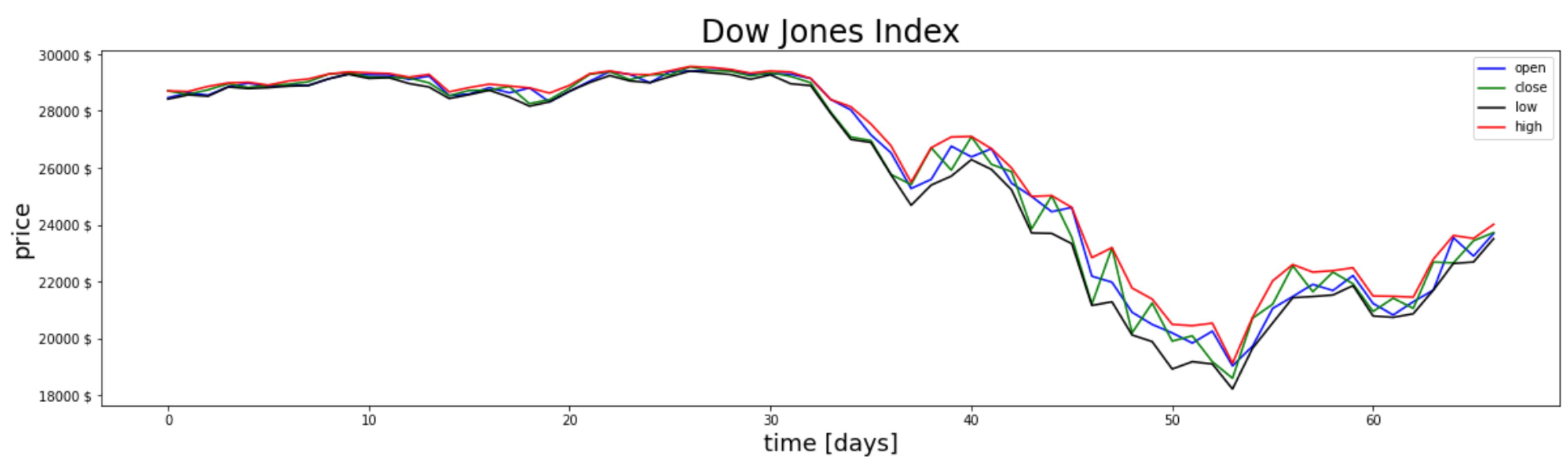


The Relationship between Dow Jones and Coronavirus

Hao Wang

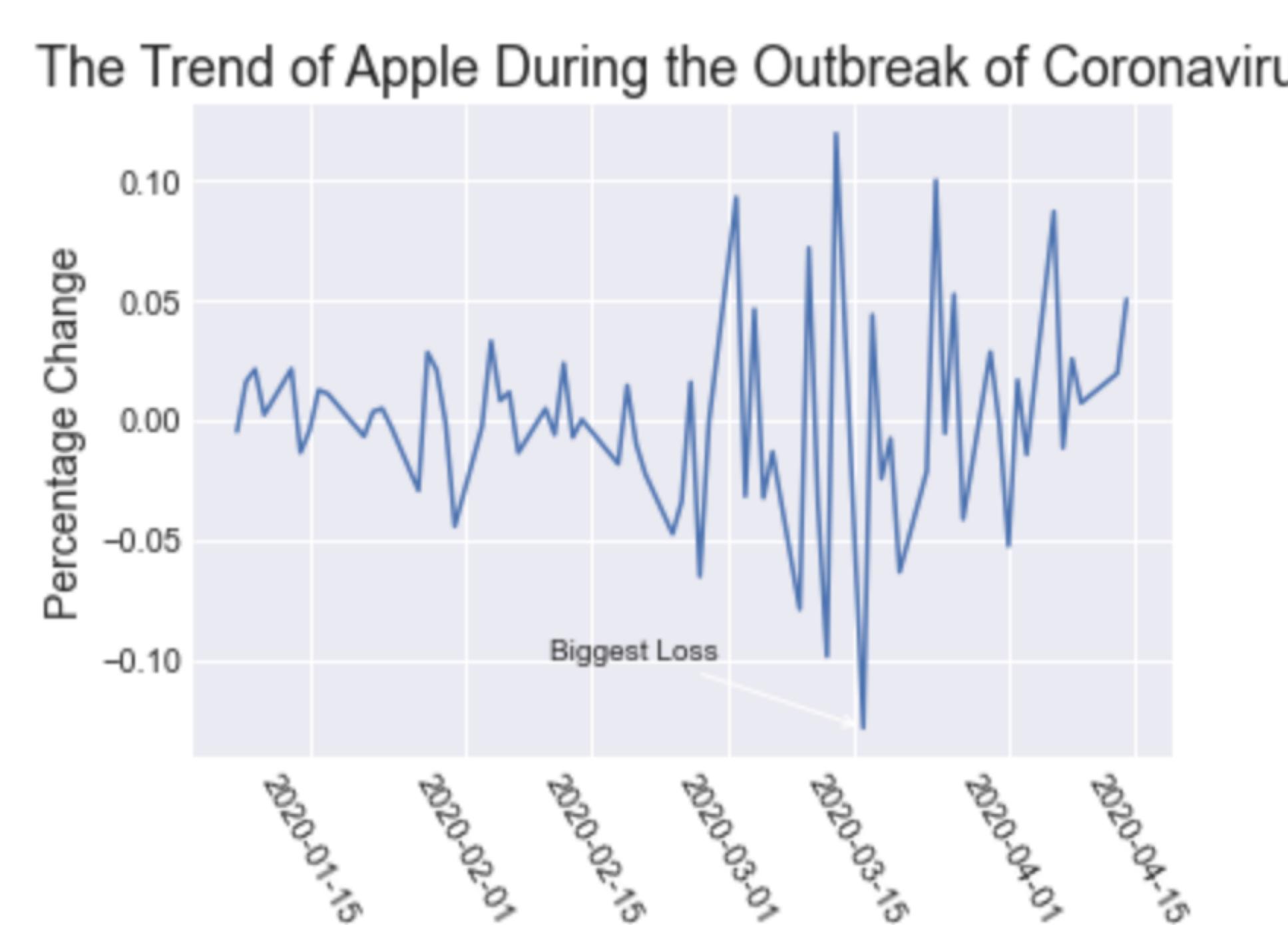
Semester Project in Data Visualization, Dr. Silvia
Michigan State University

Introduction



We can easily find that the stock market sharply dropped during March, 2020 in which the Coronavirus swept almost the whole world. Therefore, I would like to know more about the specific change in stock market and find potential trend of some industries under this pandemic. This Poster will discover the relationship between each stocks in Dow under pandemic, compare several specific companies and then forecast one of them.

