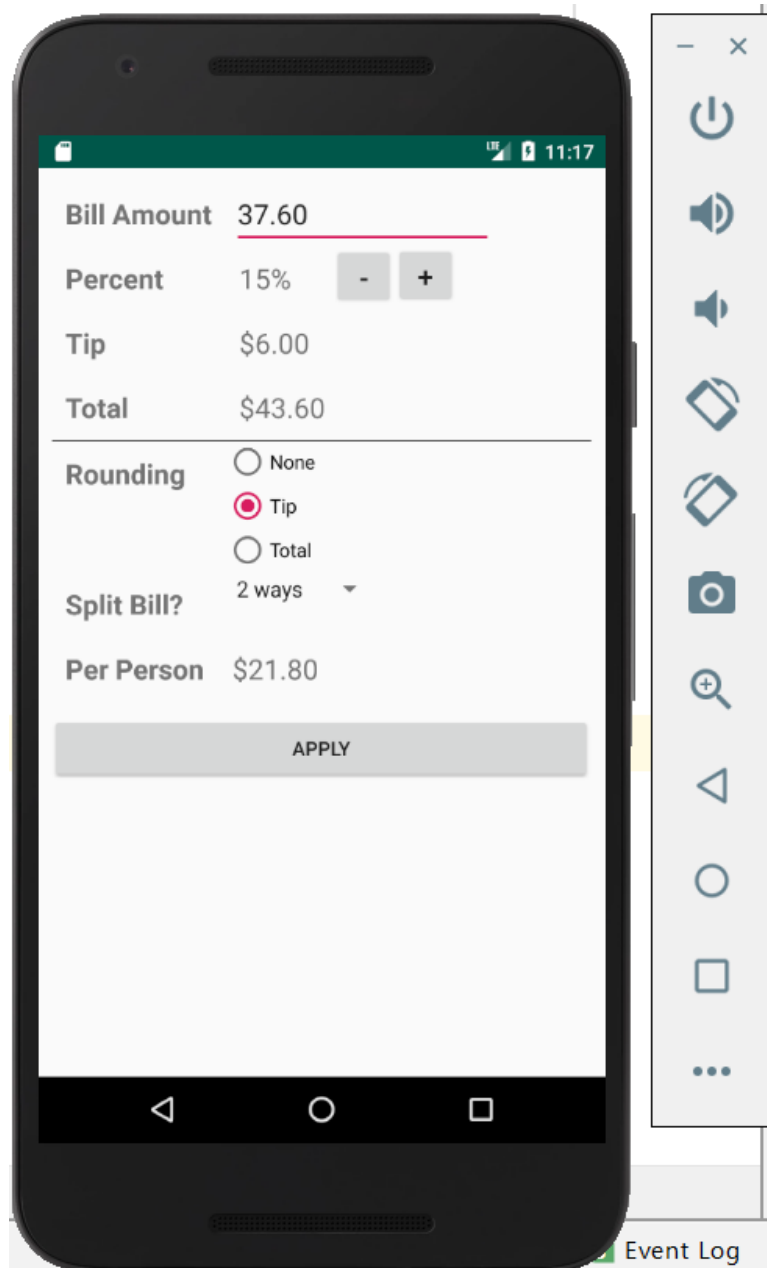# Assignment 5 Add Radio Buttons and a Spinner

In this assignment, you will modify the Tip Calculator app so that it uses radio buttons and a spinner. When you are done, the bottom of the layout should look like this:

Prior to starting this assignment, please download the seed application from Canvas. You can find this under the "Assignment 5" folder on Canvas.

1. Open the layout and add a radio group that contains the three radio buttons shown above. You can do this job in either a Design mode or Text mode.

    a. None option

        i. ID: roundNoneRadioButton

        ii. Text: @string/none

    b. Tip option

        i. ID: roundTipRadioButton

        ii. Text: @string/tip

    c. Total option

        i. ID: roundTotalRadioButton

        ii. Text: @string/total

    d. Width and height for all three radio buttons: wrap_content

```xml
<RadioGroup
    android:id="@+id/roundingRadioGroup"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_below="@+id/totalLabel"
    android:layout_toRightOf="@+id/billAmountLabel" >

    <RadioButton
        android:id="@+id/roundNoneRadioButton"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:checked="true"
        android:text="@string/none" />

    <RadioButton
        android:id="@+id/roundTipRadioButton"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="@string/tip" />

    <RadioButton
        android:id="@+id/roundTotalRadioButton"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="@string/total" />
</RadioGroup>
```

2. Open the class for the activity and modify the calculateAndDisplay method so it uses the selected radio button to determine whether to round the tip, total, or nothing. To round the tip, you can use code like this:

```
tipAmount = StrictMath.round(billAmount * tipPercent);
totalAmount = billAmount + tipAmount;
```

