LAPORAN PRAKTIKUM
PEMROGRAMAN PERANGKAT BERGERAK

MODUL 12

MAPS AND PLACES

Disusun Oleh :

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PROGRAM STUDI S1 SOFTWARE ENGINEERING

FAKULTAS INFORMATIKA

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PRAKTIKUM

A. GUIDED

1. Teori

1.1. Google maps API

Google Maps API adalah layanan dari Google yang membantu pengembang untuk mengintegrasikan fungsionalitas peta ke dalam aplikasi mereka. Layanan ini memungkinkan developer untuk melakukan berbagai operasi seperti memasang marker, menggunakan fitur route, mencari tempat, dan lain sebagainya. Untuk menggunakan Google Maps API di Flutter, developer perlu mengikuti beberapa langkah kunci: mendapatkan API key dari Google Cloud Platform, mengaktifkan Google Maps SDK untuk setiap platform (Android dan iOS), dan mengonfigurasi izin serta kunci API di file manifest atau delegate aplikasi.

1.2. Menambah package google maps

Untuk menambahkan Google Maps ke dalam proyek Flutter, kita harus:

a) Mengunjungi https://www.pub.dev dan mencari package google_maps_flutter
b) Menambahkan package ke file pubspec.yaml
c) Mengimpor package ke file Dart dengan perintah import 'package:google_maps_flutter/google_maps_flutter.dart';
d) Menambahkan widget GoogleMap ke dalam kode, dengan menentukan posisi kamera awal (initial camera position)
e) Membuat variabel untuk menentukan lokasi pusat peta dan posisi kamera awal

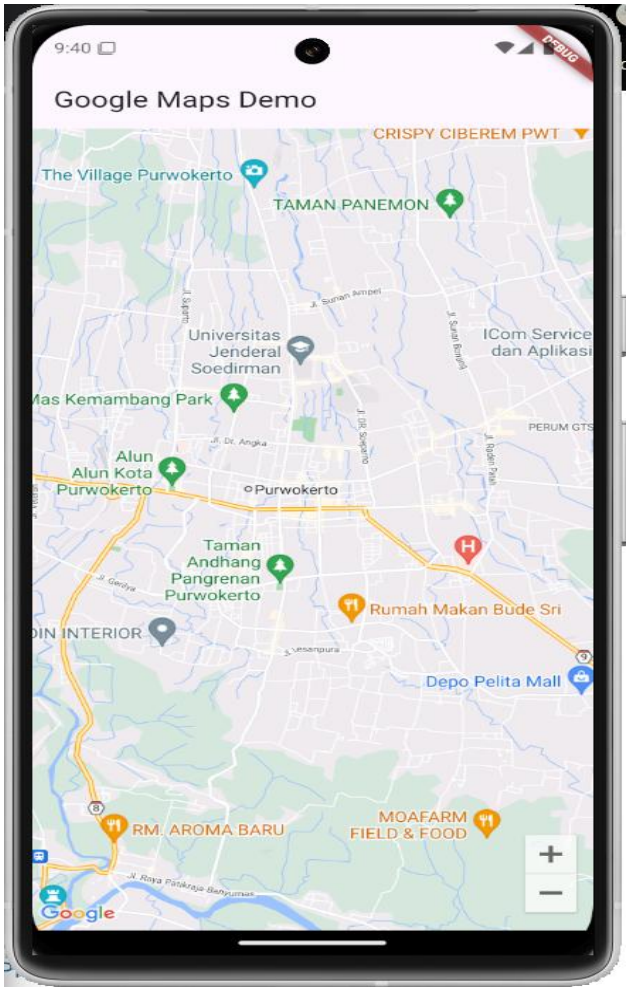
2. Hasil Praktikum

Source Code

```dart
import 'package:flutter/material.dart';
import 'package:prak_12/MyMapsScreen.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',
      theme: ThemeData(
        colorScheme: ColorScheme.fromSeed(seedColor: Colors.deepPurple),
        useMaterial3: true,
      ),
      home: MapsScreen(),
    );
  }
}