Investigation

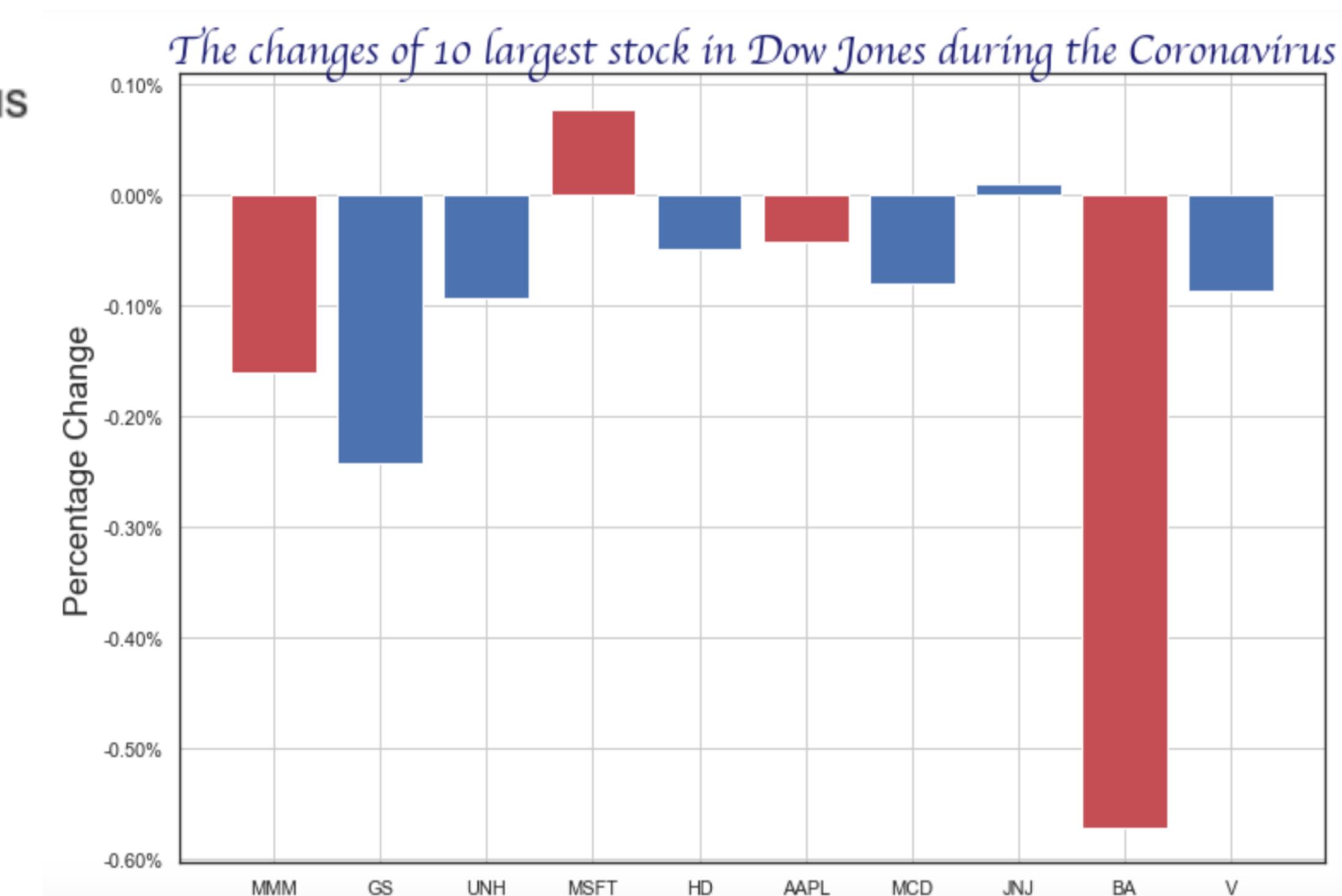


The figure on left side showed the trend of Apply stock from 15th January to 4th April, There are several potential factors will lead investor worried about the future of AAPL:

- closing retail stores in most of the places
- dependence of their supply chain on Chinese manufactures
- larger customer base in China