To round the total, you can use code like this:

```
float tipNotRounded = billAmount * tipPercent;
totalAmount = StrictMath.round(billAmount + tipNotRounded);
tipAmount = totalAmount – billAmount;
```

3. Test this change to make sure it works correctly. Note that the rounding is only displayed when you click the Apply button

4. Modify the code so it automatically selects the None radio button when the user clicks on the increase (+) or decrease (-) buttons. To make this function, you can use the code like this:

```
roundNoneRadioButton.setChecked(true);
```

Add a spinner

5. Add a TextView widget and Spinner widget to the layout so the user can select the number of ways to split the bill as shown above. You can do this job in either a Design or Text mode. Before adding a spinner, open your string.xml again and add the following code:

```
<string name="split_label">Split Bill?</string>
<string-array name="split_array">
    <item >No</item>
    <item >2 ways</item>
    <item >3 ways</item>
    <item >4 ways</item>
</string-array>

<string name="split_amount_label">Per Person</string>
<string name="split_amount">$0.00</string>
```

6. Then, add the following code between the radio buttons and apply button.

```
<TextView
    android:id="@+id/splitLabel"
```

```xml
        android:layout_width="wrap_content"

        android:layout_height="wrap_content"

        android:layout_alignLeft="@+id/roundingLabel"

        android:layout_below="@+id/roundingRadioGroup"

        android:padding="10dp"

        android:text="@string/split_label"

        android:textSize="20sp"

        android:textStyle="bold" />

    <Spinner
        android:id="@+id/splitSpinner"

        android:layout_width="wrap_content"

        android:layout_height="wrap_content"

        android:layout_alignLeft="@+id/perPersonTextView"

        android:layout_alignTop="@+id/splitLabel" />

    <TextView
        android:id="@+id/perPersonLabel"

        android:layout_width="wrap_content"

        android:layout_height="wrap_content"

        android:layout_alignLeft="@+id/splitLabel"

        android:layout_below="@+id/splitLabel"

        android:padding="10dp"

        android:text="@string/split_amount_label"

        android:textSize="20sp"

        android:textStyle="bold" />

    <TextView
        android:id="@+id/perPersonTextView"

        android:layout_width="wrap_content"

        android:layout_height="wrap_content"

        android:layout_alignBaseline="@+id/perPersonLabel"

        android:layout_alignLeft="@+id/roundingRadioGroup"
```

```xml
        android:padding="5dp"
        android:text="@string/split_amount"
        android:textSize="20sp" />
```

7. Open the class for the activity and add the code that loads the spinner with the array.

    a.   In the onCreate method, please add the following code:

```java
// set array adapter for spinner
ArrayAdapter<CharSequence> adapter = ArrayAdapter.createFromResource(
        this, R.array.split_array,
android.R.layout.simple_spinner_item);
adapter.setDropDownViewResource(
        android.R.layout.simple_spinner_dropdown_item);
splitSpinner.setAdapter(adapter);
```

    b.   Define 3 private variables like this:

```java
private Spinner splitSpinner;
private TextView perPersonLabel;
private TextView perPersonTextView;
```

    c.   Add the following code to get references to the widgets:

```java
splitSpinner = (Spinner) findViewById(R.id.splitSpinner);
perPersonLabel = (TextView) findViewById(R.id.perPersonLabel);
perPersonTextView = (TextView) findViewById(R.id.perPersonTextView);
```

8. If you see error messages with respect to the "ArrayAdapter" and "Spinner", import Spinner and ArrayAdapter classes.

9. Test this change to make sure it works correctly

10. Modify the calculateAndDisplay method so it calculates and displays the correct amount per person when the bill is split. However, when the bill isn't split, this code should hide the TextView widgets that display the amount per person.

11. Add the following code to the calculateAndDisplay method:

```java
// split amount and show/hide split amount widgets
int splitPosition = splitSpinner.getSelectedItemPosition();
```

```
    int split = splitPosition + 1;
    float perPersonAmount = 0;
    if (split == 1) {   // no split - hide widgets
        perPersonLabel.setVisibility(View.GONE);
        perPersonTextView.setVisibility(View.GONE);
    }
    else { // split - show widgets
        perPersonAmount = totalAmount / split;
        perPersonLabel.setVisibility(View.VISIBLE);
        perPersonTextView.setVisibility(View.VISIBLE);
    }
```

12. If you don't see any changes after changing the spinner option, this is due to the fact that you did not include the TextView to display the results with formatting. So, add the following code:

```
perPersonTextView.setText(currency.format(perPersonAmount));
```

Grading Criteria

1. No radio buttons and spinner: deduct -10 points
2. Syntax error: deduct -0.2 points per each syntax error
3. File format: deduct -0.5 points if students did not submit all the files in .zip file format
4. No errors but return the wrong outputs or error message like "Your application stop working": deduct -2 points

Due date: 04/06/2020

Submission format: .zip.