BCS 230: Foundations of Computer Programming II
CRN 23798, 23322, 20108 Spring 2015
Instructor: Dr. Jie Li

Homework 6 – Thursday, March 12
Due Thursday, March 26, 11:55PM on Angel

Assignment Goals: To learn to use class inheritance to create new classes.

Assignment:

A. Define a class `Person` and implement it as required. The class `Person` should consist of three private member variables: `firstName` of type `string`, `lastName` of type `string`, and `id` of type `int`. The class `Person` should also include the following public member functions:

1. `print` to print the id, first name, and last name of the person.
2. `setName` to set the first name and last name according to the parameters.
3. `setID` to set the ID according to the parameter.
4. `getFName` to return the first name.
5. `getLName` to return the last name..
6. `getID` to return the ID.
7. A default constructor to initialize `firstName` and `lastName` to empty string, and initialize `id` to `0`.
8. An overload constructor that initializes `firstName`, `lastName` and `id` according to the parameters.
9. `equalName` to compare two Person objects' names. Return `true` if they are the same, otherwise, return `false`. (See the book example on page 662.)

You should put the class definition in a header file `Person.h` and put the class implementation in an implementation file `Person.cpp`. Write a program to test your class before using it in part B.

B. Write a new class `ParttimeEmployee`, inherited from class `Person`. This new class has two new member variables, `hours` of type `double` and `rate` of type `double`. The class `ParttimeEmployee` has the following new public member functions:

1. `setHoursRate` to set the hours and rate according to the parameters.
2. `getHours` to return the value of `hours`.
3. `getRate` to return the value of `rate`.
4. `getSalary` to calculate and return the employee's salary. The formula for calculating the salary is as follows: The salary equals the hours times the rate. For the first 40 hours, the rate is the given rate; for hours over 40, the rate is 1.5 times the given rate.

5. A default constructor to initialize `firstName` and `lastName` to empty string, `id` to 0, `hours` and `rate` to 0.0.

6. An overload constructor that initializes `firstName`, `lastName`, `id`, `hours` and `rate` according to the parameters.

7. Override the function `print` to output the employee's id, first name, last name, hours, rate, and salary.

In the function `main`, you should write statements to test your class implementations.

You should submit five files in the following names:

```
Person.h
Person.cpp
ParttimeEmployee.h
ParttimeEmployee.cpp
hw6main.cpp.
```

Be sure to include the integrity statement in all your source files.