Programming Exercise 2A

Write the following Python program using your Python IDLE shell by clicking the File tab → New File. Then run and test it. When they build and run correctly, copy the code into a separate text file for each program, with the same name as that program.

Submit the text files the same way that you did in Programming Exercise 1.

NOTE: All programs that you write must have comments at the top with 1) the program name, 2) your name, and 3) a sentence describing what the program does.

1. Write a program named **Program2A** that will calculate momentum based on mass and velocity input from the user.
    a. Ask the user to input mass (make it a float value).
    b. Ask the user to input velocity (float)
    c. Set momentum equal to mass * velocity
    d. Print the momentum in the following format: The object's momentum is *momentum* (where *momentum is the value in the **momentum** variable.)*
    e. Run and test your program.

    Example: If the user were to enter a mass of 5 and a velocity of 2.5, the output should be
    The object's momentum is 12.5
    If they were to enter a mass of 4.5 and velocity of 20, the output would be:
    The object's momentum is 90

2. Write a new program called **Program2B** that calculates the average speed when given distance & time.
    a. Input distance and time from the user (float variables).
    b. Calculate the value of speed.
        (speed = distance / time)
    c. Print out the information with the following format:
        Distance Covered: *distance* **miles**
        Travel Time: *time* **hours**
        Average Traveling Speed: *speed* **miles per hour**
    d. Format all your output with 3 decimal places.

    ***Example**: If you ran the program and entered 124.75 for distance and 3.5 for time, then the output would be:*
        Distance Covered: 124.750 miles
        Travel Time: 3.500 hours
        Average Traveling Speed: 35.643 miles per hour

3. Write a new program named **Program2C** that computes the diameter, circumference, and area of a circle from an input radius.
    a. Import pi from the math library
    b. Input radius from the user (float value)
    c. Calculate the diameter (radius * 2), circumference (pi * diameter), and area (pi * radius^2)

d. Print the 3 calculated variables with labels and 2 decimal places.
e. Run and test your program.

Example: If you ran the program and entered 10 for radius, then the output would be:

Diameter: 20.00
Circumference: 62.83
Area: 314.16