**Week 5 Project 4: CodeMath**

### Overview

In this project, you get to choose what you want to build! Put on your thinking cap! 🧢

The goal for this project is to create an app that **performs a calculation**. A calculation is anything that takes input, then gives output that changes based on the input.

Examples: (you can use these ideas if you want, or design your own!)

* tip calculator ("uhh... what's 15% of $59.64?")
* file size converter ("wait, how many bits are in a MB?")
* pizza size calculator ("is a large better than 2 mediums..?")
* how many legs calculator ("if the zoo has 3 insects, 6 big cats, and 5 birds, how many socks do I need to knit to keep all the animals warm?")

### Goals

By the end of this assignment you will be able to...

Create a simple utility app on your own!

Understand how to handle user interaction

Understand how to process user input

**Required Application Features:**

-At least one (1) user input”

- This can be any View that contains a listener:

* [Button](https://developer.android.com/develop/ui/views/components/button)
* [FloatingActionButton](https://guides.codepath.com/android/Floating-Action-Buttons)
* [ImageView](https://guides.codepath.com/android/Working-with-the-ImageView)
* etc.

-At least one (1) interactive View:

- This can be any View that contains a listener:

* [Button](https://developer.android.com/develop/ui/views/components/button)
* [FloatingActionButton](https://guides.codepath.com/android/Floating-Action-Buttons)
* [ImageView](https://guides.codepath.com/android/Working-with-the-ImageView)
* etc.

-At least one (1) output of a calculation based on the user input:

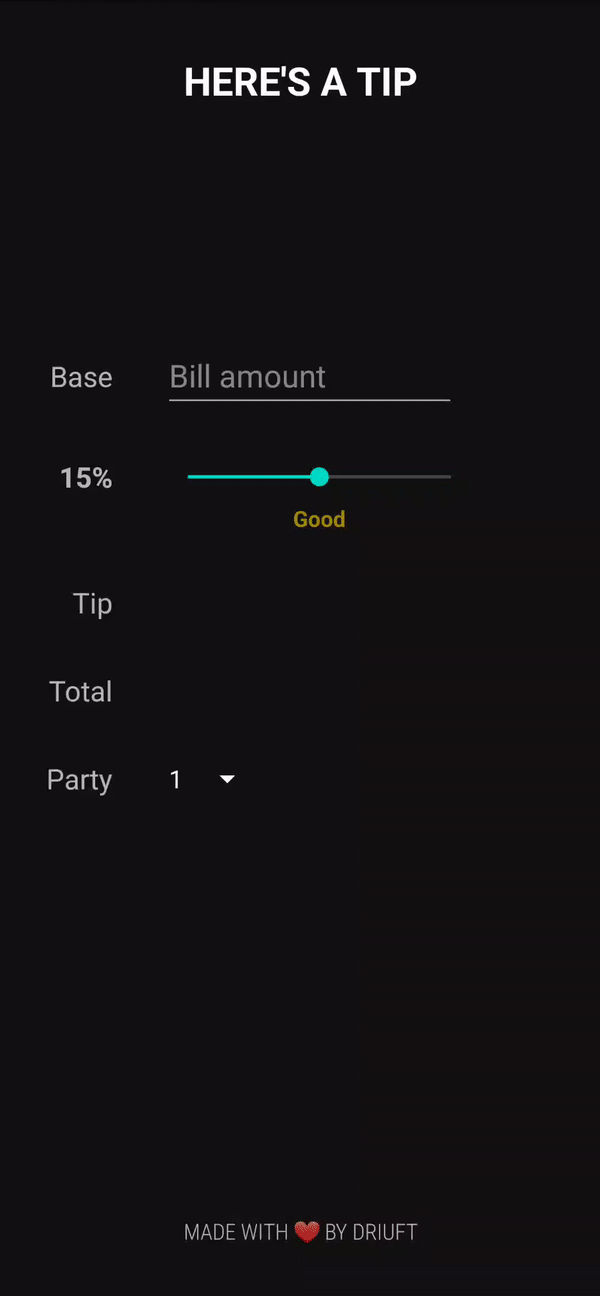
- Usually shown using a [TextView](https://guides.codepath.com/android/Working-with-the-TextView)

-Implement ViewBinding to reduce boilerplate code and increase efficiency

-Add at least one (1) additional functionality:

* Ex.: Including a number of people field in a tip calculator
* Ex.: Including an additional unit in a temperature converter

-List anything else that you added to improve the app!



package com.example.tipcalculator

import android.os.Bundle

import android.text.Editable

import android.text.TextWatcher

import android.widget.SeekBar

import androidx.appcompat.app.AppCompatActivity

import com.example.tipcalculator.databinding.ActivityMainBinding

import java.text.NumberFormat

import kotlin.math.ceil

class MainActivity : AppCompatActivity() {

private lateinit var binding: ActivityMainBinding

private var billAmount = 0.0

private var tipPercentage = 15

private var numberOfPeople = 1

private var roundUpTip = false

override fun onCreate(savedInstanceState: Bundle?) {

super.onCreate(savedInstanceState)

