

**LAPORAN PRAKTIKUM
PEMROGRAMAN PERANGKAT BERGERAK**

**MODUL 11
FIREBASE NOTIFIKASI**



Disusun Oleh :

Aji Prasetyo Nugroho / 2211104049

S1SE-06-2

Asisten Praktikum :

Muhammad Faza Zulian Gesit Al Barru

Aisyah Hasna Aulia

Dosen Pengampu :

Yudha Islami Sulistya

**PROGRAM STUDI S1 SOFTWARE ENGINEERING
FAKULTAS INFORMATIKA
TELKOM UNIVERSITY PURWOKERTO**

2024

A. GUIDED

- My_notification_screen.dart

Source code :

```
import 'package:firebase_messaging/firebase_messaging.dart';
import 'package:flutter/material.dart';
import 'package:flutter_local_notifications/flutter_local_notifications.dart';
import 'package:praktikum_11/main.dart';

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

  @override
  State<MyNotificationScreen> createState() => _MyNotificationScreenState();
}

class _MyNotificationScreenState extends State<MyNotificationScreen> {
  @override
  void initState() {
    super.initState();
    // Membuat pengaturan inisialisasi notifikasi untuk Android
    var initializationSettingsAndroid =
      const AndroidInitializationSettings('@mipmap/ic_launcher');
    var initializationSettings =
      InitializationSettings(android: initializationSettingsAndroid);
    FlutterLocalNotificationsPlugin().initialize(initializationSettings);

    // Mendengarkan pesan saat aplikasi aktif
    FirebaseMessaging.onMessage.listen((RemoteMessage message) {
      RemoteNotification? notification = message.notification;
      AndroidNotification? android = message.notification?.android;
      // Jika notifikasi tersedia, tampilkan menggunakan notifikasi lokal
      if (notification != null && android != null) {
        FlutterLocalNotificationsPlugin().show(
          notification.hashCode, // ID notifikasi (hashCode untuk unik)
          notification.title, // Judul notifikasi
          notification.body, // Isi notifikasi
          NotificationDetails(
            android: AndroidNotificationDetails(
              channel.id,
              channel.name,
              channelDescription: channel.description,
              color: Colors.blue,
              icon: "@mipmap/ic_launcher",
            ),
          ),
        );
      }
    });

    // Menangani aksi ketika notifikasi dibuka
    FirebaseMessaging.onMessageOpenedApp.listen((RemoteMessage message) {
      RemoteNotification? notification = message.notification;
      AndroidNotification? android = message.notification?.android;
      // Jika notifikasi tersedia, tampilkan dialog
      if (notification != null && android != null) {
        showDialog(
          context: context,
          builder: (_) {
            return AlertDialog(
              title: Text(notification.title ?? ""), // Judul dialog
              content: SingleChildScrollView(
                child: Column(
                  crossAxisAlignment: CrossAxisAlignment.start,
                  children: [Text(notification.body ?? "")], // Isi dialog
                ),
              ),
            );
          },
        );
      }
    });

    // Memanggil metode untuk mengambil token FCM perangkat
    getToken();
  }

  // Metode untuk mendapatkan token FCM
  void getToken() async {
    token = await FirebaseMessaging.instance
      .getToken(); // Mendapatkan token FCM perangkat
    print('FCM Token: $token'); // Menampilkan token di log
  }

  @override
  Widget build(BuildContext context) {
    return Scaffold(
      appBar: AppBar(
        title: Text('My Notification Screen'),
        backgroundColor: Colors.amber,
      ),
      body: Center(
        child: Text('Halaman untuk menerima notifikasi'),
      ),
    );
  }
}
```