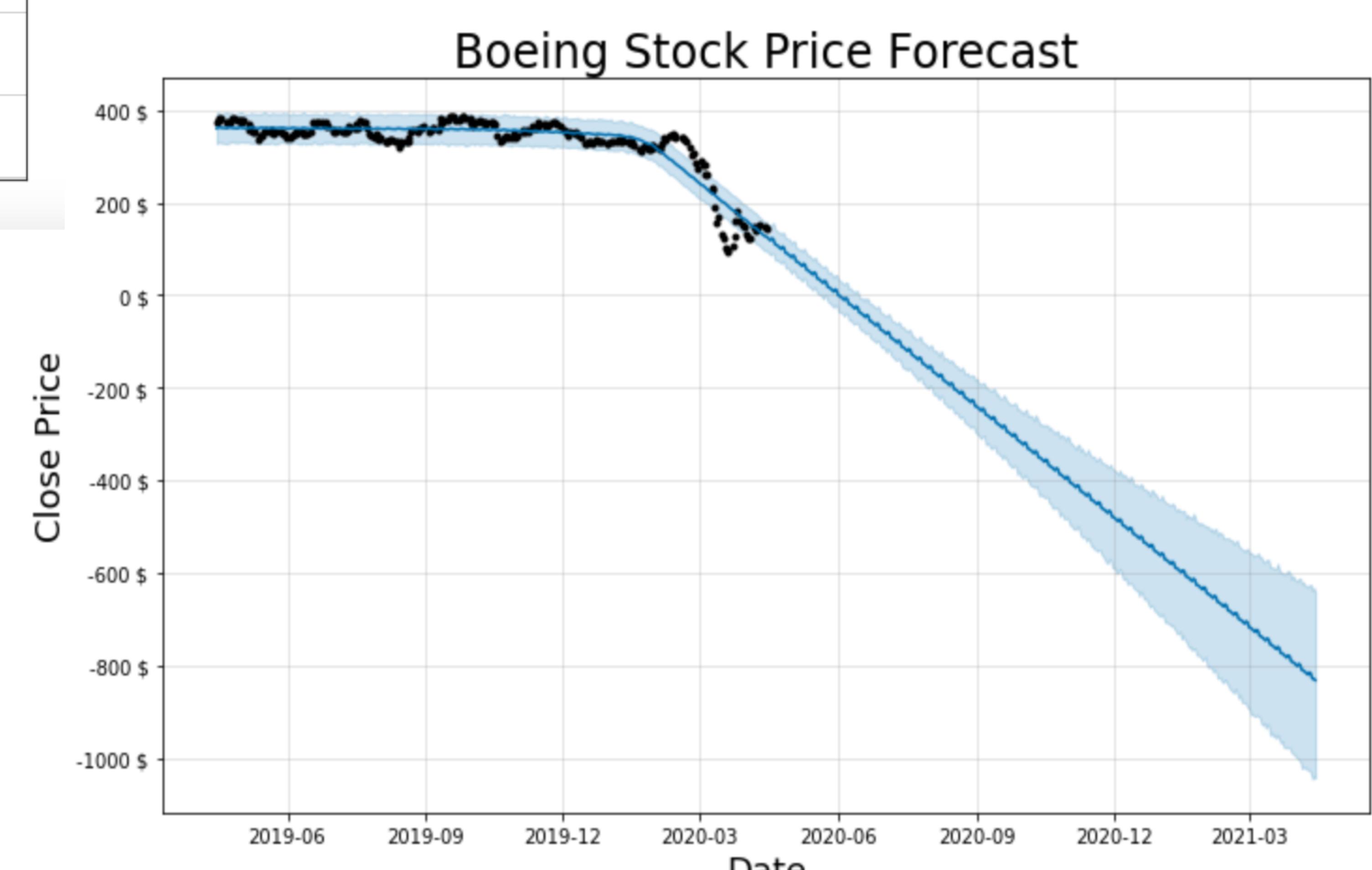
The figure on right side, From economic perspective, these signals may represent two things:

- The falling of manufacture even in aircraft , which is labor-intensive
- And the rising of tech companies, which is the capital-intensive.



