California State Polytechnic University, Pomona **Name_____**
Computer Science Department
CS141: Introduction to Programming and Problem-Solving
Spring 2016
Instructor: Prof. Tony Diaz

Program 4 - Due May 13

(Total: 100 pts)

A diamond is stone which is usually valued based on its size, clarity, and color, and can be cut in many different styles. Write a program titled "YourLastName_Diamond" that represents the information gathered of a diamond and implements the comparable interface.

Your program will have the following instance variables:

- stockNumber – contains the identifying string of the diamond.
- carot – contains a double for the size of the diamond.
- clarity – contains a string with the clarity grade of the diamond.
- color – contains a char with the color grade of the diamond.
- cut – contains a string with the name of the diamond's cut.

Your program will have the following instance methods:

- getStock(), getCarot(), getClarity(), getColor(), getCut() which will return their corresponding variable.
- toString() – a descriptive method of the diamond class which generally covers all the instance variables.
- compareTo(Diamond other) – compares two diamonds and returns an int value so that better diamonds are to the left of poor diamonds when sorted. This means that goodDiamond.compareTo(poorDiamond) returns a negative value.
- A constructor method for the class which takes in a string, double, string, char, and string as arguments in order to initialize one of each of the instance variables given above.

Use the following guidelines for the instance variables and methods above:

The size of a diamond is measured in carots, usually less than 5.0. The clarity grade of a diamond is given as a two or three letter code, FL, IF, VVS1, VVS2, VS1, VS2, SI1, SI2, I1, I2, I3. FL (flawless) is the best, I3 is the worst. The color grade is a one letter code, D through Z. D is the best, Z is the worst. The cut is the name of the pattern the diamond has been cut into.

The method compareTo() is written so that diamonds are ordered first by carot, then by clarity OR color, whichever is better for the particular diamond. Since there are 23 grades of color, but only 11 grades of clarity, regard the first two color grades as equal in grade to the first grade of clarity, the next two color grades equal in grade to the second grade of clarity, and so on. In comparing the codes for clarity, you will need a series of if statements.

Run the diamond program with the driver provided online and capture all interaction in a file using the script command. (Modify the driver for "YourName_Diamond" to be used in place of Diamond in the main method)

What to turn in:
- Soft copy of the results using the script command
- Soft copy of the programs (using Blackboard)