CS 142: Minor Assignment 2

Grade Calculator

Instructions: Create a new project in Eclipse, download the outline of the GradeCalculator.java file from Canvas, and import it into your project. Fill in the methods appropriately, test your code, and submit the completed .java file to Canvas by the due date.

Please refer to the "Getting Help" and "Academic Dishonesty" portions of the syllabus for direction on how to get help. You are always welcome to message your instructor. Make use of this if you are stuck!

Background: A weighted average is an average of several numbers where some count for more than others (like exams counting for more than quizzes). The proportion of the total that a value counts for is called its weight. In a weighted average, you multiply each value by its weight, then add all the results. There is no dividing by the total number of values averaged.

For example, if x is worth 10%, y is worth 55%, and z is worth 45%, the weighted average would be

$$avg = 0.10 * x + 0.55 * y + 0.45 * z$$

Feel free to look up more about weighted averages if you need to.

Set-up: Suppose you are taking a course with 3 quizzes and 2 exams. The lowest of the three quiz scores is dropped when computing your grade. Each remaining quiz is worth 20% of your grade (so quizzes are 40% total) and the exams are worth the other 60%.

The professor has a great attendance policy: if your attendance was good, then the higher of your two exam scores is worth 40%, and the lower exam score is worth 20%. If your attendance was not good, each exam is worth 30%.

The problem: Fill in the code in the method `weightedAverage()` to compute the weighted average of the input scores with the system described above. hadGoodAttendance is a boolean that describes which weighting scheme is used for the exams.

To help you drop the lowest quiz score, also complete the method `minOfThree()` that returns the minimum of the three inputs. If there are two (or more) scores tied for the minimum, the method should return that value. Do not use the `Math.min()` method in your code.
Hint: To add the best two quiz scores, you can just add all three and then subtract the lowest one.

Thoroughly test your code before turning it in. A good way to do this is to make each scores either 0 or 100 so you can easily tell what the output should be.

Comment your code enough that another student could look at it and tell what is going on.

Extra credit (1 point): Write another method: `public static void letterGrade(double score)` that doesn't return anything, but prints to the console the sentence "Your letter grade is a *letter*", where *letter* is determined based on the following scale:

weightedAverage in range:	*letter*
Less than 60	E
At least 60, but less than 70	D
At least 70, but less than 80	C
At least 80 but less than 90	B
At least 90	A

Then add a statement to the main method calling `letterGrade()`, where the input is the `weightedAverage()` method.

For extra fun (but not extra credit) consider how you would put a + after a letter grade if the last digit of the average was 8 or 9, and a – after the letter grade if the last digit of the average was 0, 1, or 2. Note that you could do this separately in each grade category (with nested if's) but it would be more efficient to just check the last digit in one place.