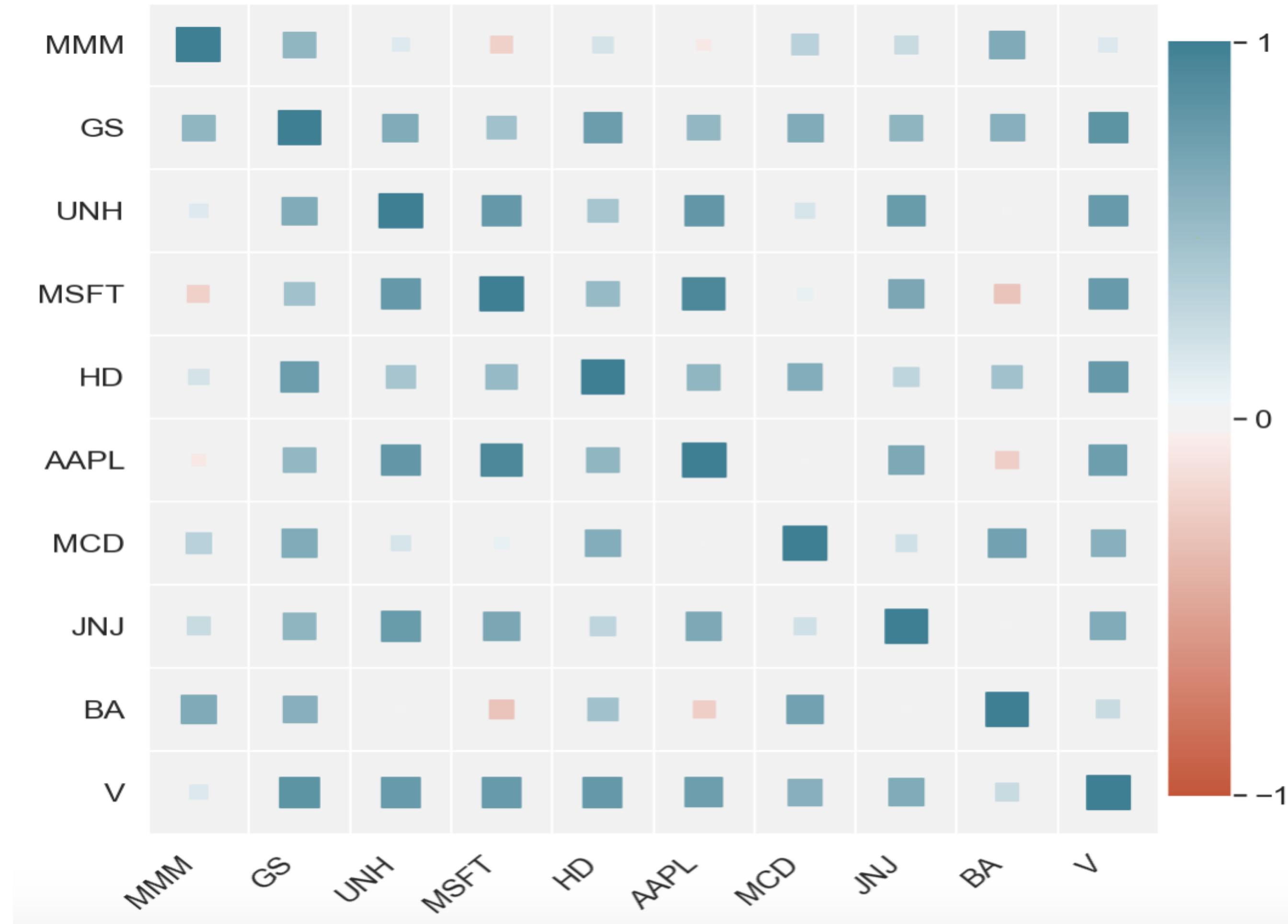
For Figure below, I used the moving average model, which is a common approach for time series data. There are three potential reasons leading the huge drop :

