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Construct Your First Flutter App using Dart

Software Engineering and Multiplatform App Development (MSCS-533-B01)

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**ASSIGNMENT 1:**

**The dart source code:**

import 'package:flutter/material.dart';

void main() {

  runApp(const MyApp());

}

class MyApp extends StatelessWidget {

  const MyApp({super.key});

  @override

  Widget build(BuildContext context) {

    return MaterialApp(

      title: 'Measure Conversion App',

      theme: ThemeData(

        colorScheme: ColorScheme.fromSeed(seedColor: Colors.deepPurple),

        useMaterial3: true,

      ),

      home: const MyHomePage(title: 'Measures Converter'),

    );

  }

}

class MyHomePage extends StatefulWidget {

  const MyHomePage({super.key, required this.title});

  final String title;

  @override

  State<MyHomePage> createState() => \_MyHomePageState();

}

class \_MyHomePageState extends State<MyHomePage> {

  final TextEditingController \_controller = TextEditingController();

  String \_selectedFromUnit = 'Meters';

  String \_selectedToUnit = 'Kilometers';

  String \_lastFromUnit = '';

  String \_lastToUnit = '';

  double \_convertedValue = 0.0;

  double input\_value= 0.0;

  final List<String> \_units = ['Meters', 'Kilometers', 'Feet', 'Miles'];

  void \_convert() {

    double inputValue = double.tryParse(\_controller.text) ?? 0;

    double conversionRate =

        \_getConversionRate(\_selectedFromUnit, \_selectedToUnit);

    setState(() {

      \_convertedValue = inputValue \* conversionRate;

      input\_value=inputValue;

      \_lastFromUnit = \_selectedFromUnit;

      \_lastToUnit = \_selectedToUnit;

    });

  }

  double \_getConversionRate(String from, String to) {

    if (from == to) return 1.0;

    if (from == 'Meters' && to == 'Kilometers') return 0.001;

    if (from == 'Kilometers' && to == 'Meters') return 1000;

    if (from == 'Meters' && to == 'Feet') return 3.28084;

    if (from == 'Feet' && to == 'Meters') return 0.3048;

    if (from == 'Miles' && to == 'Kilometers') return 1.60934;

    if (from == 'Kilometers' && to == 'Miles') return 0.621371;

    return 1.0; // default conversion for unsupported pairs

  }

  @override

  Widget build(BuildContext context) {

    return Scaffold(

      appBar: AppBar(

        title: Center(child: Text(widget.title)),

        backgroundColor: Colors.blue,

        foregroundColor: Colors.white,

      ),

      body: Padding(

        padding: const EdgeInsets.all(16.0),

        child: Column(

          crossAxisAlignment: CrossAxisAlignment.center,

          children: [

            const Text("Value"),

            TextField(

              controller: \_controller,

              keyboardType: TextInputType.number,

              decoration: const InputDecoration(

                hintText: 'Enter value to convert',

              ),

            ),

            const SizedBox(height: 16.0),

            const Text("From"),

            DropdownButton<String>(

              value: \_selectedFromUnit,

              onChanged: (newValue) {

                setState(() {

                  \_selectedFromUnit = newValue!;

                });

              },

              items: \_units.map<DropdownMenuItem<String>>((String value) {

                return DropdownMenuItem<String>(

                  value: value,

                  child: Text(value),

                );

              }).toList(),

            ),

            const SizedBox(height: 16.0),

            const Text("To"),

            DropdownButton<String>(

              value: \_selectedToUnit,

              onChanged: (newValue) {

                setState(() {

                  \_selectedToUnit = newValue!;

                });

              },

              items: \_units.map<DropdownMenuItem<String>>((String value) {

                return DropdownMenuItem<String>(

                  value: value,

                  child: Text(value),

                );

              }).toList(),

            ),

            const SizedBox(height: 20.0),

            ElevatedButton(

              onPressed: \_convert,

              child: const Text("Convert"),

            ),

            const SizedBox(height: 20.0),

            Text(

              "$input\_value $\_lastFromUnit are $\_convertedValue $\_lastToUnit",

              style:

                  const TextStyle(fontSize: 18.0, fontWeight: FontWeight.bold),

              textAlign: TextAlign.center,

            ),

          ],

        ),

      ),

    );

  }

}

**The manifest file:**

<manifest xmlns:android="http://schemas.android.com/apk/res/android">

    <uses-permission android:name="android.permission.INTERNET"/>

</manifest>

**The application output:**

