

Ex. No. : 01C

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BMI Calculator

Aim:

Create an app that calculates the Body Mass Index (BMI) based on user input for weight and height in EditText fields. The result is displayed in a TextView after pressing a Button.

Procedure:

1. Create a New Android Project
 - Open Android Studio.
 - Click New Project → Empty Activity.
 - Enter the application name as Experiment3_MADD_46.
 - Select 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 to make it the startup activity.
 - Apply the required theme for the application.
3. Design the User Interface
 - Open activity_main.xml.
 - Use a LinearLayout with vertical orientation and padding.
 - Add two EditText fields:
 - One for Weight (kg)
 - One for Height (cm)
 - Set input type to numeric for both fields.
 - Add a Button labeled Calculate BMI.

- Add a TextView to display the BMI result and status.

4. Implement Kotlin Logic

- Open MainActivity.kt.
- Load the layout using setContentView().
- Access UI elements using findViewById().
- Set an OnClickListener for the Calculate BMI button.
- Validate user input to ensure fields are not empty.
- Convert height from centimeters to meters.
- Calculate BMI using the formula:

$$\text{BMI} = \frac{\text{Weight (kg)}}{\text{Height (m)}^2}$$

- Determine BMI category (Underweight, Normal, Overweight, Obese).
- Display the BMI value and category 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 weight and height values.
- Click Calculate BMI.
- The BMI value and health status are displayed on the screen.
- If inputs are 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.Experiment3_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="24dp">

    <EditText
        android:id="@+id/etWeight"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="Weight (kg)"
        android:inputType="numberDecimal"/>

    <EditText
        android:id="@+id/etHeight"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="Height (cm)"
        android:inputType="numberDecimal"
        android:layout_marginTop="12dp"/>

    <Button
        android:id="@+id/btnCalc"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Calculate BMI"
        android:layout_marginTop="16dp"/>

    <TextView
        android:id="@+id/tvResult"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:textSize="18sp"
        android:layout_marginTop="16dp"/>
</LinearLayout>
```

MainActivity.kt

```
package com.example.experiment_3_madd_46

import android.os.Bundle
import android.widget.Button
import android.widget.EditText
import android.widget.TextView
import androidx.appcompat.app.AppCompatActivity

class MainActivity : AppCompatActivity() {

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

        val etWeight = findViewById<EditText>(R.id.etWeight)
        val etHeight = findViewById<EditText>(R.id.etHeight)
        val tvResult = findViewById<TextView>(R.id.tvResult)
        val btnCalc = findViewById<Button>(R.id.btnCalc)

        btnCalc.setOnClickListener {
            if (etWeight.text.isEmpty() || etHeight.text.isEmpty()) {
                tvResult.text = "Please enter all values"
                return@setOnClickListener
            }

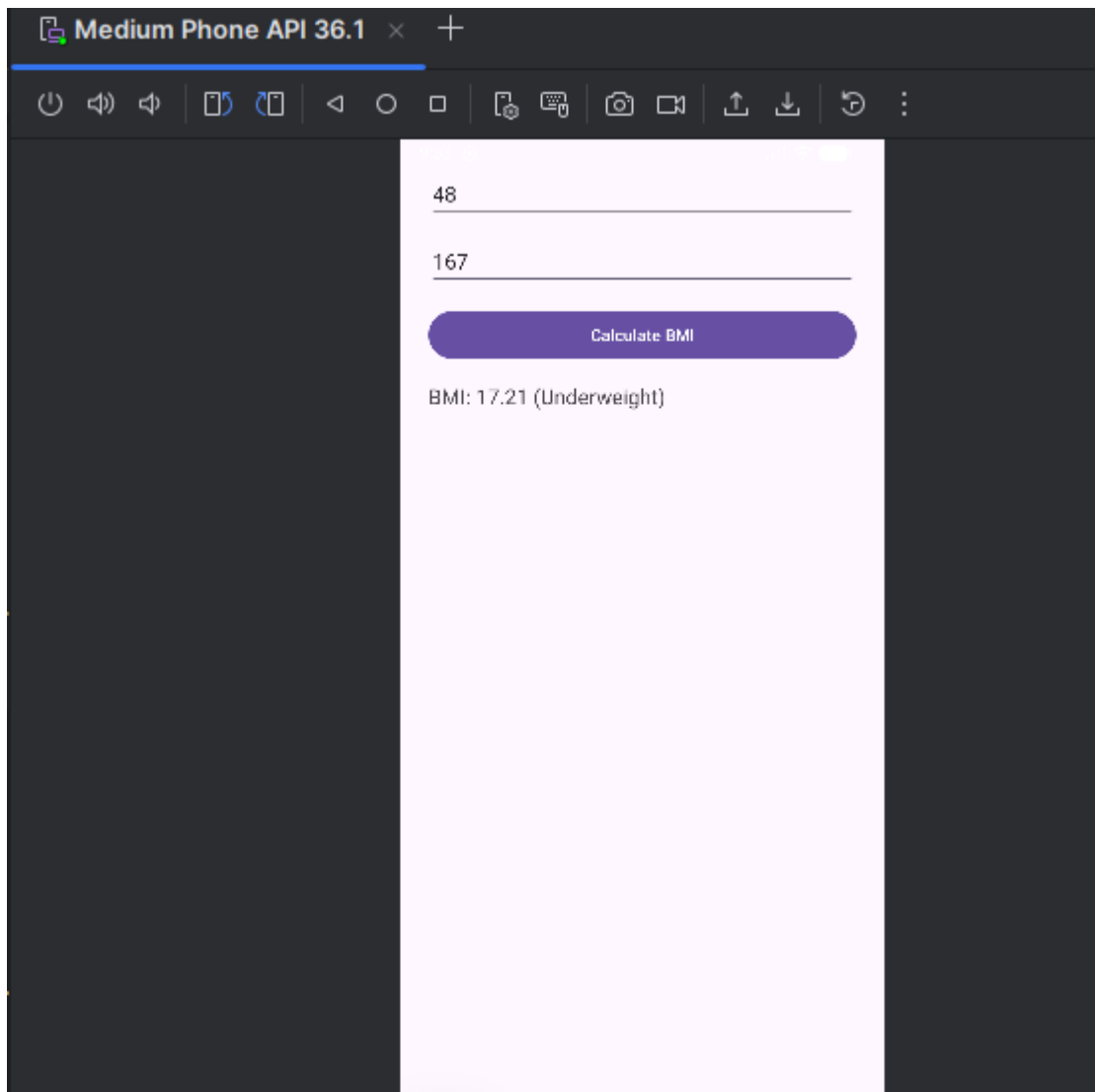
            val weight = etWeight.text.toString().toFloat()
            val heightCm = etHeight.text.toString().toFloat()
            val heightM = heightCm / 100

            val bmi = weight / (heightM * heightM)
            val status = when {
                bmi < 18.5 -> "Underweight"
                bmi < 25 -> "Normal"
                bmi < 30 -> "Overweight"
                else -> "Obese"
            }

            tvResult.text = "BMI: %.2f (%s)".format(bmi, status)
        }
    }
}
```

```
}  
}
```

Output:



Result:

The Android application was successfully developed to calculate Body Mass Index (BMI) and display the corresponding health status based on user input.