COSC 1336: Fall 2022

Assignment #2

DUE: September 6, 2021, by 1 AM

Penalty for the late submission is 20% per each day

Question 0:

Please review Question 1 in Book under section 2.13 (Exercises). Please raise any questions you may have. No submission is needed.

[30 pts] Question 1:

Write a Python program that requests the user to type his/her first name and store it in a variable. Then request the user to type his/her last name and store in a different variable. Then print a welcome message (in a single line), which will look as follows if the user entered "Jane" for the first name and "Doe" for the last name. Write the program to repeat above process twice more (in total, the program takes 3 names and prints a similar message three times). For this problem, please use only 2 variables: one for the first name and one for the last name. The variables will be reassigned after each line is printed. Example output:

```
Hi Jane Doe Thank you for being a part of my program!
Hi Jill Smart Thank you for being a part of my program!
Hi Jack Strange Thank you for being a part of my program!
```

[30 pts] Question 2:

Write a Python program that takes the length and width of a rectangle as input in feet and prints out:

a) The perimeter of the rectangle in feet and the area of the rectangle in square feet.
b) The number of cans of paint needed to paint the rectangle. One can of paint is used to paint up to 100 square feet of space.
A user session of the program proceeds as follows:

Program Prompt: `Length of the rectangle?`
User Response: `10.5`
Program Prompt: `Width of the rectangle?`
User Response: `12.4`

`Program Prints:`

```
The perimeter of the rectangle with length 10.5, and width 12.4, is 45.80 feet
The area of the rectangle with length 10.5, and width 12.4, is 130.20 square feet
The number of cans needed to paint the rectangle are 2
```

[40 pts] Question 3:

Write a Python program that will compute and print the miles per gallon (mpg) for a car over a trip. The program will ask for the following:

a) Odometer reading at the beginning of the trip in miles
b) Odometer reading at the end of the trip in miles
c) Amount of gasoline at the beginning of the trip in gallons
d) Amount of gasoline remaining when the trip ended in gallons

In addition, it asks for the price of gasoline in dollars per gallon. And it computes and prints i) Cost of the drive in terms of dollars per mile and ii) The number of miles the car can continue (after the trip ends) before it runs out of gasoline.

Program Prompt: `Enter the odometer reading at the start of the trip in miles`
User Response: `100.5`
Program Prompt: `Enter the odometer reading at the end of the trip in miles`
User Response: `200.5`
Program Prompt: `Enter the amount of gasoline at the start of the trip in gallons`
User Response: `20.1`
Program Prompt: `Enter the amount of gasoline at the end of the trip in gallons`
User Response: `17.1`
Program Prompt: `Enter the price of gas in dollars per gallon`
User Response: `2.0`

Program Prints:

```
Miles per gallon for the car is 33.33
The cost of the trip in dollars per mile is 0.06
Total number of miles car can continue is 570.0
```

[Hint: Write expressions for miles per gallon and miles per dollar in terms of input variables before you start writing your program. Include this as a comment in your program. Break the problem into sub-computations]