*// Initialize ViewBinding*

binding = ActivityMainBinding.inflate(layoutInflater)

setContentView(binding.root)

setupListeners()

updateCalculations()

}

private fun setupListeners() {

*// Bill amount input listener*

binding.editTextBillAmount.addTextChangedListener(object : TextWatcher {

override fun beforeTextChanged(s: CharSequence?, start: Int, count: Int, after: Int) {}

override fun onTextChanged(s: CharSequence?, start: Int, before: Int, count: Int) {}

override fun afterTextChanged(s: Editable?) {

val input = s.toString()

billAmount = if (input.isNotEmpty()) {

try {

input.toDouble()

} catch (e: NumberFormatException) {

0.0

}

} else {

0.0

}

updateCalculations()

}

})

*// Tip percentage SeekBar listener*

binding.seekBarTipPercentage.setOnSeekBarChangeListener(object : SeekBar.OnSeekBarChangeListener {

override fun onProgressChanged(seekBar: SeekBar?, progress: Int, fromUser: Boolean) {

tipPercentage = progress

binding.textViewTipPercentage.text = "$tipPercentage%"

updateCalculations()

}

override fun onStartTrackingTouch(seekBar: SeekBar?) {}

override fun onStopTrackingTouch(seekBar: SeekBar?) {}

})

*// Number of people SeekBar listener*

binding.seekBarNumberOfPeople.setOnSeekBarChangeListener(object : SeekBar.OnSeekBarChangeListener {

override fun onProgressChanged(seekBar: SeekBar?, progress: Int, fromUser: Boolean) {

numberOfPeople = progress + 1 *// SeekBar starts at 0, we want 1-10 people*

binding.textViewNumberOfPeople.text = "$numberOfPeople ${if (numberOfPeople == 1) "person" else "people"}"

updateCalculations()

}

override fun onStartTrackingTouch(seekBar: SeekBar?) {}

override fun onStopTrackingTouch(seekBar: SeekBar?) {}

})

*// Round up tip button listener*

binding.buttonRoundUpTip.setOnClickListener {

roundUpTip = !roundUpTip

binding.buttonRoundUpTip.text = if (roundUpTip) "Round Up: ON" else "Round Up: OFF"

binding.buttonRoundUpTip.setBackgroundColor(

if (roundUpTip)

getColor(android.R.color.holo\_green\_light)

else

getColor(android.R.color.darker\_gray)

)

updateCalculations()

}

*// Reset button listener*

binding.buttonReset.setOnClickListener {

resetCalculator()

}

*// Quick tip buttons*

binding.button10Percent.setOnClickListener {

binding.seekBarTipPercentage.progress = 10

}

binding.button15Percent.setOnClickListener {

binding.seekBarTipPercentage.progress = 15

}

binding.button18Percent.setOnClickListener {

binding.seekBarTipPercentage.progress = 18

}

binding.button20Percent.setOnClickListener {

binding.seekBarTipPercentage.progress = 20

}

}

private fun updateCalculations() {

if (billAmount <= 0) {

clearResults()

return

}

*// Calculate tip amount*

var tipAmount = billAmount \* (tipPercentage / 100.0)

*// Round up tip if enabled*

if (roundUpTip) {

tipAmount = ceil(tipAmount)

}

*// Calculate totals*

val totalAmount = billAmount + tipAmount

val tipPerPerson = tipAmount / numberOfPeople

val totalPerPerson = totalAmount / numberOfPeople

*// Format currency*

val currencyFormat = NumberFormat.getCurrencyInstance()

*// Update UI*

binding.textViewTipAmount.text = currencyFormat.format(tipAmount)

binding.textViewTotalAmount.text = currencyFormat.format(totalAmount)

binding.textViewTipPerPerson.text = currencyFormat.format(tipPerPerson)

binding.textViewTotalPerPerson.text = currencyFormat.format(totalPerPerson)

*// Update tip quality indicator*

updateTipQualityIndicator()

}

private fun updateTipQualityIndicator() {

val (emoji, description, color) = when {

tipPercentage < 10 -> Triple("😬", "Poor", android.R.color.holo\_red\_light)

tipPercentage < 15 -> Triple("😐", "Okay", android.R.color.holo\_orange\_light)

tipPercentage < 20 -> Triple("😊", "Good", android.R.color.holo\_blue\_light)

tipPercentage < 25 -> Triple("😃", "Great", android.R.color.holo\_green\_light)

else -> Triple("🤩", "Amazing", android.R.color.holo\_purple)

