**Module 3: Critical Thinking Assignment**

24sa-CSC500-1 Principles of Programming

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**Creating Python Programs**

**Part 1 – Tip and Sales Tax on Meal Cost Calculation**

Write a program that calculates the total amount of a meal purchased at a restaurant. The program should ask the user to enter the charge for the food and then calculate the amounts with an 18 percent tip and 7 percent sales tax. Display each of these amounts and the total price.

**Summary**

The program will calculate the total cost of meal purchases at a restaurant and add an 18% tip along with a 7% sales tax. The output will automatically display the food subtotal, tip amount, sales tax amount, and finally the grand total of the food and added charges.

**Pseudocode**

**Prompt** the user to enter the charge for the food

Display “Please enter food total”

**Convert** food\_total to a float

**Calculate** tip as food\_total multiplied by food tip rate

**Calculate** sales\_tax multiplied by food tip rate

**Output** the results of the food total along with the added charges.

**Display** Subtotal

**Display** 18% Tip

**Display** 7% Sales Tax

**Display** Grand Total

**Source Code**

A screenshot of a computer

Description automatically generated

**Application Execution**

A screenshot of a computer

Description automatically generated

**Supplement Research**

I’m not completely new with it comes to Python coding, but I’m no expert. Since I currently don’t use it, I wanted to keep my skillsets going. I found a course on Udemy called 100 Days of Code: The Complete Python Pro Bootcamp course where day two is a tip calculator. Although it wasn’t the same output as the one asked for the assignment, it allowed me to better understand how to code it out. One of the primary challenges formatting the output to show two decimal places as I couldn’t remember how to do so. After a quick research, I was able to find an example of Python How on to use the {:.2f} syntax.

**References:**

How to limit floats to two decimal points. (n.d.). PythonHow. Retrieved from <https://pythonhow.com/how/limit-floats-to-two-decimal-points/>

Yu, A. (n.d.). 100 Days of Code: The Complete Python Pro Bootcamp for 2023 [Course]. Udemy. Retrieved April 1, 2023, from <https://www.udemy.com/course/100-days-of-code/>

**Part 2 – Alarm Clock Calculation**

Many people keep time using a 24-hour clock (11 is 11am and 23 is 11pm, 0 is midnight). If it is currently 13 and you set your alarm to go off in 50 hours, it will be 15 (3pm). Write a Python program to solve the general version of the above problem. Ask the user for the time now (in hours) and then ask for the number of hours to wait for the alarm. Your program should output what the time will be on a 24-hour clock when the alarm goes off.

**Summary**

Below is a simple Python script that will calculate the time an alarm will go off after it’s been given the amount of wait hours. That program will execute the time in a 24-hour-format.

**Pseudocode**

**Input** current time

**Input** total hours to wait

**Set** Alarm time in 24-hour-format by adding current time to wait hours

**Output** will show the time the alarm will ring

**Display** time alarm will ring in 24-hour-format

**Source Code**

A screenshot of a computer

Description automatically generated

**Application Execution**

A screenshot of a computer

Description automatically generated

**Supplement Research**

My biggest challenge was to correctly implement the added wait hours in the 24-hour format without overly complicating the code. Having some understanding of how the modulus operator was important and the article written by Jason Van Schooneveld at Real Python helped deepen my understanding of the mathematics and Python coding.

Reference:

Van Schooneveld, J. (n.d.). Python Modulo in Practice: How to use the % Operator. Real Python. <https://realpython.com/python-modulo-operator/>

**GIT Repository**

<https://github.com/Cyber226/Module1cta1.git>