Programming Assignment 4

In this assignment, you’ll modify the Tip Calculator app presented in this chapter so it uses styles and themes to format some of the widgets that were introduced in chapter 5.

**Use styles with some new widgets**

1. Start Android Studio and open the project named ch07\_ex4\_TipCalculator (PA4 Starter Code).
2. Open the layout for the activity and review its XML. Note that some widgets use a style to apply formatting while other widgets don’t use styles.
3. Open the styles.xml file and review its XML.
4. In the layout, remove the padding, textSize, and textStyle attributes from all TextView widgets below the separator line. Then, apply the TextView and TextView.Label styles to restore the formatting.
5. In the styles.xml file, create a custom style named PaddedWidget that adds 10dp of padding.
6. In the layout, remove the padding attribute from the SeekBar and RadioGroup widgets. Then, apply the PaddedWidget style to these widgets to restore this padding.
7. In the styles.xml file, change the padding attributes for the TextView.Label and PaddedWidget styles to 5dp. This should adjust the padding for all widgets on the layout.
8. In the styles.xml file, change the textSize attribute of the TextView style to 24sp. This should change the text size for most of the widgets on the layout.

**Use themes to format radio buttons**

1. Run the app on a device or emulator that uses an API from 15 to 20. Note that this device uses the Holo theme. Note also that the text size for the radio buttons is smaller than the text size for most other widgets.
2. In the graphical layout editor, click on a radio button and view its textAppearance property. It should not be set.
3. Open the styles.xml file in the values directory. Note that this file can contain customizations that apply to all APIs or to just APIs 15 to 20.
4. Add a style that has Android’s TextAppearance style as its parent style and modify it so it sets the textSize to 24sp.
5. Customize this theme so it uses the textAppearance attribute to point to the style that you just created. This should change the text size for all three radio buttons for APIs 15 to 20.

**Use themes to format spinner items**

1. Run the app on device or emulator that uses an API from 15 to 20. Note that the text size for the spinner items is smaller than the text size for most other widgets.
2. Open the styles.xml file in the values directory.
3. Add a style that uses the Widget.TextView.SpinnerItem as the parent style.
4. Modify this style so it sets the text size to 24sp.
5. Customize the theme so its spinnerItemStyle attribute points to the new style. This should change the text size for the spinner item for all APIs 15 to 20.

**Customize API 21 and later**

1. Open the styles.xml file in the values-v21 directory. Note that it specifies the Material theme, not the Holo theme.
2. Run the app on a device or emulator that uses API 21 or later. Note that this uses the Material theme. Note also that the text size for the radio buttons and the spinner item is smaller than the text size for most other widgets.
3. Open the styles.xml file in the values directory. Move the attributes that customize the radio buttons and the spinner item from the customizations for APIs 15-20 to the customizations for all APIs. This should change the text size for the radio buttons and the spinner item for all APIs, including APIs 21 and later.