For this assignment, I created two graphs about the current pandemic with a free SARS-CoV-2 cases API. This API was created by Kyle Redelinghuys, and uses data sourced from Johns Hopkins Center for Systems Science and Engineering (CSSE). Johns Hopkins CSSE obtains data from multiple reputable sources, cross-referencing and aggregating the information received. More specifically, I use Python’s requests module to get the total ‘dayone’ data from the United States. This data is converted to json format in Python and contains multiple dictionaries with different sets of keys. In this format, it is easy to obtain the number of cases, the status, and the date of recording. With this, I pulled the instances of confirmed cases, active cases, recovered cases, and COVID related deaths. I also used a United States population API to pull the most accurate and updated United States population (which happens to be from 2018). This data is sourced from the US Census Bureau.

The first graph I make with this data is called United States SARS-CoV-2 Day One Count. The left y-axis is for the Active, Confirmed, and Recovered cases per 100,000 people in the US, while the right y-axis is for the COVID related deaths per 100,000 people in the US. The x-axis for both y-axes is each day after the first COVID case. This graph is created each time the program is run, so if there are updates from COVID cases, or an update of the US population, the graph will change accordingly (a date and time is printed on the graph). The deaths needed to be graphed with a different y-axis due to the change in scale.

The second graph made is called United States SARS-CoV-2 Daily Changes. The left y-axis is for daily Confirmed cases, while the right y-axis is for daily COVID related deaths. The x-axis is days after the first COVID case. This graph shows the spread of the virus, as well as the impact the virus is having much more than the previous graph. An exponential growth of the virus would be explained with a linear growth on this graph, with any large down-swings most likely being large preventative measures in stopping the spread of the virus. Unfortunately, the testing of patients is not perfect, and the days where the amount of testing is lacking shows itself in the local peaks and troughs seen as noise. These days where testing lacks are most likely due to weekends. Hopefully a better understanding of the COVID-19 pandemic can come from graphs like these.

I also use requests to get this description from my website and print it to the screen with Python! Pretty cool.