LAPORAN GUIDED & UNGUIDED

PEMROGRAMAN PERANGKAT BERGERAK

MODUL X

DATA STORAGE (BAGIAN I)

Disusun Oleh :

Kholifahdina / 2211104004

SE-06-01

Asisten Praktikum :

Ayu Susilowati

Noviana Rizki Anisa Putri

Dosen Pengampu :

Yudha Islami Sulistya, S.Kom., M.Cs.

PROGRAM STUDI S1 REKAYASA PERANGKAT LUNAK

FAKULTAS INFORMATIKA

TELKOM UNIVERSITY PURWOKERTO

2024

GUIDED

Souce Code main.dart:

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

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

class MyApp extends StatelessWidget {
  @override
  Widget build(BuildContext context) {
    return MaterialApp(
      debugShowCheckedModeBanner: false, // Menghilangkan banner debug
      title: 'SQLite CRUD Example',
      theme: ThemeData(
        primarySwatch: Colors.blue,
      ),
      home: MyDbView(), // Menampilkan halaman utama (MyDbView)
    );
  }
}
```

Souce Code db_helper.dart:

```
import 'package:sqflite/sqflite.dart';
import 'package:path/path.dart';

class DatabaseHelper {
  static final DatabaseHelper _instance = DatabaseHelper._internal();
  static Database? _database;

  factory DatabaseHelper() {
    return _instance;
  }

  DatabaseHelper._internal();

  Future<Database> get database async {
    if (_database != null) return _database!;
    _database = await _initDatabase();
    return _database!;
```

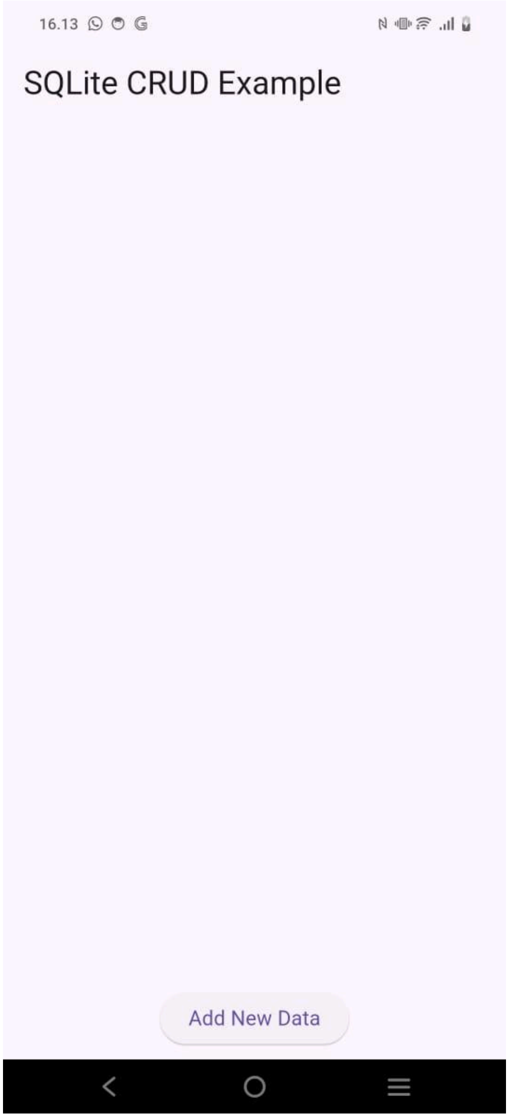
```
 }

 Future<Database> _initDatabase() async {
  String path = join(await getDatabasesPath(), 'my_prakdatabase.db');
  return await openDatabase(
   path,
   version: 1,
   onCreate: _onCreate,
  );
 }

 Future<void> _onCreate(Database db, int version) async {
  await db.execute('''
   CREATE TABLE my_table(
    id INTEGER PRIMARY KEY AUTOINCREMENT NOT NULL,
    title TEXT,
    description TEXT,
    createdAt TIMESTAMP NOT NULL DEFAULT
CURRENT_TIMESTAMP
   )
  ''');
 }

 Future<int> insert(Map<String, dynamic> row) async {
  Database db = await database;
  return await db.insert('my_table', row);
 }

 Future<List<Map<String, dynamic>>> queryAllRows() async {
  Database db = await database;
  return await db.query('my_table');
 }

 Future<int> update(Map<String, dynamic> row) async {
  Database db = await database;
  int id = row['id'];
  return await db.update('my_table', row, where: 'id = ?', whereArgs: [id]);
 }