- main.dart

Source Code :

```
import 'package:firebase_core/firebase_core.dart';
import 'package:firebase_messaging/firebase_messaging.dart';
import 'package:flutter/material.dart';
import 'package:flutter_local_notifications/flutter_local_notifications.dart';
import 'package:praktikum_11/my_notification_screen.dart';

void main() async {
  WidgetsFlutterBinding.ensureInitialized();
  await Firebase.initializeApp();
  FirebaseMessaging.onBackgroundMessage(_firebaseMessagingBackgroundHandler);
  await FlutterLocalNotificationsPlugin()
    .resolvePlatformSpecificImplementation<
      AndroidFlutterLocalNotificationsPlugin>()
    ?.createNotificationChannel(channel);
  await FirebaseMessaging.instance.setForegroundNotificationPresentationOptions(
    alert: true,
    badge: true,
    sound: true,
  );
  runApp(const MyApp());
}

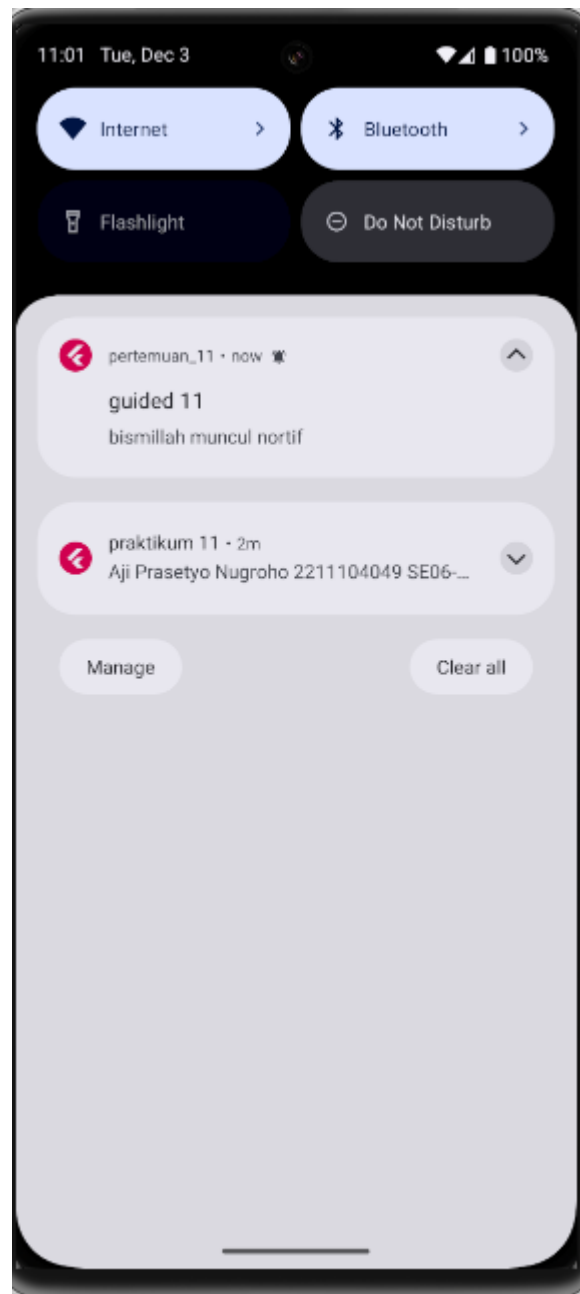
String? token;
Future<void> _firebaseMessagingBackgroundHandler(RemoteMessage message) async {
  await Firebase.initializeApp();
  print('Handling a background message: ${message.messageId}');
}



const AndroidNotificationChannel channel = AndroidNotificationChannel(
  'high_importance_channel', // ID Channel
  'High Importance Notifications', // Nama Channel
  description:
    'This channel is used for important notifications.', // Deskripsi Channel
  importance: Importance.high, // Prioritas
);

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: MyNotificationScreen(),
    );
  }
}
```

Output :



Campaign	Start	End	Status	Target	Last Updated	Sends / Impressions	Clicks / Opens
 guided 11 bismillah muncul nortif	Dec 3, 2024 11:01:03 PM	-	Active		Dec 3, 2024	<1000	0%

Deskripsi Program

Program di atas adalah sebuah aplikasi Flutter yang mengintegrasikan Firebase Cloud Messaging (FCM) untuk menerima notifikasi. Pada initState, aplikasi menginisialisasi notifikasi lokal menggunakan FlutterLocalNotificationsPlugin dengan pengaturan untuk Android. Ketika aplikasi menerima pesan saat aktif, FirebaseMessaging.onMessage menangani pesan dan menampilkan notifikasi lokal menggunakan FlutterLocalNotificationsPlugin.show(). Jika aplikasi dibuka dari notifikasi, FirebaseMessaging.onMessageOpenedApp menangani dan menampilkan dialog dengan konten notifikasi. Selain itu, aplikasi juga mengambil token FCM perangkat menggunakan getToken() dan menampilkannya di log. Aplikasi ini memiliki tampilan dasar dengan AppBar dan teks yang menunjukkan bahwa halaman ini digunakan untuk menerima notifikasi.

