```

### Local\_notification.dart

```

import 'dart:io'; // Tambahkan ini untuk memeriksa platform
import
  'package:flutter_local_notifications/flutter_local_notifications.dart';
import 'package:rxdart/rxdart.dart';
// ignore: depend_on_referenced_packages
import 'package:timezone/data/latest.dart' as tz;
// ignore: depend_on_referenced_packages
import 'package:timezone/timezone.dart' as tz;

class LocalNotifications {
  static final FlutterLocalNotificationsPlugin
    _flutterLocalNotificationsPlugin =
    FlutterLocalNotificationsPlugin();
  static final onClickNotification =
    BehaviorSubject<String>();

  // on tap on any notification
  static void onNotificationTap(NotificationResponse
    notificationResponse) {
    onClickNotification.add(notificationResponse.payload!);
  }

  // initialize the local notifications
  static Future init() async {
    const AndroidInitializationSettings
    initializationSettingsAndroid =
      AndroidInitializationSettings('@mipmap/ic_launcher');

    final DarwinInitializationSettings
    initializationSettingsDarwin =
      DarwinInitializationSettings(
        onDidReceiveLocalNotification: (id, title, body,
        payload) => null,
      );

    final LinuxInitializationSettings
    initializationSettingsLinux =
      LinuxInitializationSettings(defaultActionName:
      'Open notification');
    final InitializationSettings initializationSettings =
      InitializationSettings(
        android: initializationSettingsAndroid,
        iOS: initializationSettingsDarwin,
        linux: initializationSettingsLinux,
      );
  }
}

```

```
// Inisialisasi plugin
await _flutterLocalNotificationsPlugin.initialize(
  initializationSettings,
  onDidReceiveNotificationResponse: onNotificationTap,
  onDidReceiveBackgroundNotificationResponse:
onNotificationTap,
);

// Minta izin untuk iOS saja
if (Platform.isIOS) {
  await _flutterLocalNotificationsPlugin
    .resolvePlatformSpecificImplementation<
      IOSFlutterLocalNotificationsPlugin>()!
    .requestPermissions(alert: true, badge: true,
sound: true);
}
}

// show a simple notification
static Future showSimpleNotification({
  required String title,
  required String body,
  required String payload,
}) async {
  const AndroidNotificationDetails
androidNotificationDetails =
  AndroidNotificationDetails('your channel id', 'your
channel name',
    channelDescription: 'your channel description',
    importance: Importance.max,
    priority: Priority.high,
    ticker: 'ticker');
  const NotificationDetails notificationDetails =
    NotificationDetails(android:
androidNotificationDetails);
  await _flutterLocalNotificationsPlugin
    .show(0, title, body, notificationDetails, payload:
payload);
}

// to show periodic notification at regular interval
static Future showPeriodicNotifications({
  required String title,
  required String body,
  required String payload,
}) async {
  const AndroidNotificationDetails
androidNotificationDetails =
  AndroidNotificationDetails('channel 2', 'your
channel name',
```



```
        channelDescription: 'your channel description',
        importance: Importance.max,
        priority: Priority.high,
        ticker: 'ticker');
    const NotificationDetails notificationDetails =
        NotificationDetails(android:
androidNotificationDetails);

                                                                    await
    _flutterLocalNotificationsPlugin.periodicallyShow(
        1, title, body, RepeatInterval.everyMinute,
notificationDetails,
                                                                    androidScheduleMode:
AndroidScheduleMode.exactAllowWhileIdle,
        payload: payload);
}

// to schedule a local notification
static Future showScheduleNotification({
    required String title,
    required String body,
    required String payload,
}) async {
    tz.initializeTimeZones();
    await _flutterLocalNotificationsPlugin.zonedSchedule(
        2,
        title,
        body,
        tz.TZDateTime.now(tz.local).add(const
Duration(seconds: 5)),
        const NotificationDetails(
            android: AndroidNotificationDetails(
                'channel 3', 'your channel name',
                channelDescription: 'your channel
description',
                importance: Importance.max,
                priority: Priority.high,
                ticker: 'ticker')),
            androidScheduleMode:
AndroidScheduleMode.exactAllowWhileIdle,
            uiLocalNotificationDateInterpretation:
                UILocalNotificationDateInterpretation.absolute
Time,
            payload: payload);
}

// close a specific channel notification
static Future cancel(int id) async {
    await _flutterLocalNotificationsPlugin.cancel(id);
}