}

binding.textViewTipQuality.text = "$emoji $description"

binding.textViewTipQuality.setTextColor(getColor(color))

}

private fun clearResults() {

binding.textViewTipAmount.text = "$0.00"

binding.textViewTotalAmount.text = "$0.00"

binding.textViewTipPerPerson.text = "$0.00"

binding.textViewTotalPerPerson.text = "$0.00"

binding.textViewTipQuality.text = "😊 Good"

binding.textViewTipQuality.setTextColor(getColor(android.R.color.holo\_blue\_light))

}

private fun resetCalculator() {

binding.editTextBillAmount.text.clear()

binding.seekBarTipPercentage.progress = 15

binding.seekBarNumberOfPeople.progress = 0

roundUpTip = false

binding.buttonRoundUpTip.text = "Round Up: OFF"

binding.buttonRoundUpTip.setBackgroundColor(getColor(android.R.color.darker\_gray))

billAmount = 0.0

tipPercentage = 15

numberOfPeople = 1

updateCalculations()

}

}

<?xml version="1.0" encoding="utf-8"?>

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

xmlns:app="http://schemas.android.com/apk/res-auto"

xmlns:tools="http://schemas.android.com/tools"

android:layout\_width="match\_parent"

android:layout\_height="match\_parent"

android:background="@color/background\_color"

tools:context=".MainActivity">

<LinearLayout

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:orientation="vertical"

android:padding="24dp">

*<!-- Header -->*

<TextView

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:text="💰 Tip Calculator"

android:textSize="28sp"

android:textStyle="bold"

android:textColor="@color/primary\_color"

android:gravity="center"

android:layout\_marginBottom="32dp" />

*<!-- Bill Amount Input -->*

<com.google.android.material.card.MaterialCardView

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:layout\_marginBottom="24dp"

app:cardCornerRadius="12dp"

app:cardElevation="4dp">

<LinearLayout

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:orientation="vertical"

android:padding="16dp">

<TextView

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:text="Bill Amount"

android:textSize="16sp"

android:textStyle="bold"

android:textColor="@color/text\_primary"

android:layout\_marginBottom="8dp" />

<EditText

android:id="@+id/editTextBillAmount"

android:layout\_width="match\_parent"

android:layout\_height="56dp"

android:hint="Enter bill amount"

android:inputType="numberDecimal"

android:textSize="18sp"

android:background="@drawable/edittext\_background"

android:padding="12dp"

android:drawableStart="@drawable/ic\_dollar"

android:drawablePadding="8dp" />

</LinearLayout>

</com.google.android.material.card.MaterialCardView>

*<!-- Tip Percentage -->*

<com.google.android.material.card.MaterialCardView

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:layout\_marginBottom="24dp"

app:cardCornerRadius="12dp"

app:cardElevation="4dp">

<LinearLayout

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:orientation="vertical"

android:padding="16dp">

<LinearLayout

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:orientation="horizontal"

android:layout\_marginBottom="12dp">

<TextView

android:layout\_width="0dp"

android:layout\_height="wrap\_content"

android:layout\_weight="1"

android:text="Tip Percentage"

android:textSize="16sp"

android:textStyle="bold"

android:textColor="@color/text\_primary" />

<TextView

android:id="@+id/textViewTipPercentage"

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:text="15%"

android:textSize="16sp"

android:textStyle="bold"

android:textColor="@color/primary\_color" />

</LinearLayout>

<SeekBar

android:id="@+id/seekBarTipPercentage"

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:max="30"

android:progress="15"

android:layout\_marginBottom="12dp" />

*<!-- Quick Tip Buttons -->*

<LinearLayout

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:orientation="horizontal"

android:gravity="center">

<Button

android:id="@+id/button10Percent"

android:layout\_width="0dp"

android:layout\_height="40dp"

android:layout\_weight="1"

android:layout\_margin="4dp"

android:text="10%"

android:textSize="12sp"

style="@style/Widget.Material3.Button.OutlinedButton" />

<Button

android:id="@+id/button15Percent"

android:layout\_width="0dp"

android:layout\_height="40dp"

android:layout\_weight="1"

android:layout\_margin="4dp"

android:text="15%"

android:textSize="12sp"

style="@style/Widget.Material3.Button.OutlinedButton" />

<Button

android:id="@+id/button18Percent"

android:layout\_width="0dp"

android:layout\_height="40dp"

android:layout\_weight="1"

android:layout\_margin="4dp"

android:text="18%"

android:textSize="12sp"

style="@style/Widget.Material3.Button.OutlinedButton" />

<Button

android:id="@+id/button20Percent"

android:layout\_width="0dp"

android:layout\_height="40dp"

android:layout\_weight="1"

android:layout\_margin="4dp"

android:text="20%"

android:textSize="12sp"

style="@style/Widget.Material3.Button.OutlinedButton" />

</LinearLayout>

*<!-- Tip Quality Indicator -->*

<TextView

android:id="@+id/textViewTipQuality"

