Lab 16

Instructions: Complete the steps below. Be sure to upload a copy of all your source code (.java) files to the link on Brightspace by its deadline, so that you can receive credit for this lab.

1. (Stock.java and Stock.jpg) Implement a class named Stock.java that contains:
   - A string data field named symbol for the stock's symbol.
   - A string data field named name for the stock's name.
   - A double data field named previousClosingPrice that stores the stock price for the previous day.
   - A double data field named currentPrice that stores the stock price for the current time.
   - A constructor that creates a stock with specified symbol and name.
   - The accessor methods for all data fields.
   - The mutator methods for previousClosingPrice and currentPrice.
     A method named changePercent() that returns the percentage changed from previousClosingPrice to currentPrice.

   Draw the UML diagram for the class in iDraw or Violet. Implement the class. Write a main method that creates a Stock object with the stock symbol GOOG, the name Google Inc., and the previous closing price of 1000. Set a new current price to 2000 and display the price-change percentage. Write a similar test in the same main method for 2 other stocks: Facebook and Amazon (you can take their real prices from online Web sites like Google Finance or Yahoo Finance).

2. (Fan.java and Fan.jpg) Implement a class Fan to represent a fan. The class contains:
   Three constants named SLOW, MEDIUM, and FAST with values 1, 2, and 3 to denote the fan speed.
   - An int data field named speed that specifies the speed of the fan (default SLOW).
   - A boolean data field named on that specifies whether the fan is on (default false).
   - A double data field named radius that specifies the radius of the fan (default 5).
   - A string data field named color that specifies the color of the fan (default blue).
   - A no-arg constructor that creates a default fan.
   - The accessor and mutator methods for all four data fields.
   - A method named toString() that returns a string description for the fan. If the fan is on, the method returns the fan speed, color, and radius in one combined string. If the fan is not on, the method returns fan color and radius along with the string "fan is off" in one combined string.

   Draw the UML diagram for the class. Implement the class. Write a main method that creates two Fan objects. Assign maximum speed, radius 10, color yellow, and turn it on to the first object. Assign medium speed, radius 5, color blue, and turn it off to the second object. Display the objects by invoking their toString method.

Grading Guidelines: This lab is graded on a scale of 0-3 points, assigned as follows:

- 0 - The student did not attend the lab,
- 3 - The solutions are complete OR the student spent the entire lab solving the required lab problems (in this case, the students may not arrive at the lab after the lab started and may not leave until the lab ends).