Programming Assignment #2
Means

Due Date/Time:

Submission must be in OAKS by
11:59PM Thursday, September 12, 2019

Learning objectives:

- Create a Python program on your own.
- Develop a simple Python program that asks for input, does arithmetic, and provides output.
- Practice definite loop
- Apply the Software Development Process.

Assignment:

Applying the software development process will make implementing your solution easier. Ask yourself, and write the answers to, questions 1-3 BEFORE implementing a solution in Python. Your answers should be part of the comments at the top of your program.

1. What will the program do (the analysis)?
2. What will be the inputs and outputs (the specifications)?
3. What is a step-by-step list of what the program must do, aka an algorithm? (Remember this is in English!)
4. Implement your code.
5. Test your program.
6. Maintain.

Programming problem:

The average of a set of numbers is often used in calculations. We have seen during lecture how to calculate the most basic of means. For this assignment, you are to write a Python a program designed to output the RMS (root-mean-square) Average and the Harmonic Mean. These represent two different methods for calculating a mean of a set of numbers.

The average of a set of numbers, as discussed during lecture, is given by the formula:

$$mean = \frac{\sum_{1}^{n} x_i}{n}$$

The rms average of a series of numbers is the square root of the arithmetic mean of the squares of the numbers and is used by electrical engineers. It is given by the formula:

$$rms\_average = \sqrt{\frac{\sum_{1}^{n} x_i^2}{n}}$$

The harmonic mean is often used when ratios are involved. It is given by the formula:

$$harmonic\_mean = \frac{n}{\frac{1}{x_1} + \frac{1}{x_2} + ... + \frac{1}{x_n}}$$

Your code should allow the user to specify the number of values to be entered. As a testing example, the values 10, 5, 2, and 5 have a rms average = 6.205 and a harmonic mean = 4.0.

Save your program as `Pgm2_mean.py`

File to be submitted:

`Pgm2_mean.py`