TUGAS PENDAHULUAN / TUGAS UNGUIDED
PEMROGRAMAN PERANGKAT BERGERAK

MODUL VII

PENGENALAN FLUTTER

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PROGRAM STUDI S1 SOFTWARE ENGINEERING

FAKULTAS INFORMATIKA

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TUGAS PENDAHULUAN / TUGAS UNGUIDED

A. SOAL

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

   Note: Jangan lupa sertakan source code, screenshoot output, dan deskripsi program. Kreatifitas menjadi nilai tambah.

B. JAWABAN

Source code

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

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

// Model Class untuk Produk
class Product {
  final String id;
  final String name;
  final String description;
  final double price;
  final String imageUrl;
  final double rating;
  final int stock;

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

```dart
  Map<String, dynamic> toMap() {
    return {
      'id': id,
      'name': name,
      'description': description,
      'price': price,
      'imageUrl': imageUrl,
      'rating': rating,
      'stock': stock,
    };
  }

  factory Product.fromMap(Map<String, dynamic> map) {
    return Product(
      id: map['id'],
      name: map['name'],
      description: map['description'],
      price: map['price'],
      imageUrl: map['imageUrl'],
      rating: map['rating'],
      stock: map['stock'],
    );
  }
}

// Widget untuk Kartu Produk
class ProductCard extends StatelessWidget {
  final Product product;
  final VoidCallback onTap;

  const ProductCard({
    Key? key,
    required this.product,
    required this.onTap,
  }) : super(key: key);
```

```dart
@override
Widget build(BuildContext context) {
  return Card(
    elevation: 2,
    margin: const EdgeInsets.all(8),
    child: InkWell(
      onTap: onTap,
      child: Padding(
        padding: const EdgeInsets.all(12),
        child: Column(
          crossAxisAlignment: CrossAxisAlignment.start,
          children: [
            // Gambar Produk
            Container(
              height: 120,
              width: double.infinity,
              decoration: BoxDecoration(
                borderRadius: BorderRadius.circular(8),
                image: DecorationImage(
                  image: NetworkImage(product.imageUrl),
                  fit: BoxFit.cover,
                ),
              ),
            ),
            const SizedBox(height: 8),

            // Nama Produk
            Text(
              product.name,
              style: const TextStyle(
                fontSize: 16,
                fontWeight: FontWeight.bold,
              ),
              maxLines: 1,
```

```dart
      overflow: TextOverflow.ellipsis,
    ),

    const SizedBox(height: 4),

    // Harga
    Text(
      'Rp ${product.price.toStringAsFixed(0)}',
      style: const TextStyle(
        fontSize: 14,
        fontWeight: FontWeight.bold,
        color: Colors.green,
      ),
    ),

    const SizedBox(height: 4),

    // Rating dan Stock
    Row(
      children: [
        // Rating
        Icon(Icons.star, color: Colors.amber, size: 16),
        Text(
          ' ${product.rating}',
          style: TextStyle(fontSize: 12),
        ),

        Spacer(),

        // Stock
        Text(
          'Stok: ${product.stock}',
          style: TextStyle(
            fontSize: 12,
            color: Colors.grey[600],
```

```dart
        ),
      ),
    ],
  ),
  ],
  ),
  ),
  ),
  );
  }
}


// Halaman Home
class HomePage extends StatelessWidget {
  final List<Product> products;

  const HomePage({Key? key, required this.products}) : super(key: key);

  @override
  Widget build(BuildContext context) {
    return Scaffold(
      appBar: AppBar(
        title: const Text('E-Commerce App'),
        backgroundColor: Colors.blue,
