For my final project I want to look at a batch of data taken from a stream gauge on Pine Creek in central Pennsylvania and uploaded to the public at <https://waterdata.usgs.gov/usa/nwis/uv?01549700> by the USGS.

First I will gather tab separated data for roughly the trout fishing season of last year (April through the end of June). This data will then be reduce and cleaned up in excel and saved to a text file that the program will read in.

Program gathers data from text file and creates a list showing the date, time (every fifteen minutes through every day), water height at that time and water temperature at that time.

The program will then ask the user to enter a date and time to see the conditions at that time.

Input validation will be performed to make sure valid inputs for date and time are given by the user.

Based on user’s entries, the index position of the water height and water temperature for the specific time requested will be located.

Program will ask user to indicate AM or PM and point to the correct time in the data.

This data will be analyzed in if statements to print out to the user if the water level and temperature are high, low or normal.

Program will analyze data preceding the user’s chosen date and time in order to calculate the trend of water height and temperature – rising falling or stable.

The data will be analyzed and output given by creating a series of functions to check for the water height and whether it is rising or not for a specific date/time index that will be passed into each function.

Trend data will be handled by functions that will intake the index in list of user’s chosen date and time and then look up preceding values and compare them to one another to see which is higher and tell if height or temp are going up or down.

Program will ask user to run again.