Ex. No.	:	01D		Date	: 28 Jan 2026
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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** in Android Studio:
   - Open Android Studio → Select "New Project" → Choose "Empty Activity" → Set Project Name and Package Name → Finish.

2. **Design the layout**:
   - Open activity_main.xml.
   - Use a LinearLayout with vertical orientation and padding.
   - Add an EditText to input the temperature with inputType="numberDecimal".
   - Add a RadioGroup with two RadioButtons:
     - **To Fahrenheit** (default checked)
     - **To Celsius**
   - Add a Button labeled **Convert**.
   - Add a TextView to display the conversion result.

3. **Configure AndroidManifest.xml:**
   - Ensure MainActivity is declared with MAIN action and LAUNCHER category.
   - Set the app theme and other attributes.

4. **Write the MainActivity code**:
   - Get references to EditText, RadioButtons, Button, and TextView using findViewById.
   - Set a click listener on the **Convert** button.
   - On click:
     - Check if the input field is empty; display a message if it is.

- Convert the input to a number.
- If **To Fahrenheit** is selected, apply the formula:

  $F = C \times 9/5 + 32$
- If **To Celsius** is selected, apply the formula:

  $C = (F - 32) \times 5/9$
- Display the converted temperature in the TextView.

5. **Run the application:**
   - Enter a temperature value.
   - Select the conversion type (Celsius $\rightarrow$ Fahrenheit or Fahrenheit $\rightarrow$ Celsius).
   - Click **Convert** and observe the result displayed.

6. **Verify the result:**
   - Ensure the conversion formula is applied correctly and the result updates immediately.

AndroidManifest.xml

```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.TemperatureConverter">
        <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
<?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"
```

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```
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Result: "
        android:textSize="18sp"
        android:layout_marginTop="16dp"/>
  </LinearLayout>
```

MainActivity.kt

```kotlin
package com.example.temperatureconverter

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()) {
                // Just print in the result TextView
                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"
                }
            }
        }
    }
}
```
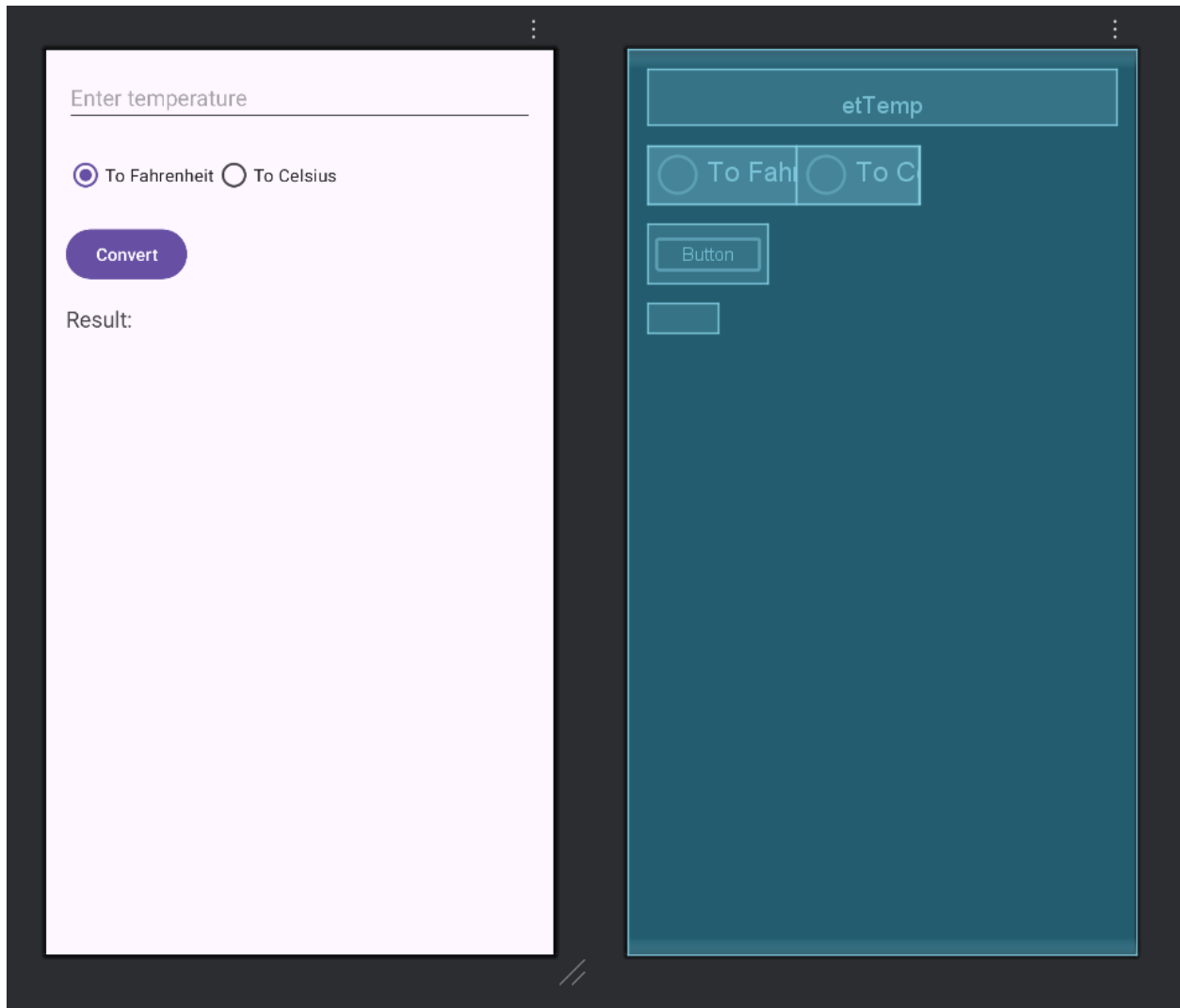
Output

Result:

The application successfully converts temperatures between Celsius and Fahrenheit. The result is displayed correctly in the TextView based on the selected conversion type.