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Assignment 8 and 9 Report

Since the bulk of these 2 assignments was mainly experimental/learning I am going to combine them into a single report.

Exercises

List of Files:

A8E1.cpp
A8E2.cpp
A8E3.cpp
A8E4.cpp
A8E5.cpp
A8E6.cpp

A9E1.cpp
A9E2.cpp
A9E3.cpp
A9E5.cpp

Projects

Understanding:

Since A8E2 is the only one that really had any in-depth thinking, I am going to focus most of the report on this as well. As for the other exercises on both, they are mainly guided and tell you what to do.

The programming project wants you to make a simple program that takes 4 grades in and outputs the user's scores as well as what their overall grade was in the class. The grades are to be stored in a struct that has the 4 variables inside.

The idea should be pretty straightforward, as you just need to use a user input for the 4 values and enter them into a grades struct. Then once that is all complete you run a simple "Weighted Average" algorithm and determine what their grades are.

Design:

The design was pretty simple as well. You need to havea separate function that creates the object and grabs/enters the values in there, while returning the object. Then afterwards you can either have another function or modify the current one.

The midterm and final grades are already out of 100 so there is no math that needs to be done to convert them to a percentage. But the quiz grades are only out of 10 and the 2 grades need to be combined for the weighted average.

The formula for a weighted average is (assignment%)*(portion of class) + n; where n are all of the different assignments that have varying scores in the class. Using that, you just need to grab the average of the 2 quizes (which must be a double formula because there could be remainders that you want to account for). Then turn that into a percentage and use it.

Testing:
I ran into an error early on in regards to the weighted average formula. Namely, with the quizzes section; there were 2 huge logic issues I ran into.
#1. I divided the score by 10 instead of multiplying by 10; a dumb mistake that made my overall score drop.
#2. Because I was doing integer calculation I hit a part where the quizzes portion was not being calculated correctly. It took me a bit to realize why 15/20 was coming out to the same value as 70%; and it finally clicked that the integer division was rounding down.

Reflection:
I am still having a hard time understanding the usage of pointers and references and really need to look into this more. I ran into a lot of dumb errors in the other programs because I was assigning pointers to values and references and such which lead to compiling errors. I need to spend some time and just play around with pointers and references.

The other item I am having a hard time understanding is why is there a need for multiple leveled pointers, IE **ptr. I need to take the time to research this a little more as well.

The last item I need to spend more time on is the classes and defining the objects/using them. I got confused pretty quickly from all of the different objects/defining variables that I was using.