Homework 8 *(Due: Nov 01)*
Python Programming for Data Science - COSC 3360

Department of Computer Science and Electrical Engineering

Fall Semester, 2022

Exercises

*Create a **New Project** for every exercise. Take a screenshot of the source code along with its output and place the **source code** and the **screenshot** in a **zipped folder** named **LastNameFirstName_HW8***

Exercise 1
Given the following dictionary:
temps = 'Mon': [68, 89], 'Tue': [71, 93], 'Wed': [66, 82], 'Thu': [75, 97], 'Fri': [62, 79]
perform the following tasks:

- Convert the **dictionary** into the **DataFrame** named **temperatures** with **'Low'** and **'High'** as the indices, then display the DataFrame

- Use the column names to select **only** the columns for **'Mon'** through **'Wed'**

- Use the row index **'Low'** to select **only** the low temperatures for each day

- Set the floating-point precision to 2, then calculate the average temperature for each day

- Calculate the average **low** and **high** temperatures (you can use the **mean()** built-in function)

Exercise 2
Given the *DataFrame* from **slide 217**, write your own **describe** function that produces the same 8 statistical results, for each one of the columns, that the built-in *describe()* function does. Slide 264 shows how to get the number of rows and columns of a *DataFrame*

Note 1: Use the sample standard deviation formula (that is, the denominator is: *N-1*)

Note 2: Your algorithm should work for any number of columns not just for 5

Note 3: You can use the **np.percentile()** for the 25% and 75% percentile as well as the **sort()** built-in functions
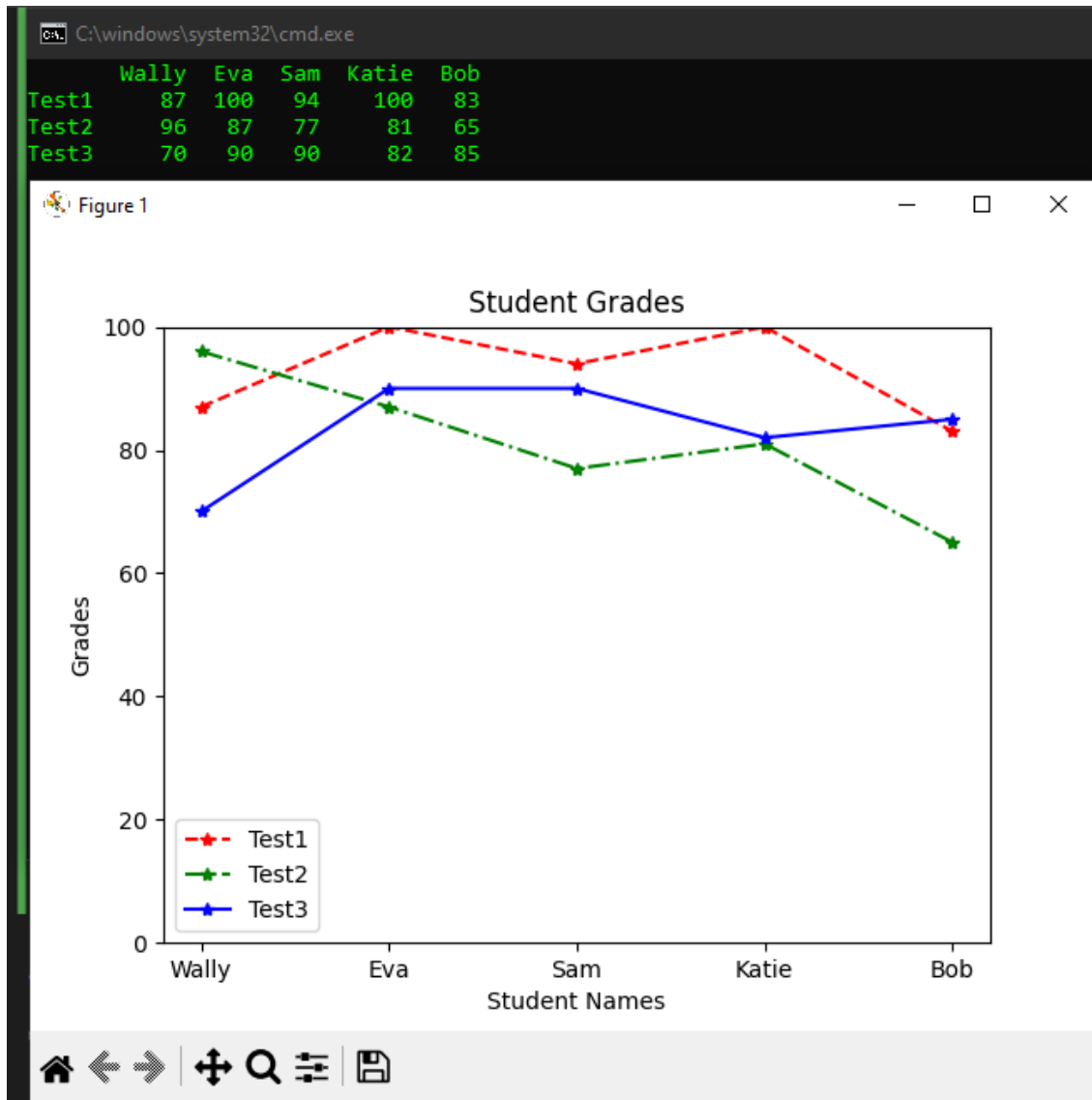
Note 4: For a review of quartiles refer to:
https://www.mathsisfun.com/data/quartiles.html

See overleaf

Exercise 3

Given the *DataFrame* from **slide 217**, create *three* plots in the same graph as shown in the Figure below. The following link describes how to use different line styles, colors, and markers:
https://matplotlib.org/2.1.2/api/_as_gen/matplotlib.pyplot.plot.html

Note: Submit through **Canvas**