COMP 1409 Lab 7-a (2 points)

In this lab you will simulate a car's fuel gauge.

Create a class called **FuelGauge**. Here is the relevant attribute:

int amoutOfFuelInLitres

Provide a default and a non-default constructor. Both constructors use the appropriate set method to initialize the instance variable. The non-default constructor accepts a parameter which it passes to the set method for validation.

Provide a mutator (set) method for the instance variable. The mutator accepts a parameter, validates it and uses the parameter to set amountOfFuelInLitres only if the passed parameter is between 0 and 15 inclusive, otherwise set the fuel amount to 15. Remember to use symbolic constants instead of "magic" numbers.

Provide an accessor method for the instance variable.

Provide a method with this signature:

public void useFuel()

This method decrements the amount of fuel by 1 litre each time it is called. If the fuel level reaches 0 the message "the tank is empty the fuel cannot go below 0" is displayed.

Provide a method with this signature:

public void addFuel()

This method increments the amount of fuel by 1 litre each time it is called. The amount of fuel can't go above 15 litres. If the fuel amount reaches 15 the message "tank is full" is displayed.

Create a class called **Car**. Here are the relevant attributes

carMake
carColour
fuelGauge of type FuelGauge

Provide two constructors. Both constructors use the appropriate set methods to initialize the instance variables. The non-default constructor accepts String parameters to initialize the instance variables carMake and carColour, and an int parameter to set the amount of fuel in the fuel gauge when the new FuelGauge object is created.

The set methods for make and colour validate their parameters to ensure they are not null. The set method for fuelGauge expects a FuelGauge parameter. If the parameter is not null, it is used to set the instance variable, otherwise a new FuelGauge object is created using the default FuelGauge constructor.

Provide accessor methods for all instance variables.

Provide a method called drive(). This method decrements the fuelGauge.

Provide a method called fillTank(). This method increments the fuelGauge.

Demonstrate your completed project to your instructor or TA before leaving the lab and be sure we have checked it off. A suggested solution will be given during the next class and labs that have not been checked off will not receive any points.