Quiz 10: Objects SOLUTIONS

CSCI 110 Section 1

Friday, September 16, 2016

```
public class Student {
    private String name;
    private int year;  // 1 == freshman, 2 == sophomore, etc
    private double gpa;

    public Student(String name, int year, double gpa) {
        this.name = name;
        this.year = year;
        this.gpa = gpa;
    }

    // problem 1
    public boolean canGraduate() {
        return year == 4 && gpa >= 1.0;
    }

    // problem 2
    public String toString() {
        String result = name + ", ";
        if (year == 1) {
            result += "freshman";
        } else if (year == 2) {
            result += "sophomore";
        } else if (year == 3) {
            result += "junior";
        } else {
            result += "senior";
        }
        return result;
    }
}
```

1) Add a method canGraduate() that returns true if the student is a senior with a GPA of at least 1.0. [25 points]

2) Add a method toString() that returns a String with student's name and year (freshman, sophomore, junior or senior - NOT the number). Don't print - return a String. [25 points]

3) Define a class for a car. Give the car attributes for model, current speed, price, and whether it's a lemon. Create a constructor for your class. Add a method called accelerate() that increases the speed. Add a method called getPriceTag() that returns a String containing the model and price. [50 points]

```
public class Car {
    private String model;
    private double currentSpeed;
    private double price;
    private boolean isLemon;

    public Car(String model, double currentSpeed, double price,
               boolean isLemon) {
        this.model = model;
        this.currentSpeed = currentSpeed;
        this.price = price;
        this.isLemon = isLemon;
    }

    private void accelerate() {
        currentSpeed += 1;
    }

    private String getPriceTag() {
        // This is a simple solution. A more precise solution would
        // have been:
        //
        //   return String.format("%s, $%.2f", model, price);
        //
        // String.format() is a function that takes the first
        // argument, a format string, then returns a String containing
        // the remaining arguments with the format specified. "%s"
        // means put a string there. "%.2f" means put a floating point
        // number here with two decimal places.
        //
        return model + ", $" + price;
    }
}
```