```

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

class MapsScreen extends StatefulWidget {
  @override
  _MapsScreenState createState() => _MapsScreenState();
}

class _MapsScreenState extends State<MapsScreen> {
  static final LatLng _kMapCenter = LatLng(-7.431391, 109.247833);
  static final CameraPosition _kInitialPosition = CameraPosition(
    target: _kMapCenter,
    zoom: 11.0,
  );
  @override
  Widget build(BuildContext context) {
    return Scaffold(
      appBar: AppBar(
        title: Text('Google Maps Demo'),
      ),
      body: GoogleMap(
        initialCameraPosition: _kInitialPosition,
        myLocationEnabled: true,
      ),
    );
  }
}

```

Output :



B. UNGUIDED

1. Soal Studi Case

Dari tugas guided yang telah dikerjakan, lanjutkan hingga ke bagian place picker untuk memberikan informasi mengenai lokasi yang ditunjuk di peta.

Sourcecode

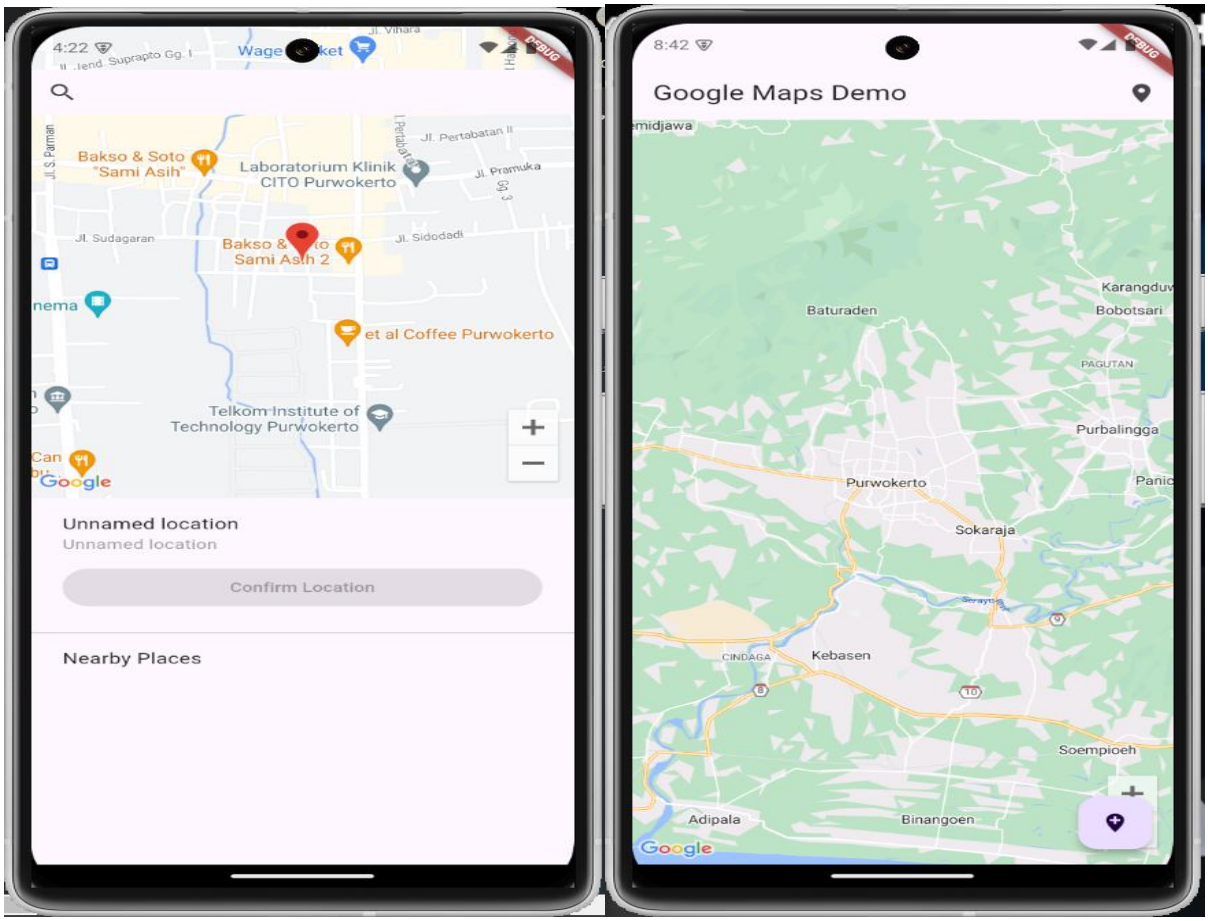
Main.dart

