Homework Assignment #6

CS5004 – Object-Oriented Design
Northeastern University – Silicon Valley
Summer 2020

Due Sunday 06/21 at 11:00pm PT

Grading: Each programming problem is graded as follows

- A submission which does not compile gets 0.

- A submission which compiles but does something completely irrelevant gets 0.

- A submission which works (partially) correctly, gets (up to) %80 of the total credit.

- %20 is reserved for the coding style. Follow the coding style described in the book.

Problem 1 [65pts]. Define a class named `Person` that contains two instance variables of type `String` that stores the first name and last name of a person plus appropriate accessor and mutator methods. You must provide a constructor which takes as input the first name and the last name. Additionally, a copy constructor must be provided. Lastly, equip the class with `toString` and `equals` methods.

Next, define a class named `Student` that is derived from `Person`. The constructor should receive first name, last name, and also assigns values to student id, course, and teacher name. This class should redefine the `toString` (include student info as well) and `equals` methods. Include appropriate constructors (including a copy constructor).

Define a class named `Teacher` that is derived from `Person`. This class should contain instance variables for the subject name and salary. Include appropriate constructors (including a copy constructor). Finally, redefine the`toString` (include all teacher information) and `equals` methods.

Create a main method (in a class called `Test`) that creates a 4-element array of `Person`s. Populate the array with two student objects and two teacher objects with different values. Next, in a `for` loop, print each one to the console.

Submission format: You must submit one file `Test.java` which contains the public class `Test` containing the tests in its `main()` method. The other classes are in this file as well.

Problem 2 [5pts]. Explain the difference between overriding a method and overloading a method in Java.

Submission format: You must submit one file `Problem2.txt` which contains your answer. Please be brief.