CS152 Project 1

ArrayList of Objects and Input File

Use BlueJ to write a program that reads a sequence of data for several car objects from an input file. It stores the data of the cars in an ArrayList<Car> list . Program should work for input file containing info for any number of cars. (You should not assume that it will always be seven lines in the input file). Use notepad to create input file "inData.txt". Store input file in the same folder where all files from BlueJ for this program are located.

Class **Car** describes one car object and has variables vin, make , model of String type, cost of type double, and year of int type. Variable vin is vehicle identification number and consist of digits and letters . In addition, class Car has methods:

public String getMake() // returns car’s make

public int getYear() // returns car’s year

public boolean isExpensive() // returns true if car has cost above 30000 and false

//otherwise

public boolean isAntique() // returns true if car’s year is before 1968, and false

// otherwise

public String toString() // returns string with all car’s data in one line

// separated by tabs.

Design class **CarList** that has instance variable list which is of ArrayList<Car> type. Variable list is initialized in the constructor by reading data for each car from an input file. Each line of input file "inData.txt" has vin, make, model, cost, and year data in this order, and separated by a space. Input file should contain 7 cars. The data for the first three and last two cars in the input file should be as follows:

1234567CS2 Subaru Impreza 27000 2018

1233219CS2 Toyota Camry 31000 2018

9876543CS2 Ford Mustang 45000 1960

…

Insert her remaining two non-antique cars of your choice.

…

3456789CS2 Toyota Tercel 20000 2018

4567890CS2 Crysler Royal 21000 1960

Class **CarList** also has the following methods:

* public void printList() // Prints title followed by list of all cars (each row has data

//for one car)

* public void printCarsWithMake(String make) // Method accepts a make

// and prints full info of all cars with given make.

* public int countAntiqueCars() //Returns count (number) of antique cars in the list.

* public Car newestCar() // Returns the newest car( which has the most recent year.)

// In case of multiple cars with the same most recent year

// method returns first such car in the list.

* public ArrayList<Car> antiqueExpensiveCarList() // Returns ArrayList

// of all cars from the list that are both antique and expensive.

// Method antiqueExpensiveCarList is extra credit .

The last three methods just return the specified data type. Do not print anything within those methods. Just return the requred result, and have explanation printed at the place where those methods are invoked. None of the above five methods should modify the list of cars. (That means that before and after invoking any of those five methods the list of cars should remain the same.)

Class **TestCarList** will have main method. In it, instantiate an object from CarList class and use it to invoke each of the five methods from CarList class. If method countAntiqueCars returns zero, report that there are no antique cars in the list, otherwise provide count with full sentence.

NOTE: Do not forget to append throws IOException to the constructor of CarList class and main method header in class TestCarList. In addition, you have to provide

import java.io.\*;

import java.util.\*;

in order to use Scanner and ArrayList classes from Java.

**SUBMIT** a single word or PDF document named **p1\_yourLastName\_CS152** with the following:

* Your name, class section, project number and date of submission in the upper left corner.
* Copy of the code for each class in separate rectangle.
* Copy of your input file.
* BlueJ of the structure of your application.
* Picture of program run from BlueJ.