        foregroundColor: Colors.white,
      ),
      body: Center(
        child: Column(
          mainAxisAlignment: MainAxisAlignment.center,
          children: [
            const Icon(
              Icons.shopping_cart,
              size: 80,
              color: Colors.blue,
            ),
```

```dart
        const SizedBox(height: 20),
        const Text(
          'Selamat Datang di\nToko Online Kami',
          style: TextStyle(
            fontSize: 24,
            fontWeight: FontWeight.bold,
          ),
          textAlign: TextAlign.center,
        ),
        const SizedBox(height: 10),
        Text(
          'Temukan ${products.length} produk terbaik untuk Anda',
          style: const TextStyle(
            fontSize: 16,
            color: Colors.grey,
          ),
          textAlign: TextAlign.center,
        ),
        const SizedBox(height: 30),
        ElevatedButton(
          onPressed: () {
            Navigator.push(
              context,
              MaterialPageRoute(
                builder: (context) => ProductListPage(products: products),
              ),
            );
          },
          style: ElevatedButton.styleFrom(
            backgroundColor: Colors.blue,
            foregroundColor: Colors.white,
            padding: const EdgeInsets.symmetric(horizontal: 32, vertical: 16),
            shape: RoundedRectangleBorder(
              borderRadius: BorderRadius.circular(8),
            ),
```

```
        ),
        child: const Text(
          'Lihat Produk',
          style: TextStyle(fontSize: 18),
        ),
      ),
    ],
  ),
 ),
 );
 }
}

// Halaman Daftar Produk
class ProductListPage extends StatelessWidget {
  final List<Product> products;

  const ProductListPage({Key? key, required this.products}) : super(key: key);

  @override
  Widget build(BuildContext context) {
    return Scaffold(
      appBar: AppBar(
        title: const Text('Daftar Produk'),
        backgroundColor: Colors.blue,
        foregroundColor: Colors.white,
      ),
      body: products.isEmpty
          ? const Center(
              child: Text('Tidak ada produk tersedia'),
            )
          : GridView.builder(
              padding: const EdgeInsets.all(8),
              gridDelegate: const SliverGridDelegateWithFixedCrossAxisCount(
                crossAxisCount: 2,
```

```
          crossAxisSpacing: 8,
          mainAxisSpacing: 8,
          childAspectRatio: 0.7,
        ),
        itemCount: products.length,
        itemBuilder: (context, index) {
          final product = products[index];
          return ProductCard(
            product: product,
            onTap: () {
              Navigator.push(
                context,
                MaterialPageRoute(
                  builder: (context) => ProductDetailPage(product: product),
                ),
              );
            },
          );
        },
      ),
    );
  }
}

// Halaman Detail Produk
class ProductDetailPage extends StatelessWidget {
  final Product product;

  const ProductDetailPage({Key? key, required this.product}) : super(key:
key);

  @override
  Widget build(BuildContext context) {
    return Scaffold(
      appBar: AppBar(
```

```dart
        title: Text(product.name),
        backgroundColor: Colors.blue,
        foregroundColor: Colors.white,
      ),
      body: SingleChildScrollView(
        padding: const EdgeInsets.all(16),
        child: Column(
          crossAxisAlignment: CrossAxisAlignment.start,
          children: [
            // Gambar Produk
            Container(
              height: 300,
              width: double.infinity,
              decoration: BoxDecoration(
                borderRadius: BorderRadius.circular(12),
                image: DecorationImage(
