CST 357/457
Michael Ruth
Homework #1
Due: 9/25/23 (by midnight)

Undergraduates & Graduate Students:

For this assignment, you will write a single C program. You will create a folder which contains the programs and then zip the folder for submission to blackboard. Please be sure to document your programs appropriately. You must rename the file using your last name followed by your first name followed by a dash followed by the assignment name (For instance, this is homework1, so I'd turn it in as RuthMichael-Homework1.zip)

Class Grading Simulation

a. We will be simulating test scores for students, curving the individual test scores and reporting final averages for all students.
b. **(20%)** Create a multi-dimensional (4x100) array to hold 4 test scores (integers) for 100 students.
c. **(20%)** In one loop, initialize the 4 test scores for each student to random integers between 60 and 100 for the four exam scores. Note that [0][0] is the first exam, [0][1] is the second exam, and so on for the first student.
d. **(40%)** Create a method that given the array and its two dimensions, determines the average for each exam across all students to determine if a curve is necessary for each test (assume a target average of 75. A curve is necessary if the average for the given test is below 75.
    1) If so, print that a curve was necessary for each exam. Calculate the curve (75-average) and add the curve back to the test scores. Otherwise, report that no curve was necessary since average was above 75.
e. **(20%)** Finally, in another loop, calculate and print the final score for each student (average of the four scores) on its own line similar to "**Student X: AVG**". Note that our student names will be Student followed by the position in the array (IE, Student 0 to Student 99)
f. Please name the program/file: **classsim.c**

Graduate Students (or UG for extra credit + 50):

- **(30%)** Instead of initializing the exam scores using a fixed lower and upper bound, ask the user for the upper and lower bounds to use for each exam during the initialization phase for each exam.
- **(20%)** Instead of using a fixed curve for each exam, ask the user for the curve they would like to use for each exam after the exam average is calculated and displayed. IE, show the average and then ask the user for the curve they wish to use for this exam (and then perform the same work as before).

Note:

- If you don't turn in the file in the correct format, I will take **10 points** off the total score.
- If you don't name the files or methods correctly, I will take **10 points** off the total score.
- You SHOULD NOT need to use material learned outside this class. If you choose to do so, you will earn NO points on this homework.
- If someone else turns in your homework, you both get a zero whether or NOT you know each other.
- Do NOT try to do this last minute!