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:text="😊 Good"

android:textSize="14sp"

android:gravity="center"

android:layout\_marginTop="8dp" />

</LinearLayout>

</com.google.android.material.card.MaterialCardView>

*<!-- Number of People -->*

<com.google.android.material.card.MaterialCardView

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:layout\_marginBottom="24dp"

app:cardCornerRadius="12dp"

app:cardElevation="4dp">

<LinearLayout

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:orientation="vertical"

android:padding="16dp">

<LinearLayout

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:orientation="horizontal"

android:layout\_marginBottom="12dp">

<TextView

android:layout\_width="0dp"

android:layout\_height="wrap\_content"

android:layout\_weight="1"

android:text="Split Between"

android:textSize="16sp"

android:textStyle="bold"

android:textColor="@color/text\_primary" />

<TextView

android:id="@+id/textViewNumberOfPeople"

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:text="1 person"

android:textSize="16sp"

android:textStyle="bold"

android:textColor="@color/primary\_color" />

</LinearLayout>

<SeekBar

android:id="@+id/seekBarNumberOfPeople"

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:max="9"

android:progress="0" />

</LinearLayout>

</com.google.android.material.card.MaterialCardView>

*<!-- Additional Features -->*

<LinearLayout

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:orientation="horizontal"

android:layout\_marginBottom="24dp">

<Button

android:id="@+id/buttonRoundUpTip"

android:layout\_width="0dp"

android:layout\_height="48dp"

android:layout\_weight="1"

android:layout\_marginEnd="8dp"

android:text="Round Up: OFF"

android:textSize="12sp"

android:backgroundTint="@color/gray\_color"

style="@style/Widget.Material3.Button" />

<Button

android:id="@+id/buttonReset"

android:layout\_width="0dp"

android:layout\_height="48dp"

android:layout\_weight="1"

android:layout\_marginStart="8dp"

android:text="🔄 Reset"

android:textSize="12sp"

style="@style/Widget.Material3.Button.OutlinedButton" />

</LinearLayout>

*<!-- Results -->*

<com.google.android.material.card.MaterialCardView

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

app:cardCornerRadius="12dp"

app:cardElevation="4dp"

app:cardBackgroundColor="@color/results\_background">

<LinearLayout

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:orientation="vertical"

android:padding="20dp">

<TextView

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:text="💡 Results"

android:textSize="20sp"

android:textStyle="bold"

android:textColor="@color/text\_primary"

android:gravity="center"

android:layout\_marginBottom="16dp" />

*<!-- Tip Amount -->*

<LinearLayout

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:orientation="horizontal"

android:layout\_marginBottom="12dp">

<TextView

android:layout\_width="0dp"

android:layout\_height="wrap\_content"

android:layout\_weight="1"

android:text="Tip Amount:"

android:textSize="16sp"

android:textColor="@color/text\_primary" />

<TextView

android:id="@+id/textViewTipAmount"

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:text="$0.00"

android:textSize="16sp"

android:textStyle="bold"

android:textColor="@color/primary\_color" />

</LinearLayout>

*<!-- Total Amount -->*

<LinearLayout

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:orientation="horizontal"

android:layout\_marginBottom="12dp">

<TextView

android:layout\_width="0dp"

android:layout\_height="wrap\_content"

android:layout\_weight="1"

android:text="Total Amount:"

android:textSize="16sp"

android:textColor="@color/text\_primary" />

<TextView

android:id="@+id/textViewTotalAmount"

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:text="$0.00"

android:textSize="16sp"

android:textStyle="bold"

android:textColor="@color/primary\_color" />

</LinearLayout>

<View

android:layout\_width="match\_parent"

android:layout\_height="1dp"

android:background="@color/divider\_color"

android:layout\_marginVertical="8dp" />

*<!-- Tip Per Person -->*

<LinearLayout

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:orientation="horizontal"

android:layout\_marginBottom="12dp">

<TextView

android:layout\_width="0dp"

android:layout\_height="wrap\_content"

android:layout\_weight="1"

android:text="Tip Per Person:"

android:textSize="16sp"

android:textColor="@color/text\_primary" />

<TextView

android:id="@+id/textViewTipPerPerson"

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:text="$0.00"

android:textSize="16sp"

android:textStyle="bold"

android:textColor="@color/accent\_color" />

</LinearLayout>

*<!-- Total Per Person -->*

<LinearLayout

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:orientation="horizontal">

<TextView

android:layout\_width="0dp"

android:layout\_height="wrap\_content"

android:layout\_weight="1"

android:text="Total Per Person:"

android:textSize="18sp"

android:textStyle="bold"

android:textColor="@color/text\_primary" />

<TextView

android:id="@+id/textViewTotalPerPerson"

