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CS31 Project 2

10/13/22

a) A notable obstacle I overcame was trying to get the amount of income that was only subjected to that specific tax bracket. Starting the project, I thought it would be easy and that I would just put 3 if-statements, for the 3 brackets and call it a day. However, when I ran the program, it wouldn’t output the same tax as the calculator given. This was because the whole income would be subjected to only 1 bracket and not the others. For example, an income of $55001, the $1 should only be subjected to %7 tax. But, the obstacle I faced was that the program took 7% of everything and disregarded the lower tax brackets. I fixed it by making sure I was only applying the tax rates to their respective range of income.

Another obstacle was that if the tax was under or $0, it didn’t print the decimal and two places on the right of $0. To fix that I included $0.00, inside the string literal. Despite it being a quick fix, it took me a while to find out what the problem was.

Another big obstacle I discovered, after I thought everything was final, was when I put the income as 125001.23 and 5 kids. The output tax indicated that the tax was deducted by $1000, which was lower by the website calculator by $1000. This was because I read the spec wrong and thought that if the tax was over $125000, to not deduct but it was actually the “taxable **income**”. I easily fixed it by changing the if-statement's variable, but I was fortunate enough to find that test case before I decided to turn it in as my final.

b)

* A plumber with an income of $45000 and 2 kids. (John, 45000, plumber, 2). This is to test the program to see if it only applies the lowest tax bracket, while subtracting the kid discount.
* A nurse with an income of $125001.03 and 0 kids. (Jen, 125001.03, nurse, 0). This is to test if the program applies the special case where the job is a nurse and the tax rate is lower. Also sees if the rates are being applied correctly to the specific amount of income subjected each bracket, since this amount would definitely apply to all 3 rates.
* A CEO with an income of $143285782329.85 and 8 kids. (Jack, 143285782329.85, ceo, 8). To test if the final tax does not reduce with the amount of kids, since his income is more than the limit.
* A person with no name. (, 1000, person, 0). To test if the error message is correct when an empty string is provided.
* A person in debt. (Dan, -500, none, 1). To test if the error message is correct if the supplied income is negative.
* When someone inputs words into their income. (Don, not enough, cook, 0). My program does not handle this correctly.
* When someone puts in a non-intuitive format for the income. (Andrew, 100.149287812758, pilot, 10). To see if the program rounds correctly or matches the website calculator.