 Future<int> delete(int id) async {
  Database db = await database;
  return await db.delete('my_table', where: 'id = ?', whereArgs: [id]);
 }
}
```

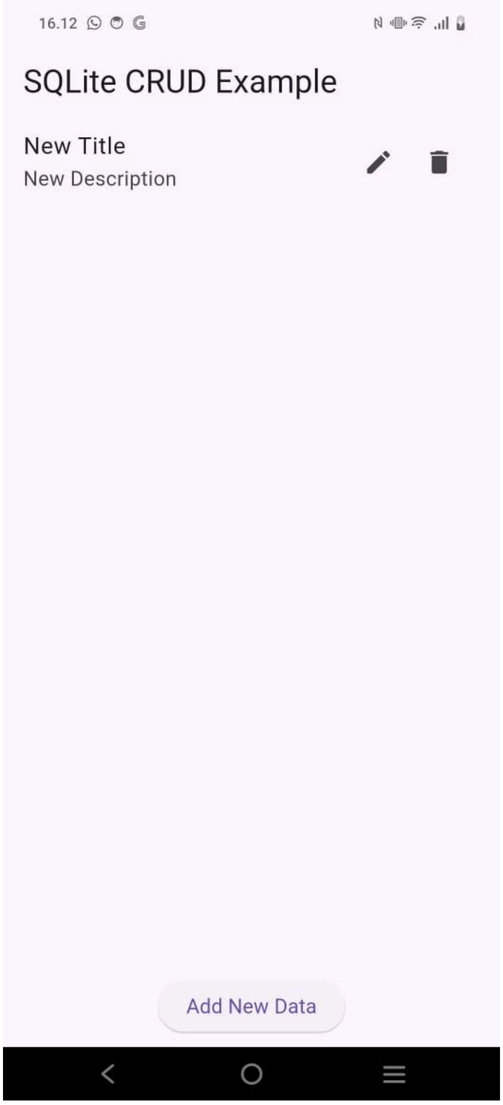
Souce Code my_db_view.dart

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

class MyDbView extends StatefulWidget {
  @override
  _MyDbViewState createState() => _MyDbViewState();
}

class _MyDbViewState extends State<MyDbView> {
  final dbHelper = DatabaseHelper();
  List<Map<String, dynamic>> data = [];

  @override
  void initState() {
    super.initState();
    _fetchData();
  }

  void _fetchData() async {
    final allRows = await dbHelper.queryAllRows();
    setState(() {
      data = allRows;
    });
  }

  void _insertData(String title, String description) async {
    await dbHelper.insert({'title': title, 'description': description});
    _fetchData();
  }

  void _updateData(int id, String title, String description) async {
    await dbHelper
        .update({'id': id, 'title': title, 'description': description});
    _fetchData();
  }

  void _deleteData(int id) async {
    await dbHelper.delete(id);
    _fetchData();
  }
```

```
@override
Widget build(BuildContext context) {
  return Scaffold(
    appBar: AppBar(
      title: Text('SQLite CRUD Example'),
    ),
    body: Column(
      children: [
        Expanded(
          child: ListView.builder(
            itemCount: data.length,
            itemBuilder: (context, index) {
              return ListTile(
                title: Text(data[index]['title']),
                subtitle: Text(data[index]['description']),
                trailing: Row(
                  mainAxisSize: MainAxisSize.min,
                  children: [
                    IconButton(
                      icon: Icon(Icons.edit),
                      onPressed: () {
                        _updateData(data[index]['id'], 'Updated Title',
                            'Updated Description');
                      },
                    ),
                    IconButton(
                      icon: Icon(Icons.delete),
                      onPressed: () {
                        _deleteData(data[index]['id']);
                      },
                    ),
                  ],
                ),
              );
            },
          ),
        ),
        Padding(
          padding: const EdgeInsets.all(8.0),
          child: ElevatedButton(
            onPressed: () {
              _insertData('New Title', 'New Description');
            },
            child: Text('Add New Data'),
          ),
          ),
        ],
      ),
    );
  }
}
```

Output Programs GUIDED:





UNGUIDED

Jawab:

Souce Code main.dart:

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

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

class MyApp extends StatelessWidget {
  @override
  Widget build(BuildContext context) {
    return MaterialApp(
      debugShowCheckedModeBanner: false,
      home: HomePage(),
    );
  }
}
```

Souce Code db_helper.dart:

```
import 'package:sqflite/sqflite.dart';
import 'package:path/path.dart';

class DatabaseHelper {
  // Singleton Instance
  static final DatabaseHelper _instance = DatabaseHelper._internal();
  factory DatabaseHelper() => _instance;
  DatabaseHelper._internal();

  static Database? _database;

  // Getter untuk database
  Future<Database> get database async {
    if (_database != null) return _database!;
    _database = await _initDatabase();
    return _database!;
  }
```

```
// Inisialisasi database
Future<Database> _initDatabase() async {
  String path = join(await getDatabasesPath(), 'biodata.db'); // Path database
  print('Database Path: $path'); // Debugging database path
  return await openDatabase(
    path,
    version: 1,
    onCreate: _onCreate, // Membuat tabel saat pertama kali database dibuat
  );
}

// Membuat tabel SQLite
Future<void> _onCreate(Database db, int version) async {
  await db.execute('''
    CREATE TABLE biodata (
      id INTEGER PRIMARY KEY AUTOINCREMENT,
      nama TEXT,
      nim TEXT,
      alamat TEXT,
      hobi TEXT
    )
  ''');
  print('Tabel biodata berhasil dibuat');
}

// Fungsi CRUD
// Insert data
Future<int> insert(Map<String, dynamic> row) async {
  Database db = await database;
  print('Menyimpan data: $row');
  return await db.insert('biodata', row);
}

// Query semua data
Future<List<Map<String, dynamic>>> queryAllRows() async {
  Database db = await database;
  List<Map<String, dynamic>> result = await db.query('biodata');
  print('Data yang dimuat: $result'); // Debugging loaded data
  return result;
}

// Update data
Future<int> update(Map<String, dynamic> data) async {
  Database db = await database;
  int id = data['id'];
```

```
    return await db.update('biodata', data, where: 'id = ?', whereArgs: [id]);
  }

  // Delete data
  Future<int> delete(int id) async {
    Database db = await database;
    return await db.delete('biodata', where: 'id = ?', whereArgs: [id]);
  }
}
```

Souce Code input.dart:

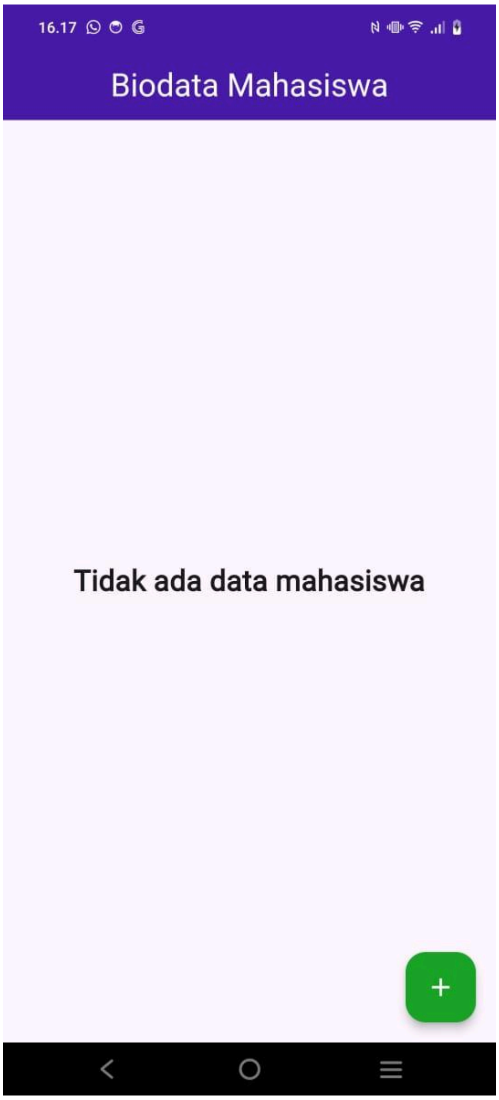
```
import 'package:flutter/material.dart';
import 'db_helper.dart';

class InputPage extends StatefulWidget {
  @override
  _InputPageState createState() => _InputPageState();
}

class _InputPageState extends State<InputPage> {
  final _formKey = GlobalKey<FormState>();
  final _namaController = TextEditingController();
  final _nimController = TextEditingController();
  final _alamatController = TextEditingController();
  final _hobiController = TextEditingController();

  // Fungsi untuk menyimpan data
  void _saveData() async {
    if (_formKey.currentState!.validate()) {
      final dbHelper = DatabaseHelper();
      int result = await dbHelper.insert({
        'nama': _namaController.text,
        'nim': _nimController.text,
        'alamat': _alamatController.text,
        'hobi': _hobiController.text,
      });
      print('Data berhasil disimpan dengan ID: $result'); // Debug log
      Navigator.pop(context); // Kembali ke halaman utama
    }
  }