// close all the notifications available
```

```
static Future cancelAll() async {  
    await _flutterLocalNotificationsPlugin.cancelAll();  
}  
}
```

#### 4. Unguided

(Soal) Buatlah satu project untuk menampilkan beberapa produk dan halaman e-commerce dengan menerapkan class model serta navigasi halaman.

##### Main.dart

```
import 'package:flutter/material.dart';  
import 'package:ugd07/mypage.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(  
            debugShowCheckedModeBanner: false,  
            title: 'Flutter Demo',  
            theme: ThemeData(  
                colorScheme: ColorScheme.fromSeed(seedColor:  
Colors.deepPurple),  
                useMaterial3: true,  
            ),  
            home: Mypage(),  
        );  
    }  
}
```

##### MyPage.dart

```
import 'package:flutter/material.dart';  
import 'package:ugd07/detail_product.dart';  
import 'package:ugd07/product.dart';  
  
class Mypage extends StatelessWidget {  
    Mypage({super.key});  
  
    final List<Product> products = [  
        Product(  
            id: 'p1',  
            name: 'Macbook',  
            description: 'Lorem ipsum dolor sit amet, consectetur adipiscing  
elit. Aenean tempor metus id erat cursus tincidunt. Duis sed  
interdum arcu. Mauris gravida, nibh quis ultrices viverra, enim  
urna tempus augue, quis pretium felis nulla eu lorem.',
```

```

        price: 29.99,
        imageUrl: 'https://assets-us-01.kc-usercontent.com/a7507759-
f4f5-0038-8fff-cldb251108c1/240d6c64-7f15-40c5-82d0-
b0a09b3b9c09/rekomendasi-20-laptop-anak-sekolah-kuliah_advan-
workplus.webp',
    ),
    Product(
        id: 'p2',
        name: 'Iphone',
        description: 'Lorem ipsum dolor sit amet, consectetur adipiscing
elit. Aenean tempor metus id erat cursus tincidunt. Duis sed
interdum arcu. Mauris gravida, nibh quis ultrices viverra, enim
urna tempus augue, quis pretium felis nulla eu lorem.',
        price: 39.99,
        imageUrl:
'https://www.digimap.co.id/cdn/shop/files/iPhone_14_Purple_PDP_I
mage_Position-1A__WWEN_3538caee-2b52-4bdd-a8a2-
2117d88a6be6.jpg?v=1717740746',
    ),
    Product(
        id: 'p3',
        name: 'Smart Watch',
        description: 'Lorem ipsum dolor sit amet, consectetur adipiscing
elit. Aenean tempor metus id erat cursus tincidunt. Duis sed
interdum arcu. Mauris gravida, nibh quis ultrices viverra, enim
urna tempus augue, quis pretium felis nulla eu lorem.',
        price: 19.99,
        imageUrl:
'https://cdsassets.apple.com/live/SZLF0YNV/images/sp/111853_appl
e-watch-se-2nd-gen.png',
    ),
];

@override
Widget build(BuildContext context) {
    return Scaffold(
        appBar: AppBar(
            title: Text('Products'),
        ),
        body: ListView.builder(
            itemCount: products.length,
            itemBuilder: (context, index) {
                final product = products[index];
                return ListTile(
                    leading: Image.network(product.imageUrl),
                    title: Text(product.name),
                    subtitle: Text('\$${product.price.toStringAsFixed(2)}'),
                    onTap: () {
                        Navigator.push(
                            context,
                            MaterialPageRoute(

```

```

        builder: (context) => ProductDetailPage(product:
product),
      ),
    );
  },
);
},
),
);
}
}

```

### DetailProduk.dart

```

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

class ProductDetailPage extends StatelessWidget {
  final Product product;

  ProductDetailPage({required this.product});