```dart
import 'package:flutter/material.dart';
import 'package:prak_12/MyMapsScreen.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',
      theme: ThemeData(
        colorScheme: ColorScheme.fromSeed(seedColor: Colors.deepPurple),
        useMaterial3: true,
      ),
      home: MapsScreen(),
    );
  }
}
```

mapsScreen.dart

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

class MapsScreen extends StatefulWidget {
  const MapsScreen({Key? key}) : super(key: key);

  @override
  _MapsScreenState createState() => _MapsScreenState();
}

class _MapsScreenState extends State<MapsScreen> {
  static final LatLng _kMapCenter = LatLng(-7.431391, 109.247833);
  static final CameraPosition _kInitialPosition = CameraPosition(
    target: _kMapCenter,
    zoom: 11.0,
  );

  GoogleMapController? _mapController;
  LocationResult? _pickedLocation;

  void _showPlacePicker() async {
    // Ensure you replace with your actual API key
    LocationResult? result = await Navigator.of(context).push(
      MaterialPageRoute(
        builder: (context) => PlacePicker(
          apiKey: "AIzaSyDFxpC7ky5_yPoIcd1veB3fOo1OcybI4cI", // Replace this!
          initialLocation: _kMapCenter,
        ),
      ),
    );

    // Null-safe handling of result
    if (result != null) {
      setState(() {
        _pickedLocation = result;
      });

      // Adjust based on the actual property for latitude and longitude
      final latLng = result.latLng; // Replace with the correct property
      if (latLng != null) {
        print("Latitude: ${latLng.latitude}");
        print("Longitude: ${latLng.longitude}");

        if (_mapController != null) {
          _mapController!.animateCamera(
            CameraUpdate.newCameraPosition(
              CameraPosition(
                target: LatLng(latLng.latitude, latLng.longitude),
                zoom: 14.0,
              ),
            ),
          );
        }
      } else {
        print("No valid coordinates found.");
      }
    }
  }

  @override
  Widget build(BuildContext context) {
    return Scaffold(
      appBar: AppBar(
        title: const Text('Google Maps Demo'),
        actions: [
          IconButton(
            icon: const Icon(Icons.place),
            onPressed: _showPlacePicker,
            tooltip: 'Pick a Location',
          ),
        ],
      ),
      body: Stack(
        children: [
          GoogleMap(
            initialCameraPosition: _kInitialPosition,
            myLocationEnabled: true,
            onMapCreated: (GoogleMapController controller) {
              _mapController = controller;
            },
          ),
          // Display picked location info
          if (_pickedLocation != null)
            Positioned(
              bottom: 20,
              left: 20,
              right: 20,
              child: Card(
                child: Padding(
                  padding: const EdgeInsets.all(12.0),
                  child: Column(
                    crossAxisAlignment: CrossAxisAlignment.start,
                    children: [
                      const Text(
                        'Picked Location:',
                        style: TextStyle(
                          fontWeight: FontWeight.bold,
                          fontSize: 16,
                        ),
                      ),
                      Text('Name: ${_pickedLocation?.name ?? 'No Name'}'),
                      Text(
                          'Address: ${_pickedLocation?.formattedAddress ?? 'No Address'}'),
                      Text(
                        'Coordinates: ${_pickedLocation?.latLng?.latitude ?? 'N/A'}, ${_pickedLocation?.latLng?.longitude ?? 'N/A'}',
                      ),
                    ],
                  ),
                ),
              ),
            ),
        ],
      ),
      floatingActionButton: FloatingActionButton(
        onPressed: _showPlacePicker,
        tooltip: 'Pick a Location',
        child: const Icon(Icons.add_location),
      ),
    );
  }
}

```

Screenshoot Output



Deskripsi Program

Program ini mengimplementasikan dari google maps dan place picker google, sebuah widget khusus untuk widget khusus yang memfasilitasi pencarian dan pemilihan lokasi geografis. Pada awalnya, peta diinisialisasi dengan posisi kamera yang terpusat di koordinat tertentu contoh Purwokerto (latitude -7.431391 dan longitude 109.247833), dengan tingkat zoom awal 11.0. Fungsionalitas utama aplikasi mencakup kemampuan pengguna untuk memilih lokasi melalui tombol "place" di app bar atau floating action button, yang akan membuka antarmuka PlacePicker.