Ex. No. : 01D **Date: 5.02.2026**

Register No.: 231701034 **Name: Nishanth V P**

Temperature Convertor

Aim:

Create an app that converts temperatures between Celsius and Fahrenheit. Users can enter a temperature in an EditText, press a Button to perform the conversion, and see the result in a TextView.

Procedure:

1. Create a New Android Project
    - Open Android Studio.
    - Select New Project → Empty Activity.
    - Enter the application name as Experiment4_MADD_46.
    - Choose Kotlin as the programming language.
    - Click Finish.
2. Configure AndroidManifest.xml
    - Open AndroidManifest.xml.
    - Declare MainActivity inside the <application> tag.
    - Add MAIN action and LAUNCHER category so that the app starts from MainActivity.
    - Set the application theme.
3. Design the User Interface
    - Open activity_main.xml.
    - Use a LinearLayout with vertical orientation and padding.
    - Add an EditText to enter the temperature value.
    - Add a RadioGroup with two RadioButtons:
        - To Fahrenheit
        - To Celsius
    - Set one RadioButton as default selected.
    - Add a Convert button.

- Add a TextView to display the converted result.

4. Implement the Kotlin Code
   - Open MainActivity.kt.
   - Load the layout using setContentView().
   - Access all UI components using findViewById().
   - Set an OnClickListener for the Convert button.
   - Validate input to ensure temperature value is entered.
   - Perform conversion based on selected RadioButton:
     - Celsius to Fahrenheit:
       $$F = (C \times 9/5) + 32$$
     - Fahrenheit to Celsius:
       $$C = (F - 32) \times 5/9$$
   - Display the converted temperature in the TextView.
5. Run the Application
   - Connect an Android emulator or physical device.
   - Click Run ▶ in Android Studio.
   - Launch the application.
6. Verify the Output
   - Enter a temperature value.
   - Select the required conversion type.
   - Click Convert.
   - The converted temperature is displayed on the screen.
   - If input is empty, an error message is shown.

AndroidManifest.xml

```
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
   xmlns:tools="http://schemas.android.com/tools">

   <application
      android:allowBackup="true"
      android:dataExtractionRules="@xml/data_extraction_rules"
      android:fullBackupContent="@xml/backup_rules"
      android:icon="@mipmap/ic_launcher"
      android:label="@string/app_name"
      android:roundIcon="@mipmap/ic_launcher_round"
      android:supportsRtl="true"
      android:theme="@style/Theme.Experiment4_MADD_46">
      <activity
         android:name=".MainActivity"
         android:exported="true">
         <intent-filter>
            <action android:name="android.intent.action.MAIN" />

            <category android:name="android.intent.category.LAUNCHER" />
         </intent-filter>
      </activity>
   </application>

</manifest>
```

Activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
   android:layout_width="match_parent"
   android:layout_height="match_parent"
   android:orientation="vertical"
   android:padding="16dp">

   <EditText
      android:id="@+id/etTemp"
```

```
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:hint="Enter temperature"
    android:inputType="numberDecimal"/>

<RadioGroup
    android:id="@+id/rgConversion"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:orientation="horizontal"
    android:layout_marginTop="16dp">

    <RadioButton
        android:id="@+id/rbCtoF"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="To Fahrenheit"
        android:checked="true"/>

    <RadioButton
        android:id="@+id/rbFtoC"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="To Celsius"/>
</RadioGroup>

<Button
    android:id="@+id/btnConvert"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Convert"
    android:layout_marginTop="16dp"/>

<TextView
    android:id="@+id/tvResult"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Result: "
    android:textSize="18sp"
```

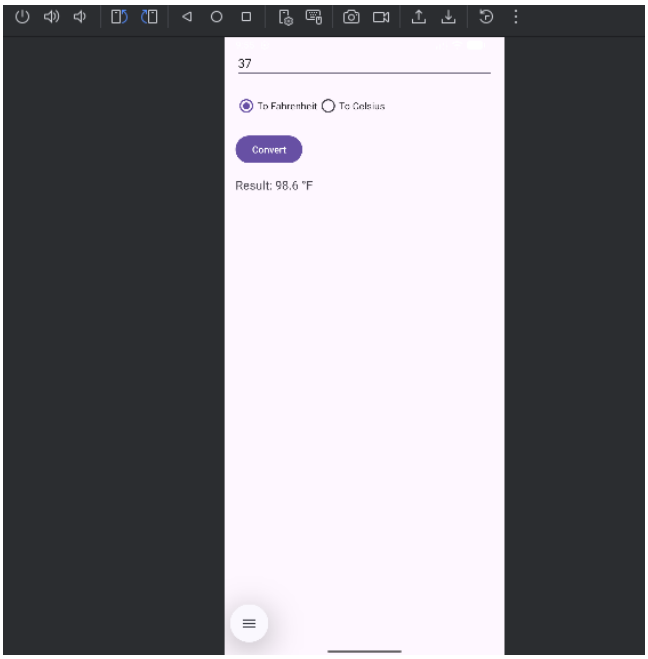
```
        android:layout_marginTop="16dp"/>
</LinearLayout>
```

MainActivity.kt

```
package com.example.experiment_4_madd_46

import androidx.appcompat.app.AppCompatActivity
import android.os.Bundle
import android.widget.*

class MainActivity : AppCompatActivity() {
    override fun onCreate(savedInstanceState: Bundle?) {
        super.onCreate(savedInstanceState)
        setContentView(R.layout.activity_main)

        val etTemp = findViewById<EditText>(R.id.etTemp)
        val rbCtoF = findViewById<RadioButton>(R.id.rbCtoF)
        val rbFtoC = findViewById<RadioButton>(R.id.rbFtoC)
        val btnConvert = findViewById<Button>(R.id.btnConvert)
        val tvResult = findViewById<TextView>(R.id.tvResult)

        btnConvert.setOnClickListener {
            val tempText = etTemp.text.toString()

            if (tempText.isEmpty()) {
                tvResult.text = "Please enter a temperature"
            } else {
                val temp = tempText.toDouble()

                if (rbCtoF.isChecked) {
                    val result = (temp * 9 / 5) + 32
                    tvResult.text = "Result: $result °F"
                } else if (rbFtoC.isChecked) {
                    val result = (temp - 32) * 5 / 9
                    tvResult.text = "Result: $result °C"
                }
            }
        }
```

```
    }
}
```

Output:



Result:

The Android application was successfully developed to convert temperature values between Celsius and Fahrenheit using RadioButtons and Button click events.