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:text="$0.00"

android:textSize="18sp"

android:textStyle="bold"

android:textColor="@color/accent\_color" />

</LinearLayout>

</LinearLayout>

</com.google.android.material.card.MaterialCardView>

</LinearLayout>

</ScrollView>

<?xml version="1.0" encoding="utf-8"?>

<resources>

*<!-- Primary Colors -->*

<color name="primary\_color">#2196F3</color>

<color name="primary\_dark">#1976D2</color>

<color name="accent\_color">#FF5722</color>

*<!-- Background Colors -->*

<color name="background\_color">#F5F5F5</color>

<color name="results\_background">#E3F2FD</color>

*<!-- Text Colors -->*

<color name="text\_primary">#212121</color>

<color name="text\_secondary">#757575</color>

*<!-- Other Colors -->*

<color name="gray\_color">#9E9E9E</color>

<color name="divider\_color">#E0E0E0</color>

*<!-- Material Design Colors -->*

<color name="white">#FFFFFF</color>

<color name="black">#000000</color>

</resources>

*<!-- edittext\_background.xml -->*

<?xml version="1.0" encoding="utf-8"?>

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

android:shape="rectangle">

<solid android:color="@color/white" />

<stroke

android:width="2dp"

android:color="@color/primary\_color" />

<corners android:radius="8dp" />

</shape>

*<!-- ic\_dollar.xml -->*

<?xml version="1.0" encoding="utf-8"?>

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

android:width="24dp"

android:height="24dp"

android:viewportWidth="24"

android:viewportHeight="24">

<path

android:fillColor="@color/primary\_color"

android:pathData="M12,2C6.48,2 2,6.48 2,12s4.48,10 10,10 10,-4.48 10,-10S17.52,2 12,2zM13.5,6L13.5,7.5h1c0.83,0 1.5,0.67 1.5,1.5s-0.67,1.5 -1.5,1.5h-1L13,12.5h1c0.83,0 1.5,0.67 1.5,1.5s-0.67,1.5 -1.5,1.5h-1L13,17.5L11.5,17.5L11.5,15.5h-1c-0.83,0 -1.5,-0.67 -1.5,-1.5s0.67,-1.5 1.5,-1.5h1L11,10.5h-1c-0.83,0 -1.5,-0.67 -1.5,-1.5S9.17,7.5 10,7.5h1L11,6L12.5,6L12.5,7.5L13.5,7.5L13.5,6z" />

</vector>

*// Generated by view binder compiler. Do not edit!*

package com.example.tipcalculator.databinding

import android.view.LayoutInflater

import android.view.View

import android.view.ViewGroup

import android.widget.Button

import android.widget.EditText

import android.widget.LinearLayout

import android.widget.ScrollView

import android.widget.SeekBar

import android.widget.TextView

import androidx.annotation.NonNull

import androidx.annotation.Nullable

import androidx.viewbinding.ViewBinding

import androidx.viewbinding.ViewBindings

import com.example.tipcalculator.R

import com.google.android.material.card.MaterialCardView

import java.lang.NullPointerException

import java.lang.Override

import java.lang.String

public final class ActivityMainBinding implements ViewBinding {

@NonNull

private val rootView: ScrollView

@NonNull

public val button10Percent: Button

@NonNull

public val button15Percent: Button

@NonNull

public val button18Percent: Button

@NonNull

public val button20Percent: Button

@NonNull

public val buttonReset: Button

@NonNull

public val buttonRoundUpTip: Button

@NonNull

public val editTextBillAmount: EditText

@NonNull

public val seekBarNumberOfPeople: SeekBar

@NonNull

public val seekBarTipPercentage: SeekBar

@NonNull

public val textViewNumberOfPeople: TextView

@NonNull

public val textViewTipAmount: TextView

@NonNull

public val textViewTipPercentage: TextView

@NonNull

public val textViewTipPerPerson: TextView

@NonNull

public val textViewTipQuality: TextView

@NonNull

public val textViewTotalAmount: TextView

@NonNull

public val textViewTotalPerPerson: TextView

private constructor(rootView: ScrollView, button10Percent: Button, button15Percent: Button,

button18Percent: Button, button20Percent: Button, buttonReset: Button,

buttonRoundUpTip: Button, editTextBillAmount: EditText, seekBarNumberOfPeople: SeekBar,

seekBarTipPercentage: SeekBar, textViewNumberOfPeople: TextView, textViewTipAmount: TextView,

textViewTipPercentage: TextView, textViewTipPerPerson: TextView, textViewTipQuality: TextView,