  @override
  Widget build(BuildContext context) {
    return Scaffold(
      appBar: AppBar(
        title: Text(product.name),
      ),
      body: Padding(
        padding: const EdgeInsets.all(16.0),
        child: Column(
          crossAxisAlignment: CrossAxisAlignment.start,
          children: [
            Center(
              child: Image.network(
                product.imageUrl,
                height: 200,
              ),
            ),
            SizedBox(height: 16),
            Text(
              product.name,
              style: TextStyle(fontSize: 24, fontWeight:
FontWeight.bold),
            ),
            SizedBox(height: 8),
            Text(
              '\${product.price.toStringAsFixed(2)}',
              style: TextStyle(fontSize: 20, color: Colors.green),
            ),
            SizedBox(height: 16),
            Text(
              product.description,

```

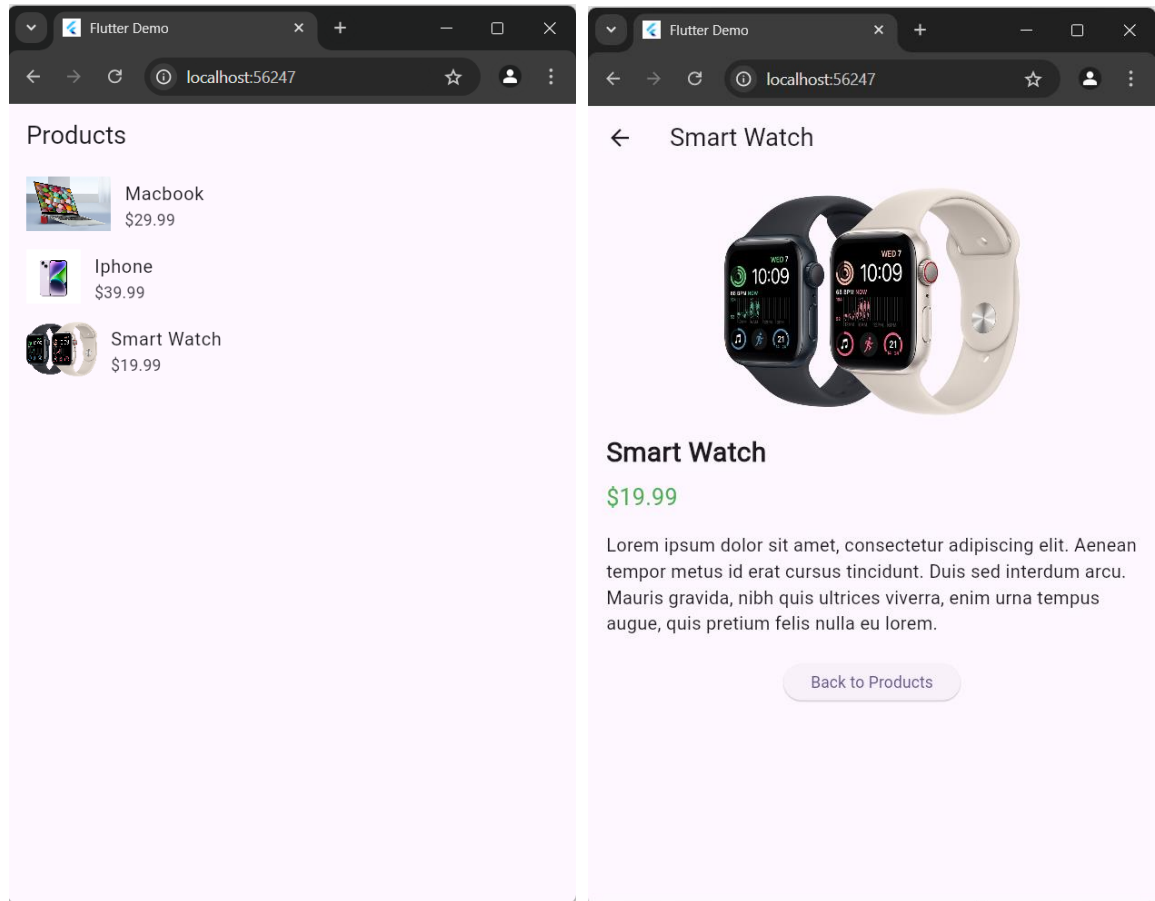
```
        style: TextStyle(fontSize: 16),
      ),
      SizedBox(height: 24),
      Center(
        child: ElevatedButton(
          onPressed: () {
            Navigator.pop(context);
          },
          child: Text('Back to Products'),
        ),
      ),
    ],
  ),
);
}
```

### **Product.dart**

```
class Product {
  final String id;
  final String name;
  final String description;
  final double price;
  final String imageUrl;

  Product({
    required this.id,
    required this.name,
    required this.description,
    required this.price,
    required this.imageUrl,
  });
}
```

## Output



## 5. Kesimpulan

Dengan belajar beberapa widget utama atau yang sering digunakan dalam pembuatan aplikasi akan lebih memudahkan untuk melanjutkan ke tahap pembelajaran selanjutnya. Penggunaan navigasi dan notifikasi sangat penting dalam pengembangan sebuah aplikasi mobile agar dapat memudahkan pengguna.