B. Unguided

Modifikasi Guided diatas bisa menampilkan Nama, Nim, Kelas, dan Prodi kalian ke dalam Notifikasi Flutter Cloud Messaging dan landing page notifikasinya.

Source Code :

a. My_notification_screen.dart

Source code :

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

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

  @override
  State<MyNotificationScreen> createState() => _MyNotificationScreenState();
}

class _MyNotificationScreenState extends State<MyNotificationScreen> {
  String nama = '';
  String nim = '';
  String kelas = '';
  String prodi = '';

  @override
  void initState() {
    super.initState();
    var initializationSettingsAndroid =
      const AndroidInitializationSettings('@mipmap/ic_launcher');
    var initializationSettings =
      InitializationSettings(android: initializationSettingsAndroid);
    FlutterLocalNotificationsPlugin().initialize(initializationSettings);

    FirebaseMessaging.onMessage.listen((RemoteMessage message) {
      RemoteNotification? notification = message.notification;
      AndroidNotification? android = message.notification?.android;

      if (message.data.isNotEmpty) {
        nama = message.data['nama'] ?? '';
        nim = message.data['nim'] ?? '';
        kelas = message.data['kelas'] ?? '';
        prodi = message.data['prodi'] ?? '';
      }

      if (notification != null && android != null) {
        FlutterLocalNotificationsPlugin().show(
          notification.hashCode,
          notification.title,
          notification.body,
          const NotificationDetails(
            android: AndroidNotificationDetails(
              'default_channel_id',
              'Default Channel',
              channelDescription: 'Channel for default notifications',
              color: Colors.blue,
              icon: "@mipmap/ic_launcher",
            ),
          ),
        );
      }
    });

    FirebaseMessaging.onMessageOpenedApp.listen((RemoteMessage message) {
      RemoteNotification? notification = message.notification;
      AndroidNotification? android = message.notification?.android;

      if (message.data.isNotEmpty) {
        nama = message.data['nama'] ?? '';
        nim = message.data['nim'] ?? '';
        kelas = message.data['kelas'] ?? '';
        prodi = message.data['prodi'] ?? '';
      }

      if (notification != null && android != null) {
        showDialog(
          context: context,
          builder: (_) {
            return AlertDialog(
              title: Text(notification.title ?? ''),
              content: SingleChildScrollView(
                child: Column(
                  crossAxisAlignment: CrossAxisAlignment.start,
                  children: [
                    Text('Nama: $nama'),
                    Text('NIM: $nim'),
                    Text('Kelas: $kelas'),
                    Text('Prodi: $prodi'),
                  ],
                ),
              ),
            );
          },
        );
      }
    });
  }

  getToken();

  void getToken() async {
    String? token = await FirebaseMessaging.instance.getToken();
    print('FCM Token: $token');
  }

  @override
  Widget build(BuildContext context) {
    return Scaffold(
      appBar: AppBar(
        title: const Text('My Notification Screen'),
        backgroundColor: Colors.amber,
      ),
      body: const Center(
        child: Text('Halaman untuk menerima notifikasi'),
      ),
    );
  }
}
```

b. main.dart

Source code :

```
import 'package:firebase_core/firebase_core.dart';
import 'package:firebase_messaging/firebase_messaging.dart';
import 'package:flutter/material.dart';
import 'package:flutter_local_notifications/flutter_local_notifications.dart';
import 'package:praktikum_11/my_notification_screen.dart';

void main() async {
  WidgetsFlutterBinding.ensureInitialized();
  await Firebase.initializeApp();
  FirebaseMessaging.onBackgroundMessage(_firebaseMessagingBackgroundHandler);
  await FlutterLocalNotificationsPlugin()
    .resolvePlatformSpecificImplementation<
      AndroidFlutterLocalNotificationsPlugin>()
    ?.createNotificationChannel(channel);
  await FirebaseMessaging.instance.setForegroundNotificationPresentationOptions(
    alert: true,
    badge: true,
    sound: true,
  );
  runApp(const MyApp());
}

