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CS 31 Project 2 Report

In project 1 I did not encounter any significantly difficult problems since what probably helped was me being a little familiar with C++ from my time self-studying in Codecademy. However, what took the most brain power and probably also most time for this project were two things: pre-planning out the entire structure of the program and then how I was going to assign and create certain variables to perform the final math calculations. After reading the specs couple times, and rewatching some parts of Professor Stahl’s lecture, I wanted to plan really well before even beginning to write a single line of code because I wanted to deal more with execution rather than thinking while coding. After thinking with the help of getting a pen and paper and outlining the rough structure of my program, I decided to separate the program in three parts: User IO, Error Check, and finally Stimulus Check Calculations (as noted in the program’s comments). Finally, the last thing that took me the longest and was relatively hardest was figuring out how to create as simple of a math calculation as possible to create the cleanest way I could implement the three different cases of filing status and other parameters. I soon figured it out after writing it down again on pen and paper and decided to create a generic formula with variables that are assigned specifically to what the cases need after user input.

To test an edge case when a single individual is past the full payment up to income threshold but not yet past the $5 per $100 above the full payment limit, I tested $75,099 which is $1 below before actual reduction. My program was successful as it did not create a reduction.

To test a case when a married couple is past the full payment up to income threshold and right on $5 per $100 above the full payment limit, I tested $150,100 which is right on the first deduction of $5. The program was successful as it deducted $5 from $2,400 to $2395.

To test a case when a head of household is past the full payment up to income threshold and right between the first and second $5 per $100 above the full payment limit deduction, I tested $112,650 which is right in between the first and second deduction of $5 to $10. The program was successful as it still deducted $5 and not $10.

To test higher deductions, I tested $2,000 over the full payment up to income limit which equals to 20 $5 deductions or $100. After testing for all filing statuses, program ran successfully as all stimulus checks was relatively reduced by $100.

To test for many erroneous inputs to see if the first error would simply print then exit first, I tested wrong case sensitive for filing status, negative income, and negative dependents. The program was successful as it outputted the first filing status error and then exited returning (-1).