textViewTotalAmount: TextView, textViewTotalPerPerson: TextView) {

this.rootView = rootView

this.button10Percent = button10Percent

this.button15Percent = button15Percent

this.button18Percent = button18Percent

this.button20Percent = button20Percent

this.buttonReset = buttonReset

this.buttonRoundUpTip = buttonRoundUpTip

this.editTextBillAmount = editTextBillAmount

this.seekBarNumberOfPeople = seekBarNumberOfPeople

this.seekBarTipPercentage = seekBarTipPercentage

this.textViewNumberOfPeople = textViewNumberOfPeople

this.textViewTipAmount = textViewTipAmount

this.textViewTipPercentage = textViewTipPercentage

this.textViewTipPerPerson = textViewTipPerPerson

this.textViewTipQuality = textViewTipQuality

this.textViewTotalAmount = textViewTotalAmount

this.textViewTotalPerPerson = textViewTotalPerPerson

}

@Override

@NonNull

public ScrollView getRoot() {

return rootView;

}

@NonNull

public static ActivityMainBinding inflate(@NonNull LayoutInflater inflater) {

return inflate(inflater, null, false);

}

@NonNull

public static ActivityMainBinding inflate(@NonNull LayoutInflater inflater,

@Nullable ViewGroup parent, boolean attachToParent) {

View root = inflater.inflate(R.layout.activity\_main, parent, false);

if (attachToParent) {

parent.addView(root);

}

return bind(root);

}

@NonNull

public static ActivityMainBinding bind(@NonNull View rootView) {

*// The body of this method is generated in a way you would not otherwise write.*

*// This is done to optimize the compiled bytecode for size and performance.*

int id;

missingId: {

id = R.id.button10Percent;

Button button10Percent = ViewBindings.findChildViewById(rootView, id);

if (button10Percent == null) {

break missingId;

}

id = R.id.button15Percent;

Button button15Percent = ViewBindings.findChildViewById(rootView, id);

if (button15Percent == null) {

break missingId;

}

id = R.id.button18Percent;

Button button18Percent = ViewBindings.findChildViewById(rootView, id);

if (button18Percent == null) {

break missingId;

}

id = R.id.button20Percent;

Button button20Percent = ViewBindings.findChildViewById(rootView, id);

if (button20Percent == null) {

break missingId;

}

id = R.id.buttonReset;

Button buttonReset = ViewBindings.findChildViewById(rootView, id);

if (buttonReset == null) {

break missingId;

}

id = R.id.buttonRoundUpTip;

Button buttonRoundUpTip = ViewBindings.findChildViewById(rootView, id);

if (buttonRoundUpTip == null) {

break missingId;

}

id = R.id.editTextBillAmount;

EditText editTextBillAmount = ViewBindings.findChildViewById(rootView, id);

if (editTextBillAmount == null) {

break missingId;

}

id = R.id.seekBarNumberOfPeople;

SeekBar seekBarNumberOfPeople = ViewBindings.findChildViewById(rootView, id);

if (seekBarNumberOfPeople == null) {

break missingId;

}

id = R.id.seekBarTipPercentage;

SeekBar seekBarTipPercentage = ViewBindings.findChildViewById(rootView, id);

if (seekBarTipPercentage == null) {

break missingId;

}

id = R.id.textViewNumberOfPeople;

TextView textViewNumberOfPeople = ViewBindings.findChildViewById(rootView, id);

if (textViewNumberOfPeople == null) {

break missingId;

}

id = R.id.textViewTipAmount;

TextView textViewTipAmount = ViewBindings.findChildViewById(rootView, id);

if (textViewTipAmount == null) {

break missingId;

}

id = R.id.textViewTipPercentage;

TextView textViewTipPercentage = ViewBindings.findChildViewById(rootView, id);

if (textViewTipPercentage == null) {

break missingId;

}

id = R.id.textViewTipPerPerson;

TextView textViewTipPerPerson = ViewBindings.findChildViewById(rootView, id);

if (textViewTipPerPerson == null) {

break missingId;

}

id = R.id.textViewTipQuality;

TextView textViewTipQuality = ViewBindings.findChildViewById(rootView, id);

if (textViewTipQuality == null) {

break missingId;

}

id = R.id.textViewTotalAmount;

TextView textViewTotalAmount = ViewBindings.findChildViewById(rootView, id);

if (textViewTotalAmount == null) {

break missingId;

}

id = R.id.textViewTotalPerPerson;

TextView textViewTotalPerPerson = ViewBindings.findChildViewById(rootView, id);

if (textViewTotalPerPerson == null) {

break missingId;

}

return new ActivityMainBinding((ScrollView) rootView, button10Percent, button15Percent,

button18Percent, button20Percent, buttonReset, buttonRoundUpTip, editTextBillAmount,

seekBarNumberOfPeople, seekBarTipPercentage, textViewNumberOfPeople, textViewTipAmount,

textViewTipPercentage, textViewTipPerPerson, textViewTipQuality, textViewTotalAmount,

textViewTotalPerPerson);

