This simple Java program takes in user input for important information such as the user's name, seven assignment scores, seven test scores, a midterm grade, and a final exam grade. To calculate the final grade, we use the specific formula that calculates the average of the test scores:

E = ((0.4 * Final exam grade) + (0.2 * Midterm grade) + (0.1 * Average of the 7 test scores))/ 0.7

In this formula, the coefficients 0.4, 0.2, and 0.1 represent the weights assigned to the final exam, the midterm, and the average of the tests. Division by 0.7 normalizes these values to a percentage format, which shows how well you did on all the tests. The error in the syllabus was that it suggested dividing by 70 instead, which would create mistakes in the calculations. An example of why this would give incorrect results would be if a student were to get perfect scores on all exams, the E value would be at max 1. This means that E will always be less than 60, resulting in the program using the incorrect formula to calculate the final grade.

The program's grading structure is built around specific scores for test averages. If a student's averages are below 60, the final grade is just the average of the tests, meaning that assignments will not weigh the final calculation at all. If the test averages are in the range of 60 to 79, then the assignment weight is determined using the formula:

assignment weight = (Test averages - 60) / 20 *0.3

I'm not sure what the constants in this formula represent. This calculated weight is then later used for another formula, which calculates the final grade.

(1 - weight) * Test averages + assignment weights * assignments averages

Finally, for the scenario where the test averages are 80 or above, the final grade is calculated with the formula:

(Test average * 0.7) + 0.3 * assignments average

To start the project, I began with including the Identification and Declaration section that had important information such as my name, the operating system, the compiler, the date, the purpose of the program, and policy details. Then, I established the necessary variables that would be useful for storing grades and calculating averages. I then followed that up with writing the formulas to compute the test averages and assignment weight. I also set up the basic structure for the final if statements to see where the test averages would belong.

Throughout this project, I learned to use the Java Scanner class to get user input. I also made two for loops to calculate averages for both tests and assignments separately. Additionally, I found the difference between using printf and println for formatting decimal outputs, which was shown in the Friday notes. I found and fixed various bugs, especially ones relating to incorrect

formulas and uninitialized variables/ variables without types. I was also making lots of adjustments to match the programming standards, which were provided on Blackboard. This project has greatly helped my understanding of Java programming and basic skills such as user input and grade calculation.