Computer Science 60-212 - Fall 2017

Lab 3 Activities

Activity 1.

Implement a class `Car` with the following properties. A car has a certain fuel efficiency (measured in miles/gallon or liters/km – pick one) and a certain amount of fuel in the gas tank. The efficiency is specified in the constructor, and the initial fuel level is 0. Supply a method `drive` that simulates driving the car for a certain distance, reducing the amount of gasoline in the fuel tank. Also, supply methods `getGasInTank`, returning the current amount of gasoline in the fuel tank, and `addGas`, to add gasoline to the fuel tank, Sample usages are:

```
Car myHybrid = new Car(50);            // 50 miles per gallon
myHybrid.addGas(20);                   // Tank 20 gallons
myHybrid.drive(100);                         // Drive 100 miles
double gasLeft = myHybrid.getGasInTank();   // Get gas remaining in tank
```

You may assume that the `drive` method is never called with a distance that consumes more than the available gas. Supply a `CarTester` class that tests all methods.

Activity 2.

A `Person` has a name (just a first name for simplicity) and `friends`. Store the names of the friends in a string, separated by spaces. Provide a class for `Person` and a constructor that constructs a person with a given `name` and no friends. Provide the following methods as well:

    befriend(Person p)
    unfriend(Person p)
    getFriendNames()
    getFriendsCount()

Activity 3.

Last week, you had a lab activity to draw a happy face on a frame by updating the RectangleViewer class. In this activity try to follow the method we learned in Chapter 3 to create a class for happy face and then draw two or more happy faces on a frame. Note that for this task you need to have three separate classed, HappyFace, HappyFaceComponent, and HappyFaceViewer.