1 Understanding Data

1.1 Problem (2.1)

Translate the three examples of information from the GPS problem into instances of *GPSLocation*.

Copy the class definitions from the textbook and show the examples as data in the *Examples* class.

What is the meaning of **new** *GPSLocation*(50.288, 0.11) in this context? Include your answer as a block comment in the file that holds the rest of the problem answers. ∎

1.2 Problem (2.1 - into HtDP)

Write down the data definitions for the information from the GPS problem and translate your examples of this data into the Beginner HtDP language. ∎

1.3 Problem (2.2 - modified)

Take a look at this problem statement:

> Develop a program that assists a bookstore manager. The program should keep a record for each book. The record must include its book, the author's name, its price, and its publication year.

Design the data definition in the Beginner HtDP language that represents the information for the bookstore manager and provide data examples of the following three books:

Daniel Defoe, *Robinson Crusoe*, $15.50, 1719;
Joseph Conrad, *Heart of Darkness*, $12.80, 1902;
Pat Conroy, *Beach Music*, $9.50, 1996

Develop an appropriate class diagram and implement it as a Java class. Create instances of the class to represent the same three books. ∎

1.4 Problem

Translate the class diagram in figure 1 into a class definition. Also create instances of the class. ∎

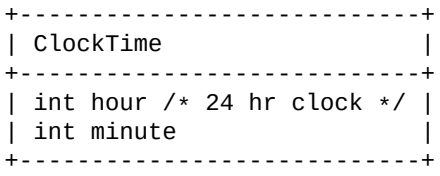

Figure 1: A class diagram for recording the time of day

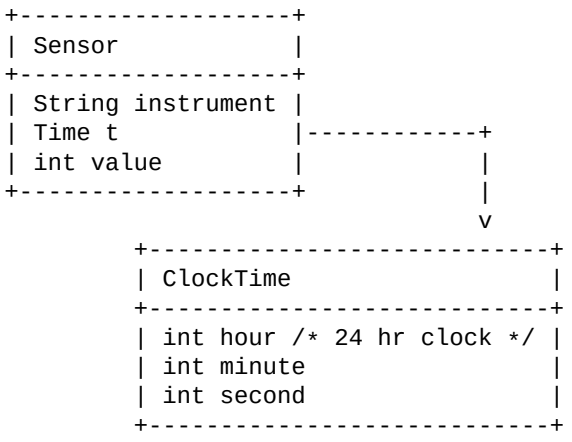

Figure 2: A class diagram for sensor readings

1.5 Problem

Take a look at the data definition in figure 2.

Design the data definition in the Beginner HtDP language that represents the information for a sensor and provide data examples.

Translate the class diagram into a collection of Java classes. Translate the Beginner HtDP examples into Beginner ProfessorJ language. ∎

1.6 Problem (3.3)

Revise the data representation for the book store assistant in problem 1.2 so that the program keeps track of an author's year of birth and the author's name. Modify the class diagram, the class definition, and the examples. ∎

1.7 Writing Problem

Writing assignments are separate from the rest of the assignment for the week. You should work on this assignment alone, and submit your work individually on the due date for the rest of the homework. The answer should be about two paragraphs long — not to exceed half a page or 300 words.

Find on the web statistics about some interesting aspect of computing. Describe one particular statistics, explain what it means, and why do you find it interesting. Include the URL for the site where you found this information. ∎