Name: _____

Problem Set 3
Computational Methods (ERS 420)

Purpose

Learn to reads and writes a text file, write a module, and do some basic data manipulation.

Problems

Download the two text files accompanying this pdf. These files are datalogger files that record air and water pressure in a well, both expressed in units of water level length. To convert the water pressure data into true water levels, the air pressure needs to be subtracted from the water pressure data.

1. Write functions, stored in a module, that reads both data files and writes a data file with a very similar structure (including header). Be sure the output can be re-read with your 'reader' function.

2. In a separate script, use your functions to read in the two data files, subtract air pressure from water pressure, and write a new file with the compensated pressure values. Be sure to verify that the data is aligned (your subtracting values collected at about the same time).

3. What are the maximum and minimum compensated water level and when (date and time) do they occur?

4. Make a simple plot of water level vs. time.

Expectation

Turn in a typed report, clearly but concisely explaining how you completed each problem (comments in the script may also be used to explain your work flow). Presentation (2 points) and content (8 points) will be graded. Include within your report the python scripts used to solve this problem and output sufficient to demonstrate your script is working. If you submit this by e-mail, this must be submitted as a **single** pdf document or ipython notebook labeled with the class number, your name, and the problem set number, all as one word (eg. 420_Reeve_Set3.ipynb). If you use the ipython notebook, do not cut and paste special characters into the notebook.