  @override
```

```
Widget build(BuildContext context) {
  return Scaffold(
    appBar: AppBar(
      backgroundColor: const Color.fromARGB(255, 43, 65, 145),
      title: Text('Tambah Biodata'),
      centerTitle: true,
    ),
    body: Padding(
      padding: EdgeInsets.all(20.0),
      child: Form(
        key: _formKey,
        child: Column(
          children: [
            TextFormField(
              controller: _namaController,
              decoration: InputDecoration(
                labelText: 'Nama',
                labelStyle: TextStyle(color: Colors.orange),
                border: OutlineInputBorder(
                  borderRadius: BorderRadius.circular(12),
                  borderSide: BorderSide(color: Colors.orange),
                ),
              ),
              validator: (value) =>
                  value!.isEmpty ? 'Nama tidak boleh kosong' : null,
            ),
            SizedBox(height: 15),
            TextFormField(
              controller: _nimController,
              decoration: InputDecoration(
                labelText: 'NIM',
                labelStyle: TextStyle(color: Colors.orange),
                border: OutlineInputBorder(
                  borderRadius: BorderRadius.circular(12),
                  borderSide: BorderSide(color: Colors.orange),
                ),
              ),
              validator: (value) =>
                  value!.isEmpty ? 'NIM tidak boleh kosong' : null,
            ),
            SizedBox(height: 15),
            TextFormField(
              controller: _alamatController,
              decoration: InputDecoration(
                labelText: 'Alamat',
                  labelStyle: TextStyle(color: Colors.orange),
                  border: OutlineInputBorder(
                    borderRadius: BorderRadius.circular(12),
                    borderSide: BorderSide(color: Colors.orange),
                  ),
                ),
                validator: (value) =>
                    value!.isEmpty ? 'Alamat tidak boleh kosong' : null,
              ),
              SizedBox(height: 15),
              TextFormField(
                controller: _hobiController,
                decoration: InputDecoration(
                  labelText: 'Hobi',
                  labelStyle: TextStyle(color: Colors.orange),
                  border: OutlineInputBorder(
                    borderRadius: BorderRadius.circular(12),
                    borderSide: BorderSide(color: Colors.orange),
                  ),
                ),
                validator: (value) =>
                    value!.isEmpty ? 'Hobi tidak boleh kosong' : null,
              ),
              SizedBox(height: 20),
              ElevatedButton(
                onPressed: _saveData,
                style: ElevatedButton.styleFrom(
                  backgroundColor:
                      const Color.fromARGB(255, 29, 154, 54), // Button color
                  shape: RoundedRectangleBorder(
                    borderRadius: BorderRadius.circular(12),
                  ),
                ),
                child: Text('Simpan', style: TextStyle(fontSize: 16)),
              ),
            ],
          ),
        ),
      ),
    );
  }
}
```

Souce Code home.dart:

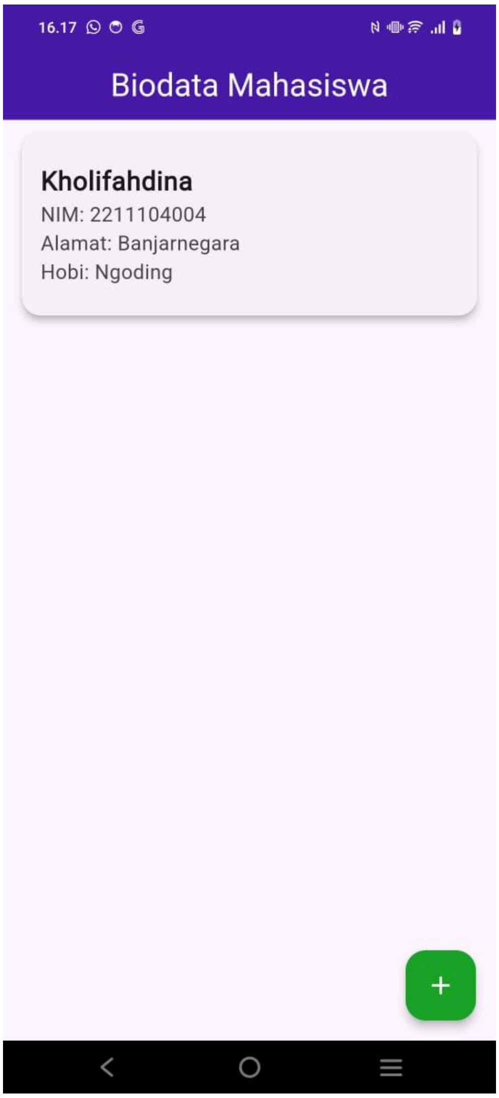
```
import 'package:flutter/material.dart';
import 'db_helper.dart';
import 'input_page.dart';

