A Payroll System (it is worth a total of 20 points)

You are hired by a small company to design a payroll system to perform payroll calculations based on the type of employee (manager and hourly worker). Managers are paid a fixed weekly salary regardless of the number of hours worked; hourly workers are paid by the the hours and receives overtime pay (50% more overtime pay, but overtime cannot exceed 20 hours per week).

Both managers and hourly workers have something in common. For example, their names. However, the way each person’s earnings are calculated depends on the type of employee, so you decided to define the common features in a more generic class named Employee, then create two subclasses, Manager and HourlyWorker for manager and hourly worker, respectively.

Design an abstract class named Employee.java with the following data members and methods:

Data members: firstName, lastName

All getter and setter methods

Constructor takes first name and last name as parameters.

toString() methods to return name (Steve Davis, for example)

earnings() to return earnings (double) (**think about if it is appropriate to be defined as abstract**)

Create Manager.java and make it a subclass of Employee. This class should have its own data member: weeklySalary (double):

Getter and setter method for the new data member

Implement earnings() method to return weekly salary (be sure to validate weekly salary, the salary range is between $800 and $2000, for any other numbers, assign 0)

Override toString() method to type of employee followed by manage name. For example, Manage: Steve Davis

Create HourlyWorker.java and make it a subclass of Employee:

Data members: wage (per hours), hours (hours worked for a week)

Getter and setter methods (remember, number of hours worked per week cannot exceed 60 hours. If a number over 60 is entered, it will be reduced to 60 hours; wage range: $25 - $50, all other numbers are considered as invalid and assign default wage, which is $35 per hour)

Implements earnings() method

Override toString() to return employee type and name (for example, Hourly Worker: John Kanet)

Write a tester class named Tester.java to test your payroll system. Your tester class will read data file (employee.txt) and create employee objects, then print payment for each employee.

**The sample input file:**

#Steve Davis

1200

\*John Kanet

35.5

50

\*Matthew Williams

25

40

#Alex Bowers

5000

\*Atanas Radenski

-45

80

**a line starting with # is a manager, followed by weekly salary; a line starting with \* is a hourly worker, followed by wage and hours.**

**Sample output:**

Manager: Steve Davis

Earned: 1200.0

Hourly Worker: John Kanet

Earned: 1952.5

Hourly Worker: Matthew Williams

Earned: 1000.0

Manager: Alex Bowers

Earned: 0.0

Hourly Worker: Atanas Radenski

Earned: 2450.0