

Chapter 3 Projects

1. Sales Tax and Total

Create an app that allows the user to enter the amount of a purchase. The program should then calculate the state and county sales tax. Assume the state sales tax is 4 percent and the county sales tax is 2 percent. The program should display the amount of the purchase, the state sales tax, the county sales tax, the total sales tax, and the total of the sale (which is the sum of the amount of purchase plus the total sales tax).

2. Body Mass Index

Create an app that lets the user enter his or her weight (in pounds) and height (in inches). The app should display the user's body mass index (BMI). The BMI is often used to determine whether a person is overweight or underweight for his or her height. A person's BMI is calculated with the following formula:

- $BMI = \text{weight} \times 703 \div \text{height}^2$

3. Cookie Calories

A bag of cookies holds 40 cookies. The calorie information on the bag claims that there are 10 servings in the bag and that serving equals 300 calories. Create an app that lets the user enter the number of cookies he or she ate and then reports the number of total calories consumed.

4. Currency Converter

Create an app that will convert U.S. dollar amounts to Japanese yen and to euros. To get the most up-to-date exchange rates, search the Internet using the term *currency exchange rate*. If you cannot find the most recent exchange rates, use the following:

- 1 Dollar=97 Yen
- 1 Dollar=0.76 Euros

Display your currency amounts rounded to two decimal places.

5. Distance Traveled

Assuming there are no accidents or delays, the distance that a car travels down an interstate highway can be calculated with the following formula:

- Distance = Speed \times Time

Create an app that allows the user to enter a car's speed in miles per hour. The application should have buttons that display the following:

- The distance the car will travel in 5 hours
- The distance the car will travel in 8 hours
- The distance the car will travel in 12 hours

6. Celsius and Fahrenheit Temperature Converter (Last Name A-L)

Assuming that C is a Celsius temperature, the following formula converts the temperature to Fahrenheit:

- $F=9/5C+32$

Assuming that F is a Fahrenheit temperature, the following formula converts the temperature to Celsius:

- $C=5/9(F-32)$

Create an app that allows the user to enter a temperature. The app should have Button components described as follows:

- A button that reads *Convert to Fahrenheit*. If the user clicks this button, the app should treat the temperature that is entered as a Celsius temperature and convert it to Fahrenheit.
- A button that reads *Convert to Celsius*. If the user clicks this button, the app should treat the temperature that is entered as a Fahrenheit temperature, and convert it to Celsius.

7. Calories from Fat and Carbohydrates (Last Name M-Z)

A nutritionist who works for a fitness club helps members by evaluating their diets. As part of her evaluation, she asks members for the number of fat grams and carbohydrate grams that they consumed in a day. Then, she calculates the number of calories that result from the fat, using the following formula:

- calories from fat=fat grams \times 9

Next, she calculates the number of calories that result from the carbohydrates, using the following formula:

- calories from carbs=carb grams \times 4

The nutritionist asks you to create an app that will make these calculations.

8. Calorie Counter

Create an app with a screen that resembles [Figure 3-99](#). The screen displays the images of four fruits (a banana, an apple, an orange, and a pear) and each fruit's calories. You can find these images in the *Fruit Symbols* folder.

When the application starts, the total calories displayed should be zero. Each time the user clicks one of the fruit images, the calories for that fruit should be added to the total calories, and the total calories should be displayed. When the user clicks the *Reset* button, the total calories should be reset to zero.

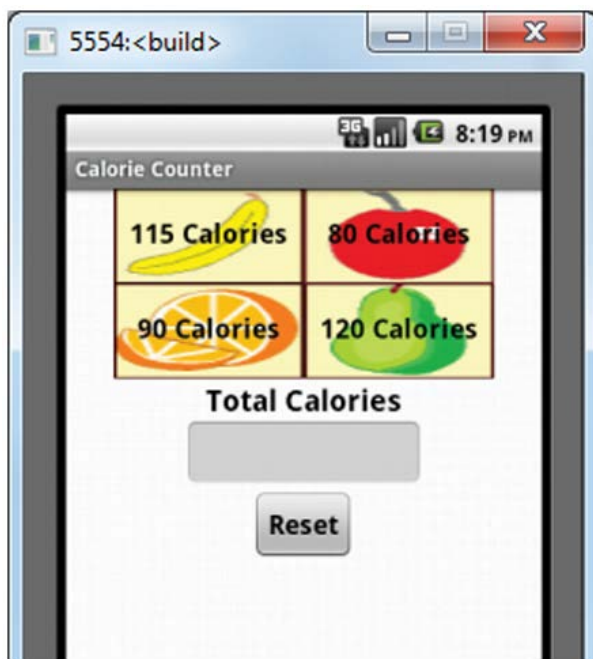


Figure 3-99 Calorie Counter App