Problem Set 3

Due Monday by 11:59pm   **Points** 20   **Submitting** a website url
Available Oct 12 at 8am - Oct 26 at 11:59pm 15 days

Problem Set 3:

This should be turned in as a github repository with your code either in scripts or Jupyter Notebooks.

You may work on this in groups, **but each person should submit their own answers.**

Note: This assignment will have peer review. It is important to be able to look at someone else's code and figure out what they are doing. It's also important to write code with the idea that someone else will look at it and needs to understand it. While I will take both the peer reviewer's comments on your code and your comments on the peer reviewed code into account when assigning grades, I will be assigning the grade, not the reviewer.

Data:

The data file for this problem set is at:

 /ufrc/zoo6927/share/Class_Files/data/CO-OPS__8729108__wl.csv

 It is also in the Class_Files git repo **here** ☐ **(https://github.com/CompTools/Class_Files/blob/master/data/CO-OPS__8729108__wl.csv)**

 The metadata file for this file is **here** ☐
(https://github.com/CompTools/Class_Files/blob/master/data/CO_OPS__wl_file.md) .

Problem 1 (4 pts):

Write a script (or Jupyter Notebook code block) that opens the file, uses a for loop to read through the file line by line and calculates the highest water level and the date and time that was observed.

Problem 2 (4 pts):

Write a script (or Jupyter Notebook code block) that reads the file into a Pandas dataframe and calculates the highest water level and the date and time that was observed.

Problem 3 (4 pts):

Write a script (or Jupyter Notebook code block) that calculates the fastest rise in water level per 6-minute period between measurements and reports the data and time that was observed and the change in water level during that period. You can use line by line or dataframe for this.

Problem 4: Grad students only (4 pts):

Grad students only (undergrads get 4 pts automatically).

Write a script (or Jupyter Notebook code block) that plots a line graph of water level over time using matplotlib.

Problem 5: Peer Review (4 pts):

Each person will review one other persons answers and leave comments.

If the code works for the reviewer and produces the desired result, they will say so.

If it doesn't work they will try to figure out why and suggest a fix.

If the reviewer can understand the code, its logic and what you are doing they will say so.

If the reviewer can't understand what you were doing, they will suggest where things are confusing and how to improve.

Extra Credit (4 pts):

Using the Web Services Button on **this page** ↗ **(https://tidesandcurrents.noaa.gov/waterlevels.html?id=8729108&units=standard&bdate=20181011&edate=20181012&timezone=GMT&datum=MLLW&interval=6&action=data)** as a guide and/or the **API description** ↗ **(https://tidesandcurrents.noaa.gov/api/)**, write a script (or Jupyter Notebook code block) to download data from Panama City, Fl for "today" e.i. whenever the code is run, get that day's data.