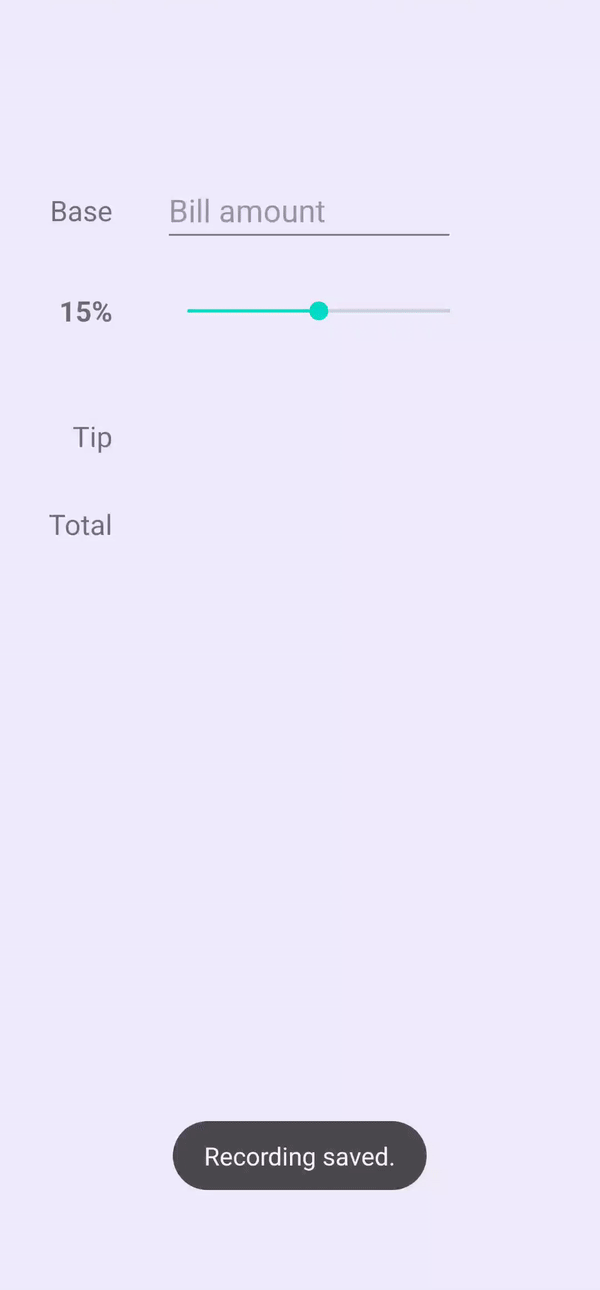
}

String missingId = rootView.getResources().getResourceName(id);

throw new NullPointerException("Missing required view with ID: ".concat(missingId));

}

}



<?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/billAmountEditText"

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:hint="Enter bill amount"

android:inputType="numberDecimal" />

<EditText

android:id="@+id/peopleEditText"

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:hint="Number of people (default: 1)"

android:inputType="number" />

<Button

android:id="@+id/calculateButton"

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:layout\_gravity="center"

android:text="Calculate Tip" />

<TextView

android:id="@+id/resultTextView"

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:layout\_marginTop="16dp"

android:text="Tip: $0.00\nTotal: $0.00\nPer person: $0.00"

android:textSize="16sp" />

</LinearLayout>

package com.example.tipcalculator

import android.os.Bundle

import androidx.appcompat.app.AppCompatActivity

import com.example.tipcalculator.databinding.ActivityMainBinding

import java.text.DecimalFormat

class MainActivity : AppCompatActivity() {

private lateinit var binding: ActivityMainBinding

private val tipPercentage = 0.15 *// 15% tip*

private val decimalFormat = DecimalFormat("$#,##0.00")

override fun onCreate(savedInstanceState: Bundle?) {

super.onCreate(savedInstanceState)

*// Initialize ViewBinding*

binding = ActivityMainBinding.inflate(layoutInflater)

setContentView(binding.root)

*// Set up button click listener*

binding.calculateButton.setOnClickListener {

calculateTip()

}

}

private fun calculateTip() {

*// Get bill amount input*

val billAmountString = binding.billAmountEditText.text.toString()

if (billAmountString.isEmpty()) {

binding.resultTextView.text = "Please enter a bill amount"

return

}

*// Parse bill amount*

val billAmount = billAmountString.toDoubleOrNull()

if (billAmount == null || billAmount <= 0) {

binding.resultTextView.text = "Invalid bill amount"

return

}

*// Get number of people (default to 1 if empty or invalid)*

val peopleString = binding.peopleEditText.text.toString()

val numberOfPeople = peopleString.toIntOrNull() ?: 1

if (numberOfPeople <= 0) {

binding.resultTextView.text = "Number of people must be at least 1"

return

}

*// Calculate tip, total, and per-person amount*

val tipAmount = billAmount \* tipPercentage

val totalAmount = billAmount + tipAmount

val amountPerPerson = totalAmount / numberOfPeople

*// Format and display results*

val result = """

