The purpose of this project was to analyze the top Stocks by industry and how each Industry was impacted by 2020.

**Data Wrangling/Manipulation**

Utilizing Alphavantage as the API to call several key metrics of stock data, for the time series of stock prices on a month-end basis, review of the outputs indicated that .CSV was the preferred output method. To automate the download process, splinter was used as part of a for loop which created the download URLs. The files were then joined by using glob for items ending in .CSV. To distinguish which file’s data was associated with a particular ticker, the ticker name from each file was added back in as a new column. The output was then saved as a new .CSV file. The company overview API call is in JSON format which after completing the calls was loaded into a data frame to be written as a .CSV. We imported the CSV files to SQLite as separate tables. Prior to writing it, the Symbol column was renamed as Ticker to assist with joining in SQLite. The join was completed off the Ticker columns.

We were unable to query dates directly from our database, so we exported the database to a clean.csv and utilized it from there.

**Visualizations - Treemap, Scatter Chart, Candlestick with Plotly, Candlestick with Anychart (JS)**

By using the clean data from SQLite we were able to create a dashboard using DASH in the python library, our Flask app. We created the html and CSS layout from our Flask app which included our Treemap, Scatter graph and Candlestick graphs. We added some additional user interaction with sliders for the Scatter graph, selecting the data by year. We included the dropdown for our candlesticks to display by sector.

**HTML with JavaScript**

In our flask app, we created a button. The button is a link to an html file that contains our JavaScript written to utilize the AnyChart library not covered in class the graph utilized was a candlestick coded to read in an individual file from our earlier API call. It works with one ticker, but we were not able to dynamically change the graph by stock.

**Conclusions**

Our findings during the project included the high closing prices for the Consumer Cyclical sector primarily in, Tesla, Amazon, Booking. The Technology and Consumer Cyclical sectors account for the majority of the stock market increase. Based on our Treemap, Industrials did not do so well.