- Travel restrictions
- The 737 MAX crisis
- Weighted more in Dow Jones



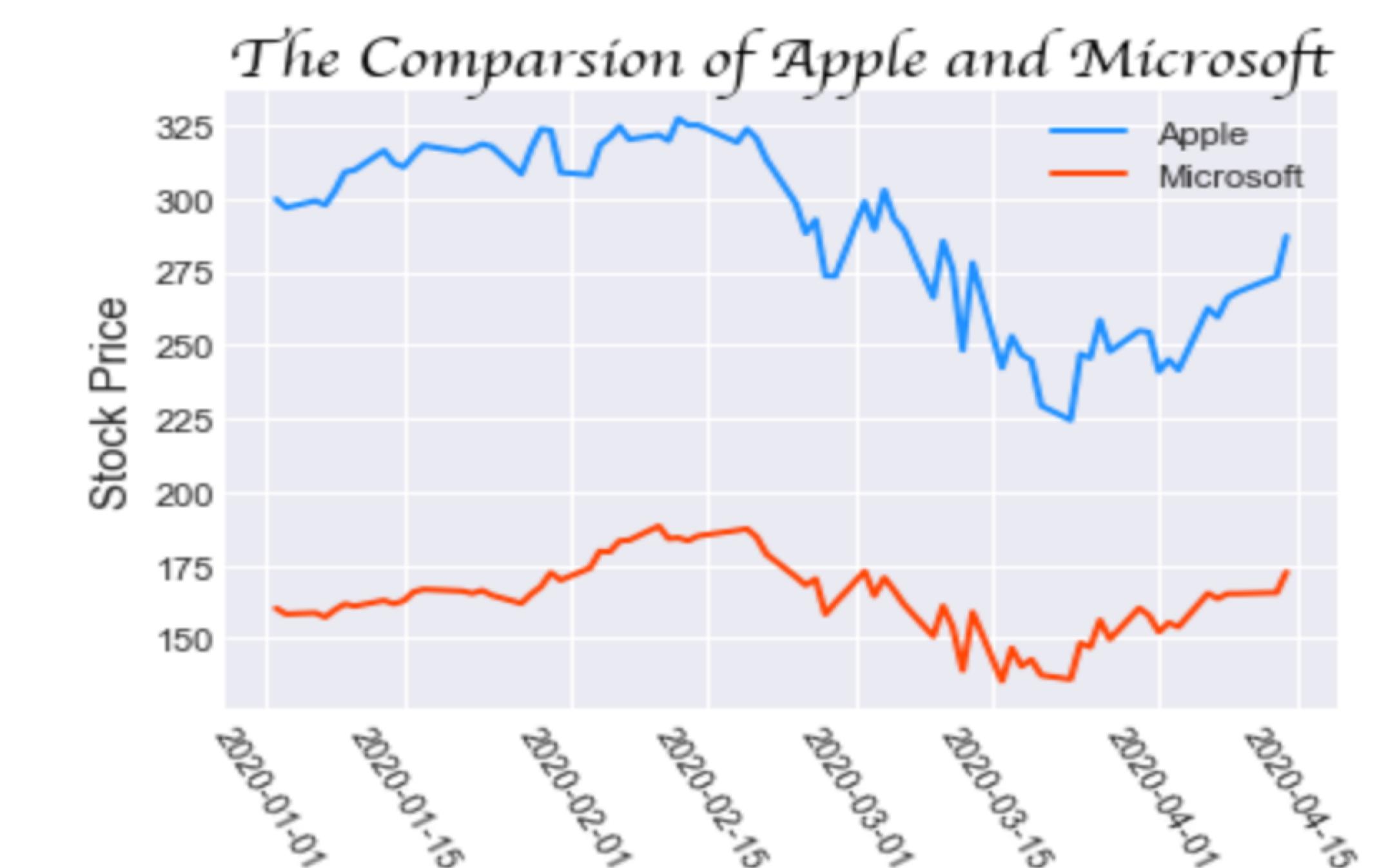
References: Dhimananubhav. "Visualizing & Analyzing Dow Jones Stocks." Kaggle, Kaggle, 23 Sept. 2019, www.kaggle.com/dhimananubhav/visualizing-analyzing-dow-jones-stocks

Results



MMM: 3M, GS: Goldman Sachs, UNH: United Health Group, HD: Home Depot, MCD: McDonald's, JNJ: Johnson &Johnson, BA: Boeing, V: Visa, MSFT: Microsoft

The figure on left side is a correlation matrix about ten largest stock in Dow Jones based on each stock's adjusted closing price in past year. For example, the degree of color and size of square between Apple and Microsoft is more distinctiveness.



Discussion

For some companies, although the Coronavirus has actively destroyed their operations and supply chain system, they probably could **return to** their high point in the future. However, for other companies, the coronavirus is like a trigger to ignite crisis, which has already existed in the long time, Such as Boeing and 3M.

Predictions

- The Company in digital service and e-commerce will have a lone bull market and gain more profit especially in America's market.
- Many job will be automated and this crisis will enlarger the gap among each classes, as numerous small and middle size employer start to layoff employees who do not have enough money to recover.
- Goods and people will move less often as the apple showing the dependency of supply chain in China. Those companies may loss in this crisis. Therefore, they may start to relocate their manufactures.