SAS Training: Student Grades Assignment

The purpose of this assignment is to get you used to using sorts, FIRST-dot, LAST-dot, BY statements, and RETAIN. You should not have to use *proc means*, data merges, or *proc transpose* for any of the steps in this assignment.

The file "Student Grades.xlsx" represents scores for 5 students over the course of two semesters. During each semester, there were 3 quizzes, one midterm, and one final exam (for a total of 100 points). During the Fall semester, there was also an extra credit assignment worth 3 points. The instructor also has a policy where the lowest quiz score from each semester is dropped. For this assignment, you are going to make a file that is useful for the teacher when assessing final grades at the end of the year. She wants several things accomplished:

1. First she asks that you read the file into SAS using INFILE (convert the file to CSV first).

2. Next, she wants you to collapse the file into *one record* per student, per-semester. For each student, you should determine the total number of points earned during each semester, excluding extra credit work. Next, you should determine the total number of points earned excluding the lowest quiz score. You should also include a flag (a [0/1] variable) that shows whether the student completed the extra credit assignment during the Fall semester. The final file should have 10 records. Note: to do this, you should <u>not</u> use *proc means* or any sort of data merge. It can be accomplished in a single data step. Drop variables that are no longer relevant.

3. After seeing the file, the teacher decides that one record per semester is not what she wants. Instead, she wants a file that has 5 records (one for each student) with both semester grades on the same line. She asks that you calculate the percentage grade for each student, per semester, in two ways: a) a raw percentage without the lowest quiz dropped (total score/100); and b) a revised percentage with the lowest quiz dropped (total score/90). She asks that you include the extra credit points for the fall semester. Your final file should include five observations along with the following variables: fall_semester_raw, fall_semested_adj, spring_semster_raw, spring_semester_adj. It should not have any unnecessary variables. Again, you should be able to accomplish this in a single data step without using merges, etc.

4. Finally, the teacher sees the file with one observation per student and wants to make a change to its structure. She wants each student record expanded so that each student has four records in a file with 20 total observations. Each record should should show the student's ID number, the semester, the score type (RAW vs. ADJUSTED) and the percentage. This manipulation should <u>*not*</u> be done using *proc transpose*.