Data Science Project I

- Difficulty: ☆
- Language: Python
- Estimated completion time: 2-3 weeks
- Description: You have an Excel file (which I attached in the email) that contains total COVID-19 cases by county in the state of Texas over the span of 17 months. Your job is to parse this excel file and graph all the data.
    - Your x-axis will be the number of days over the span of 17 months.
    - Your y-axis is the number of cases in each county.
    - You should have 253 different graphs with 1 graph for each different county.
- Final product: In the final product, I want to be able to select/input the name of a county and then have the program generate the COVID-19 graph for that specific county.
- Tips
    - You can configure the graph to look any way you want it. I just want the title of the graph to include the county it is graphing, and I want labeled x/y axis.
    - You can use any libraries you need. https://www.python-excel.org/ 'openpyxl' looks like a popular Python library for reading from Excel files.
    - Your program should be **fully** automated. **You should not be copying and pasting in data from the Excel file.**
    - You will probably use the 'pandas' library.
    - You should be using user defined functions. For simplicity, you don't have to use functions when learning how to get the commands to first work, but the final product should have functions.
- Sample program structure:

```
def read_excel_file (county_name, excel_filename):
        ##############################
        return x, y

def graph (x, y):
        ##############################
        plot (x, y)

def main ():
        county_n = input ("What County data do you want to see?")
        x_list, y_list = read_excel_file (county_n, "Texas COVID-19 Case Count Data by
County")
        graph (x_list, y_list)

if __name__ == '__main__':
        main ()
```

- First steps
    - Install any one of the libraries I linked here: https://www.python-excel.org/
    - Learn how to use the library you installed to read the Excel file

- First, just try to get Python to give you a **list** of all the COVID-19 cases for Anderson County. You will probably have to Google how to use the library.
- Once you finish the previous bullet, you can add an option where the user inputs a county name, and the program outputs a list of the cases.
- Do these things first then I will show you how to graph.