**Part 1:**

**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.**

**Compile and submit your pseudocode, source code, and screenshots of the application executing the code from Parts 1 and 2, the results and GIT repository in a single document (Word is preferred).**

**Pseudocode:**

1. **Start**
2. **Input**: Prompt user to enter the charge for the food.
3. **Calculate**:
   * Sales Tax = Charge \* 0.07
   * Tip = Charge \* 0.18
   * Total Amount = Charge + Sales Tax + Tip
4. **Output**:
   * Display Charge for Food
   * Display Sales Tax
   * Display Tip
   * Display Total Amount
5. **End**

**Source code:**

def calculate\_meal\_total():

# Ask user for the charge for the food

charge = float(input("Enter the charge for the food: $"))

# Constants for tax and tip percentages

sales\_tax\_rate = 0.07

tip\_rate = 0.18

# Calculate sales tax, tip, and total amount

sales\_tax = charge \* sales\_tax\_rate

tip = charge \* tip\_rate

total\_amount = charge + sales\_tax + tip

# Display the results

print(f"\nCharge for Food: ${charge:.2f}")

print(f"Sales Tax (7%): ${sales\_tax:.2f}")

print(f"Tip (18%): ${tip:.2f}")

print(f"Total Amount: ${total\_amount:.2f}")

# Call the function

calculate\_meal\_total()

**screenshots of application executing the code:**

A screenshot of a computer

Description automatically generated

**Part 2:**

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.

**Pseudocode:**

1. **Start**
2. **Input**: Ask the user for the current time in hours (0-23).
3. **Input**: Ask the user for the number of hours to wait for the alarm.
4. **Calculate**:
   * Total Hours = Current Time + Hours to Wait
   * Alarm Time = Total Hours % 24 (to get the time in 24-hour format)
5. **Output**: Display the alarm time.
6. **End**

**Source Code:**

def calculate\_alarm\_time():

# Ask the user for the current time (0-23)

current\_time = int(input("Enter the current time (0-23): "))

# Input validation for current time

if current\_time < 0 or current\_time > 23:

print("Invalid time. Please enter a number between 0 and 23.")

return

# Ask the user for the number of hours to wait

hours\_to\_wait = int(input("Enter the number of hours to wait for the alarm: "))

# Calculate the alarm time

total\_hours = current\_time + hours\_to\_wait

alarm\_time = total\_hours % 24 # Wrap around using modulo 24

# Display the result

print(f"The alarm will go off at {alarm\_time} hour(s) on a 24-hour clock.")

# Call the function

calculate\_alarm\_time()

**Screenshots showing execution of code:**

A screenshot of a computer

Description automatically generated

A screenshot of a computer

Description automatically generated

Screenshot showing invalid time if the current time input is <0 or >23

A screenshot of a computer

Description automatically generated