# Lab 1: Chapter 8, “Inheritance” SOLUTION

The following exercises are intended to help you apply and practise the concepts introduced in this module. This work is **not** submitted for marks.

1. Take a copy of Words.java, Book.java, and Dictionary.java from the Chapter 8 directory in the “Source Code” area of your course. Compile and run them to reproduce the effects described on pages 382–384 of your textbook.
2. Take a copy of Words2.java, Book2.java, and Dictionary2.java from the Chapter 8 directory in the “Source Code” area of your course. Compile and run them to reproduce the effects described on pages 387–389 of your textbook. Modify Words2.java to include another dictionary with a different number of pages and definitions.
3. Draw an inheritance class hierarchy similar to that of Figure 8.4 (p. 394) to show types of Food: Fruit (like Apple or Banana), Dairy (like Milk or Cheese), and Vegetable (like Carrot, Bean, or Lettuce).
4. Create a UML class diagram showing an inheritance hierarchy containing classes that represent different types of payment transactions at a store (cash, credit card, etc.). Show some appropriate variables and method names for at least two of these classes.
5. Design and implement a class called MonetaryCoin that is derived from the Coin class presented in Chapter 5. Store a value in the monetary coin that represents its value and add a method that returns its value. Create a driver class to instantiate and compute the sum of several monetary coin objects. Demonstrate that a monetary coin can be inherits its parent’s ability to be flipped. (**Hint:** The Coin class and driver from Chapter 5 have been placed in the Chapter 8 directory in the “Source Code” area of your course.)

## Solution

1. See pages 382–384 of your textbook.
2. See pages 387–389 of your textbook.
3. A sample diagram is below:



1. A suggested solution is below:



1. See MonetaryCoin.java and MonetaryCoinDriver.java in the “Lab1 Solution Files” folder.