                  image: NetworkImage(product.imageUrl),
                  fit: BoxFit.cover,
                ),
              ),
            ),

            const SizedBox(height: 16),


            // Nama Produk
            Text(
              product.name,
              style: const TextStyle(
                fontSize: 24,
                fontWeight: FontWeight.bold,
              ),
            ),


            const SizedBox(height: 8),
```

```dart
      // Harga
      Text(
        'Rp ${product.price.toStringAsFixed(0)}',
        style: const TextStyle(
          fontSize: 20,
          fontWeight: FontWeight.bold,
          color: Colors.green,
        ),
      ),

      const SizedBox(height: 16),

      // Rating dan Stock
      Row(
        children: [
          Row(
            children: [
              Icon(Icons.star, color: Colors.amber, size: 20),
              const SizedBox(width: 4),
              Text(
                '${product.rating}',
                style: TextStyle(fontSize: 16),
              ),
            ],
          ),

          const SizedBox(width: 16),

          Text(
            'Stok: ${product.stock}',
            style: TextStyle(
              fontSize: 16,
              color: product.stock > 0 ? Colors.green : Colors.red,
            ),
          ),
```

```dart
      ],
    ),

    const SizedBox(height: 16),

    // Deskripsi
    const Text(
      'Deskripsi Produk:',
      style: TextStyle(
        fontSize: 18,
        fontWeight: FontWeight.bold,
      ),
    ),
    const SizedBox(height: 8),
    Text(
      product.description,
      style: TextStyle(fontSize: 16, color: Colors.grey[700]),
    ),

    const SizedBox(height: 24),

    // Tombol Beli
    SizedBox(
      width: double.infinity,
      child: ElevatedButton(
        onPressed: product.stock > 0
          ? () {
              _showSuccessDialog(context);
            }
          : null,
        style: ElevatedButton.styleFrom(
          backgroundColor: Colors.blue,
          foregroundColor: Colors.white,
          padding: const EdgeInsets.symmetric(vertical: 16),
          shape: RoundedRectangleBorder(
```

```dart
          borderRadius: BorderRadius.circular(8),
        ),
      ),
        child: const Text(
          'Beli Sekarang',
          style: TextStyle(fontSize: 18),
        ),
      ),
    ),
    ],
    ),
    ),
  );
 }

 void _showSuccessDialog(BuildContext context) {
  showDialog(
    context: context,
    builder: (context) => AlertDialog(
      title: const Text('Berhasil'),
      content: const Text('Produk berhasil ditambahkan ke keranjang!'),
      actions: [
        TextButton(
          onPressed: () {
            Navigator.pop(context);
          },
          child: const Text('OK'),
        ),
      ],
    ),
  );
 }
}

// Main App
```

```dart
class MyApp extends StatelessWidget {
  const MyApp({Key? key}) : super(key: key);


  // Data produk contoh
  List<Product> getSampleProducts() {
    return [
      Product(
        id: '1',
        name: 'Smartphone XYZ',
        description: 'Smartphone canggih dengan kamera 108MP, RAM 8GB,
dan baterai 5000mAh. Cocok untuk gaming dan fotografi profesional.
Dilengkapi dengan layar AMOLED 6.7 inci dan fast charging 65W.',
        price: 3500000,
        imageUrl: 'https://images.unsplash.com/photo-1511707171634-
5f897ff02aa9?w=400',
        rating: 4.5,
        stock: 15,
      ),
      Product(
        id: '2',
        name: 'Laptop Gaming',
        description: 'Laptop gaming dengan processor Intel i7 generasi terbaru,
GPU RTX 3060 6GB, RAM 16GB DDR5, dan layar 15.6 inci 144Hz. Performa
maksimal untuk semua game terbaru dan produktivitas.',
        price: 15000000,
        imageUrl: 'https://images.unsplash.com/photo-1603302576837-
37561b2e2302?w=400',
        rating: 4.8,