Tip: ${decimalFormat.format(tipAmount)}

Total: ${decimalFormat.format(totalAmount)}

Per person: ${decimalFormat.format(amountPerPerson)}

""".trimIndent()

binding.resultTextView.text = result

}

}

### 3

<?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:background="#121212"

android:orientation="vertical"

android:padding="24dp">

<TextView

android:id="@+id/titleText"

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:text="HERE'S A TIP"

android:textColor="#FFFFFF"

android:textSize="24sp"

android:textStyle="bold"

android:layout\_gravity="center\_horizontal"

android:paddingBottom="24dp" />

<TextView android:text="Base"

android:textColor="#FFFFFF"

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content" />

<EditText

android:id="@+id/etBaseAmount"

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:inputType="numberDecimal"

android:hint="Bill amount"

android:textColor="#FFFFFF"

android:textColorHint="#CCCCCC"

android:backgroundTint="#FFFFFF" />

<TextView

android:id="@+id/tvPercentLabel"

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:text="15%"

android:textColor="#FFFFFF"

android:paddingTop="16dp" />

<SeekBar

android:id="@+id/seekBarTip"

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:progress="15"

android:max="30" />

<TextView

android:id="@+id/tvTipDescription"

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:text="Good"

android:textColor="#FFD700"

android:layout\_gravity="center\_horizontal"

android:paddingBottom="16dp" />

<TextView android:text="Tip"

android:textColor="#FFFFFF"

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content" />

<TextView

android:id="@+id/tvTipAmount"

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:text="$0.00"

android:textColor="#FFFFFF" />

<TextView android:text="Total"

android:textColor="#FFFFFF"

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content" />

<TextView

android:id="@+id/tvTotalAmount"

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:text="$0.00"

android:textColor="#FFFFFF" />

<TextView

android:text="Party"

android:textColor="#FFFFFF"

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:paddingTop="16dp" />

<Spinner

android:id="@+id/spinnerPartySize"

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content" />

<TextView

android:id="@+id/tvFooter"

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:text="MADE WITH ❤️ BY DRUFT"

android:textColor="#888888"

android:textSize="12sp"

android:layout\_gravity="center\_horizontal"

android:layout\_marginTop="24dp"/>

</LinearLayout>

package com.example.tipapp

import android.os.Bundle

import android.widget.\*

import androidx.appcompat.app.AppCompatActivity

import com.example.tipapp.databinding.ActivityMainBinding

class MainActivity : AppCompatActivity() {

private lateinit var binding: ActivityMainBinding

override fun onCreate(savedInstanceState: Bundle?) {

super.onCreate(savedInstanceState)

binding = ActivityMainBinding.inflate(layoutInflater)

setContentView(binding.root)

val spinnerItems = (1..20).map { it.toString() }

val adapter = ArrayAdapter(this, android.R.layout.simple\_spinner\_dropdown\_item, spinnerItems)

binding.spinnerPartySize.adapter = adapter

binding.seekBarTip.setOnSeekBarChangeListener(object : SeekBar.OnSeekBarChangeListener {

override fun onProgressChanged(seekBar: SeekBar, progress: Int, fromUser: Boolean) {

binding.tvPercentLabel.text = "$progress%"

updateTipAndTotal()

binding.tvTipDescription.text = when {

progress < 10 -> "Poor"

progress < 15 -> "Okay"

progress < 20 -> "Good"

progress < 25 -> "Great"

else -> "Amazing"

}

}

override fun onStartTrackingTouch(seekBar: SeekBar?) {}

override fun onStopTrackingTouch(seekBar: SeekBar?) {}

})

binding.etBaseAmount.setOnEditorActionListener { \_, \_, \_ ->

updateTipAndTotal()

true

}

binding.spinnerPartySize.onItemSelectedListener = object : AdapterView.OnItemSelectedListener {

override fun onItemSelected(parent: AdapterView<\*>?, view: View?, pos: Int, id: Long) {

updateTipAndTotal()

}

override fun onNothingSelected(parent: AdapterView<\*>?) {}

}

}

private fun updateTipAndTotal() {

val base = binding.etBaseAmount.text.toString().toDoubleOrNull() ?: return

val tipPercent = binding.seekBarTip.progress

val partySize = binding.spinnerPartySize.selectedItem.toString().toInt()

val tip = base \* tipPercent / 100

val total = base + tip

val totalPerPerson = total / partySize

binding.tvTipAmount.text = "$%.2f".format(tip)

binding.tvTotalAmount.text = "$%.2f".format(totalPerPerson)

}

}

android {

...

viewBinding {

enabled = true

}

}