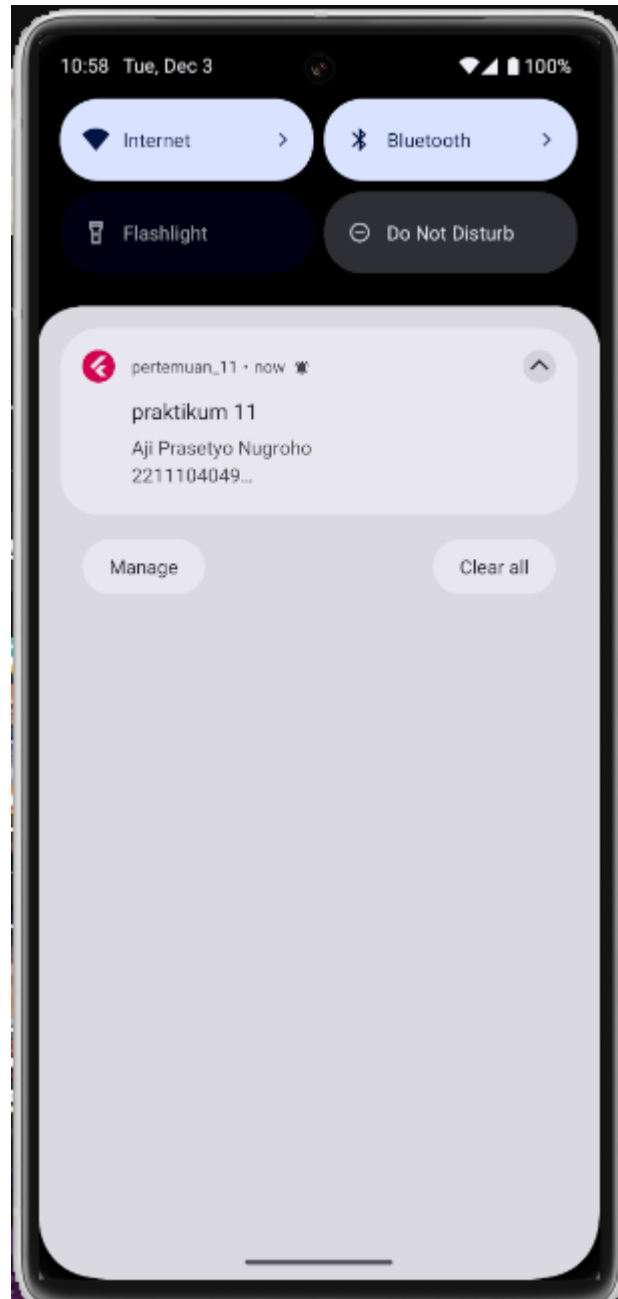
String? token;
Future<void> _firebaseMessagingBackgroundHandler(RemoteMessage message) async {
  await Firebase.initializeApp();
  print('Handling a background message: ${message.messageId}');
}



const AndroidNotificationChannel channel = AndroidNotificationChannel(
  'high_importance_channel', // ID Channel
  'High Importance Notifications', // Nama Channel
  description:
    'This channel is used for important notifications.', // Deskripsi Channel
  importance: Importance.high, // Prioritas
);

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: MyNotificationScreen(),
    );
  }
}
```

Output :



Campaign	Start	End	Status	Target	Last Updated ↓	Sends / Impressions	Clicks / Opens
 praktikum 11 Aji Prasetyo Nugroho 2211104049 SE06-02 RPL	Dec 3, 2024 10:57:40 PM	-	Active		Dec 3, 2024	<1000	0%

Penjelasan Program

Program ini adalah aplikasi Flutter yang menggunakan Firebase Cloud Messaging (FCM) untuk menerima notifikasi dan menampilkan data terkait pengguna (Nama, NIM, Kelas, Prodi) yang diterima dalam pesan. Ketika aplikasi menerima notifikasi, data tersebut akan diambil dari payload pesan FCM yang diterima dalam bentuk `message.data`. Data ini kemudian ditampilkan dalam sebuah notifikasi lokal menggunakan `flutter_local_notifications` dan dalam sebuah dialog saat aplikasi dibuka dari notifikasi. Token FCM perangkat juga diambil dan dicetak ke konsol untuk kebutuhan pengiriman notifikasi ke perangkat tersebut. Aplikasi ini mendengarkan pesan yang diterima baik saat aplikasi aktif maupun ketika dibuka melalui notifikasi, dan menampilkan informasi pengguna yang relevan sesuai dengan data yang dikirim dalam pesan.