**MIS 6323**

**Object Oriented Systems**

**Fall 2017**

**Homework Four**

**This homework is different from the previous ones in that I have coded portions of the application for you. You need to fill in the rest of the code complete the application so that it functions as required.**

1. **I have first provided a description of the Employee Application.**

Employee Application

* + - * Create a base class Employee that has the following attributes:
        + Employee’s name (String)
        + employee’s address (String)
        + vehicle data (Vehicle).
      * The child classes FullTimeEmployee, HourlyEmployee and Consultant that inherit from Employee have the following additional properties
        + FullTimeEmployee – salary (double).
        + HourlyEmployee - hoursWorked (int) and hourlyRate (double).
        + Consultant – hoursWorked (int) and ProjectType.
      * All these classes have constructors, accessor and mutator methods. The constructors for all the classes accept values for all their instance variables. In addition, they have additional methods required to complete the application as described below.
      * Compensation for each employee type is to be computed as follows:
        + FullTimeEmployee: Compensation is salary minus taxes. Taxes are calculated based on the tax rate in the table below:

|  |  |
| --- | --- |
| * + - * **Salary** | * + - * **TaxRate** |
| * + - * $45, 000 or less | * + - * 18% |
| * + - * > $45,000 and less than $82,000 | * + - * 28% |
| * + - * > $ 82,000 | * + - * 33% |

For example someone whose salary is $123,000 will pay 18% on the first 35,000, 28% on the next (82,000 – 45,000) and 33% on the remaining (123,000 – 82,000)

* + - * + HourlyEmployee: Compensation is hoursWorked times hourlyRate for the first 40 hours. For hours in excess of 40 hours the hourly rate is 1.8 times the regular hourly rate.

For example, someone whose hourlyRate is $12.50 and who has worked 48 hours will earn 40 \* $12.5 + 8 \* $12.5 \* 1.8

* + - * + Consultant: Compensation is hourlyRate times the hours worked. HourlyRate for Consultants is computed based on the ProjectType as given in the table below:

|  |  |
| --- | --- |
| * + - * **Project Type** | * + - * **HourlyRate** |
| * + - * 1 | * + - * $55.00 |
| * + - * 2 | * + - * $70.00 |
| * + - * 3 | * + - * $85.00 |

* + - * The Vehicle class is as described below: It has four instance variables – make, model, year of manufacture and mileage. It should have a constructor which accepts values for all of the instance variables. It should also have accessor and mutator methods for each of the instance variables.
      * Now write a driver program to do the following:
        1. Accept input for new Employees
        2. Display employee information for all the employees that are there in the system.
        3. List the name of the Employees along with the compensation received by each.
        4. Display the employee name together with the make, model and mileage of all vehicles whose mileage is greater than 78000 miles.
        5. Exit the system after writing all information to a file.

**II: I have provided six java programs with this homework. At different points in each file, there are comments telling you what code should be written. You should complete each java program as per the requirements stated in the comments. So read the programs carefully and make sure you complete ALL requirements. The Consultant.java does not have anything written. You must write the entire program using the FullTimeEmployee and HourlyEmployee programs as templates.**

* + - * See sample .jar (and .dat) program provided. Your submission should have the same functionality as demonstrated by the sample application. To execute a jar file, put it in the same folder as the .dat file. Using the command-line interface, navigate to the folder containing the jar file together with the .dat file and enter the following command:
* ***java –jar EmployeeApp.jar***
* **Submit a zipped folder containing ONLY the files described below:**
  + **The .java files for this assignment.**
  + **The data file with the records containing all data for the employees given in the testdata file. You must execute your program and enter data for all the employees listed in the testdata file. The resultant employeeata.dat will therefore contain all the data I have provided as testdata. This will enable the TA to more easily grade your homework.**
  + **Note that the employeedata.dat that I have provided will NOT work with your application. You need to create your data file that will be compatible with the class definitions that you have written**
* **The zip file should be named using your name and the chars “hw4”. You will be penalized 15% of the grade if your submission does not follow these requirements. Your submission should have a total of six java files.**
* **You will get zero points if your program does not compile.**