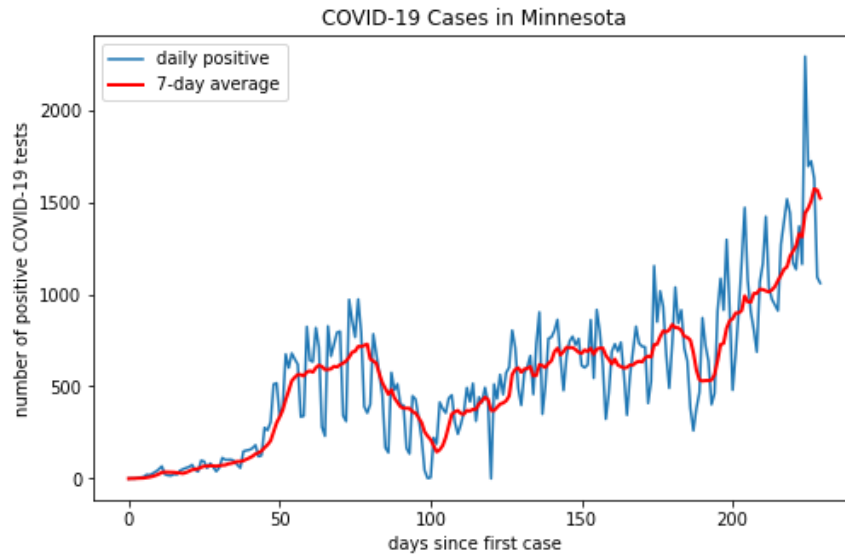


COVID-19 DATA EXPLORATION (HOMEWORK 17)

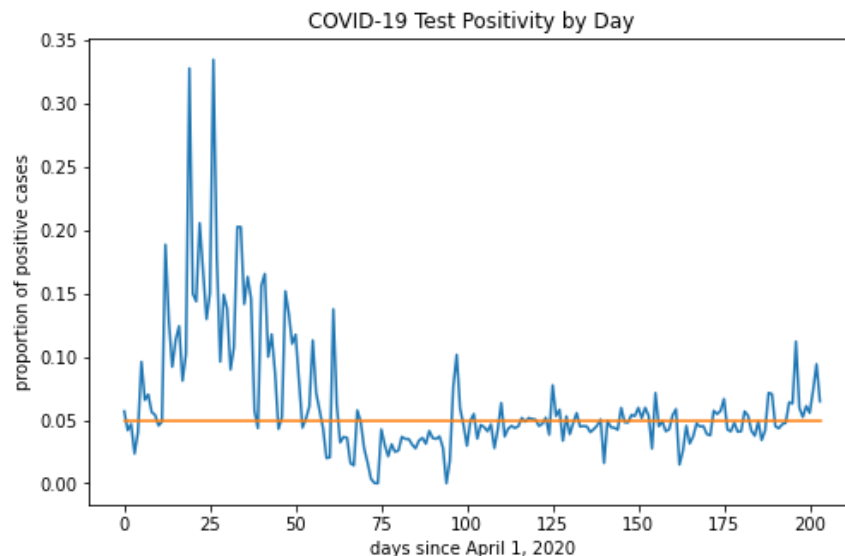
CS 125

due at 11:45am (classtime) on Tuesday, October 27

This homework requires you to use Python to analyze and plot Minnesota COVID-19 data. The goal is to make the following two plots.



In this first plot, the “7-day average” is the average number of positive cases in the past seven days.



In this second plot, the proportion of positive cases is the number of positive cases reported on a particular day divided by the number of total cases reported that day. The plot also shows a horizontal line at 0.05. Some experts consider a positivity rate less than 0.05 to indicate that testing capacity may be sufficient to track the epidemic.

The data is available at the following address:

<https://covidtracking.com/data/download>

First, download the CSV file of Minnesota data. Open the file and start to become familiar with the data. Look at the column headings.

Think about the following questions. **Discuss your answers with one or more classmates. This sort of planning is essential so that you will have direction when you start writing Python code.**

- Which columns of the data will be relevant for this project?
- What calculations will you need to do in order to make the plots on the previous page?
- What NumPy arrays will you create to store, process, and plot the relevant data?

Next, load the data file into Python. Extract the relevant columns and store them in NumPy arrays. Print out your arrays and confirm that they look correct. Then make your plots. Debug and revise until you are satisfied with your plots.

Before you submit your work, clean up your Colab notebook. Remove unnecessary code blocks that you used for experimenting. Add comments and section headers so that your work is easily understood. Make sure your code runs without errors!

Finally, submit your work to the [Homework 17 assignment on Moodle](#). Submitting a link to a Google Colab notebook (shared with Prof. Wright and the grader) is preferred, but you could instead submit both a code file and an output file.