CSCI 3381 OO with Java Project 1

Object Oriented Design of an Automobile Quality Prediction System

Overview:
The project will have two basic functions. It will show how accurate the predictive model is using known data. It will give a prediction given a test car.

To keep everything consistent here are the fewest classes you must develop.
PredictorTester
Predictor
Car

Your Predictor class will implement the PredictorADT interface
Your Car class will implement the CarADT interface

PredictorADT.java (constructor: (String filename))

```
public interface PredictorADT {
        public double getTrainingAccuracy ();
        public String getPrediction (CarADT instance);
}
```

CarADT.java (constructors: () no parameters & (String, String, int, int, String, String, String)

```
public interface CarADT {
        public void setBuying (String s);
        public void setMaint (String m);
        public void setDoors (int numDoors); // set "more" as 5
        public void setPersons (int numPersons ); // set "more" as 5
        public void setTrunk(String t);
        public void setSafety (String s);
        public void setRating (String c);
        public String getRating();
}
```

First, develop and test the Car class using code in the PredictorTester. This class will store information about a single car.
Second, build and test the Predictor class. You will need to open, read and store the carTrain.data file. Then, you will develop the getPrediction(CarADT instance) method. The parameter will be a Car, you can assume with all attributes set except the Class. The method will return either unacc, acc, good, or vgood based on the comparison of the input car and the training data. Finally, you will develop the getTrainingAccuracy() method which will call getPrediction for each of the Car(s) in the data set. You will compare the return from getPrediction and the known class for the car and see if they match. Keep track of the number correct and return the ratio of number correct / total number tested.

Project Objective: in completing this project, you will

- Develop a UML diagram of a potential solution
- Enhance your understanding of Object Oriented design.
- Devise and implement a variety of classes that manage data read from the given comma separated file, a prediction module that uses all of the data to make predictions, a method for assessing your training error.

Project #1

Due Sunday October 7th via Blackboard. Submit your project as an exported jar file.

Honor:

This is an independent programming project, and it is very important that you understand and abide by the policy concerning programming projects. Remember, your personal honor and integrity is far more important than your grade on the project.