        stock: 8,
      ),
      Product(
        id: '3',
        name: 'Headphone Wireless',
        description: 'Headphone wireless premium dengan active noise
cancellation, baterai 30 jam, konektivitas Bluetooth 5.0, dan kualitas suara Hi-
```

```
Res. Nyaman digunakan sepanjang hari.',
    price: 1200000,
    imageUrl: 'https://images.unsplash.com/photo-1505740420928-
5e560c06d30e?w=400',
    rating: 4.3,
    stock: 25,
  ),
  Product(
    id: '4',
    name: 'Smart Watch Pro',
    description: 'Smartwatch dengan monitor detak jantung, GPS built-in,
tahan air 50m, dan baterai 7 hari. Cocok untuk olahraga dan aktivitas sehari-
hari dengan notifikasi smartphone.',
    price: 850000,
    imageUrl: 'https://images.unsplash.com/photo-1523275335684-
37898b6baf30?w=400',
    rating: 4.6,
    stock: 0,
  ),
  Product(
    id: '5',
    name: 'Kamera DSLR Pro',
    description: 'Kamera DSLR profesional dengan sensor full-frame
24.2MP, video 4K 60fps, sistem autofocus 45 titik, dan ISO 100-51200. Ideal
untuk fotografer profesional dan videographer.',
    price: 8500000,
    imageUrl: 'https://images.unsplash.com/photo-1516035069371-
29a1b244cc32?w=400',
    rating: 4.7,
    stock: 5,
  ),
  Product(
    id: '6',
    name: 'Tablet Android Premium',
    description: 'Tablet Android dengan layar 10.1 inci 2K, RAM 6GB,
```

```
storage 128GB, dan baterai 8000mAh. Sempurna untuk bekerja, belajar
online, dan hiburan dengan performa smooth.',
      price: 2800000,
      imageUrl: 'https://images.unsplash.com/photo-1561154464-
82e9adf32764?w=400',
      rating: 4.2,
      stock: 12,
    ),
    Product(
      id: '7',
      name: 'Speaker Bluetooth',
      description: 'Speaker Bluetooth portable dengan sound 360°, bass yang
powerful, dan baterai 12 jam. Tahan air IPX7, perfect untuk party outdoor
dan kegiatan traveling.',
      price: 650000,
      imageUrl: 'https://images.unsplash.com/photo-1608043152269-
423dbba4e7e1?w=400',
      rating: 4.4,
      stock: 18,
    ),
    Product(
      id: '8',
      name: 'Keyboard Mechanical',
      description: 'Keyboard mechanical gaming dengan switch Red, RGB
lighting, anti-ghosting, dan build quality premium. Responsif untuk gaming
dan mengetis yang nyaman.',
      price: 950000,
      imageUrl: 'https://images.unsplash.com/photo-1541140532154-
b024d705b90a?w=400',
      rating: 4.5,
      stock: 10,
    ),
  ];
}
```
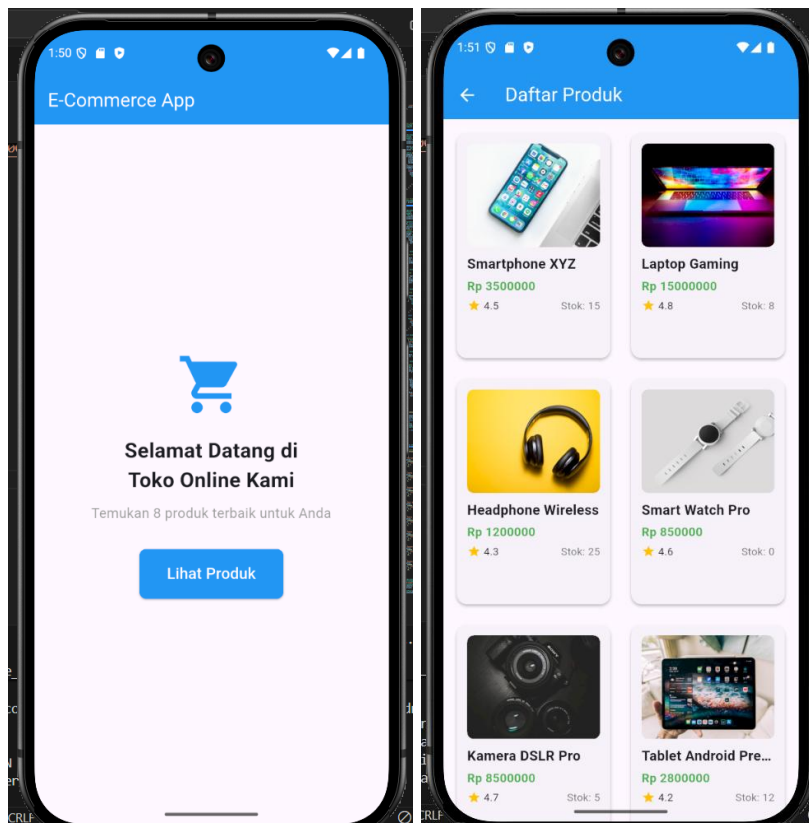
```
@override
Widget build(BuildContext context) {
  return MaterialApp(
    title: 'E-Commerce App',
    theme: ThemeData(
      primarySwatch: Colors.blue,
      useMaterial3: true,
    ),
    home: HomePage(products: getSampleProducts()),
    debugShowCheckedModeBanner: false,
  );
 }
}
```

Screenshot Output

Deskripsi Program

Program yang saya buat adalah aplikasi e-commerce sederhana menggunakan Flutter yang menampilkan katalog produk elektronik seperti smartphone, laptop, dan gadget lainnya. Aplikasi ini menerapkan class model Product untuk merepresentasikan data produk dengan atribut lengkap seperti nama, harga, deskripsi, rating, dan stok. Cara kerja program dimulai dari inisialisasi data produk dummy yang kemudian ditampilkan dalam antarmuka berhirarki, dimulai dari halaman home, lalu ke daftar produk dalam layout grid, dan akhirnya ke halaman detail ketika pengguna mengetuk produk tertentu. Program menggunakan algoritma navigasi stack-based dimana setiap perpindahan halaman dilakukan melalui push dan pop, serta menerapkan reusable widget ProductCard untuk menampilkan setiap item produk secara konsisten. Output yang dihasilkan adalah pengalaman berbelanja digital interaktif dimana pengguna dapat menjelajahi berbagai produk, melihat detail lengkap, dan melakukan simulasi pembelian dengan dialog konfirmasi yang responsif.