Delta College

CST 183
Programming Assignment 4

Fall 2019
Instructor: T. Klingler

Objective

To build a complete working Java program that applies methods and basic object oriented programming.

Overview & Instruction

Write a Java application that will manage a car rental transaction.

Your solution should include two files: one containing the **CarRental** class including the data and method definitions and a second file to contain the "driver" application. Build your solution such that all interaction with the user is contained within the driver application.

Design your class to meet the following specifications:

Class `CarRental`	
Data • Customer classification • Days vehicle rented • Odometer mileage at start • Odometer mileage at end	**Methods** • No-argument constructor • Parameterized constructor • set/get methods • Validate data • Calculate rental cost

Your application should essentially do the following:

1. Read the input from the user via dialog-based input and "set" into one object of the **CarRental** class.
2. Validate the input. If the information is invalid. Be sure to utilize the class member designated for error checking. This method should return a boolean value back to the driver class if any of the values "set" in the object are invalid. For invalid input, you can either terminate the program or loop to offer the user another opportunity to start again.
3. If all data are valid, build contents of a summary output statement into one output dialog. Include the following:
    - Miles driven
    - Days rented
    - Rental base charge
    - Rental mileage charge
    - Total rental charge

Consider the following specifications for the program:

- Actual vehicle odometers measure to the 1/10 of a mile. Your program should accommodate this for both odometer inputs. Then, when calculating the files driven, always "round up" to the next highest mile for the tenths value of the difference.

- For computing the amount of money that the customer will be billed, it will be based on the customer's classification code, number of days in the rental period, and number of miles driven.
    - Code **B** (budget)
        - Base charge: $40.00 for each day
        - Mileage charge: $0.25 for each mile driven
    - Code **D** (daily)
        - Base charge: $60.00 for each day
        - Mileage charge: no charge if the average number of miles driven per day is 100 miles or less; otherwise, $0.25 for each mile driven above the 100 mile per day limit.
    - Code **W** (weekly)
        - Base charge: $190.00 for each week (or fraction of a week)
        - Mileage charge: no charge if the average number of miles driven per week is 900 miles or less; $100.00 per week if the average number of miles driven per week exceeds 900 miles but does not exceed 1500 miles; otherwise, $200.00 per week plus $0.25 for each mile driven above the 1500 mile per week limit.
    - The amount billed to the customer is the sum of the base charge and the mileage charge.

- Your class should include a method for basic error checking. Build this method to return true of all information "set" into the object is value and false otherwise. Check to verify:
    - The ending odometer reading is greater than the starting value
    - The customer codes are only **B**, **D**, or **W** (or the lower case forms for these characters)
    - The number of days renting exceeds zero but does not exceed 60

Deliverables

Deliver the following to the online course management system **dropbox** as your final product:

- **Upload** your **source code** (.java) files

Notice

This is an individual assignment. You must complete this assignment on your own. You may not discuss your work in detail with anyone except the instructor. You may not acquire, from any source (e.g., another student or an internet site), a partial or complete solution to a problem or project that has been assigned. You may not show another student your solution to an assignment. You may not have another person (current student, former student, tutor, friend, anyone) "walk you through" how to solve the assignment.