class HomePage extends StatefulWidget {
  @override
  _HomePageState createState() => _HomePageState();
}

class _HomePageState extends State<HomePage> {
  List<Map<String, dynamic>> _biodata = [];

  // Fungsi untuk memuat data dari database
  void _loadData() async {
    final data = await DatabaseHelper().queryAllRows();
    print('Data yang dimuat: $data'); // Debug log
    setState(() {
      _biodata = data;
    });
  }

  @override
  void initState() {
    super.initState();
    _loadData(); // Memuat data ketika halaman pertama kali dibuka
  }

  @override
  Widget build(BuildContext context) {
    return Scaffold(
      appBar: AppBar(
        backgroundColor: const Color.fromARGB(255, 72, 28, 168),
        title: Text('Biodata Mahasiswa', style: TextStyle(color: Colors.white)),
        centerTitle: true,
      ),
      body: _biodata.isEmpty
          ? Center(
              child: Text('Tidak ada data mahasiswa',
                  style: TextStyle(fontSize: 20, fontWeight: FontWeight.bold)))
          : ListView.builder(
              itemCount: _biodata.length,
              itemBuilder: (context, index) {
                final item = _biodata[index];
                return Card(
                  margin: EdgeInsets.symmetric(vertical: 10, horizontal: 15),
         shape: RoundedRectangleBorder(
           borderRadius: BorderRadius.circular(15)),
         elevation: 5,
         child: ListTile(
          contentPadding: EdgeInsets.all(15),
          title: Text(item['nama'],
            style: TextStyle(
              fontSize: 18, fontWeight: FontWeight.bold)),
          subtitle: Column(
           crossAxisAlignment: CrossAxisAlignment.start,
           children: [
            Text('NIM: ${item['nim']}',
              style: TextStyle(fontSize: 14)),
            Text('Alamat: ${item['alamat']}',
              style: TextStyle(fontSize: 14)),
            Text('Hobi: ${item['hobi']}',
              style: TextStyle(fontSize: 14)),
           ],
          ),
         ),
        );
       },
      ),
   floatingActionButton: FloatingActionButton(
    onPressed: () async {
     await Navigator.push(
      context,
      MaterialPageRoute(builder: (context) => InputPage()),
     );
     _loadData(); // Memuat ulang data setelah menambah data
    },
    backgroundColor: const Color.fromRGBO(26, 164, 40, 1),
    child: Icon(Icons.add, color: Colors.white),
   ),
  );
 }
}
```

Output Programs UNGUIDED



Biodata Mahasiswa

Tidak ada data mahasiswa



Biodata Mahasiswa

Kholifahdina
NIM: 2211104004
Alamat: Banjarnegara
Hobi: Ngoding

Deskripsi Program

Aplikasi ini adalah program Flutter yang menggunakan SQLite untuk menyimpan dan mengelola biodata mahasiswa secara offline. Terdapat dua fitur utama: halaman utama (HomePage) untuk menampilkan daftar biodata mahasiswa yang sudah tersimpan dan halaman input (InputPage) untuk menambahkan data baru.

Pada halaman utama, daftar biodata ditampilkan dalam ListView yang menggunakan widget Card untuk memberikan desain modern dengan efek shadow dan sudut membulat. Pengguna dapat menambah data melalui tombol floating action button yang mengarahkan ke halaman input. Di halaman input, form yang tersedia memungkinkan pengguna mengisi informasi seperti nama, NIM, alamat, dan hobi. Data yang

dimasukkan akan disimpan ke SQLite, dan halaman utama akan diperbarui secara otomatis untuk menampilkan data terbaru.

Aplikasi ini dirancang agar mudah digunakan, dengan antarmuka yang sederhana namun estetis. Desainnya mencakup elemen yang mempermudah navigasi, seperti tombol besar, form yang jelas, dan tampilan data yang terorganisasi rapi. SQLite digunakan sebagai solusi penyimpanan lokal untuk memastikan data dapat diakses kapan saja tanpa koneksi internet.