DataFest 2020 Write Up

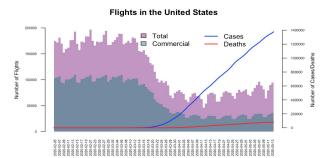
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Since the start of COVID-19, the airline industry has been amongst the hardest hit. As travel restrictions are put in place, the number of flights departing airports has rapidly decreased, which in turn affected many other aspects of the industry. In this year's DataFest, our team decided to look at the effects of COVID-19 on the airline industry through various perspectives, including number of flights offered, the general population sentiment, as well as stock market changes.

Flights offered

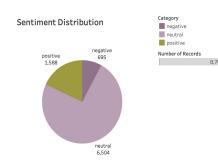
We first looked at how the number of COVID-19 cases and deaths affected the number of flights offered in the United States.



This graph shows COVID-19 and flight statistics from February to May. A quick look at the visualization shows us that as the number of cases of COVID-19 increased, the number of flights decreased drastically, and then remained low until now. We also see that the biggest drop in flight offerings occurred during the middle of March, which is around the time travel bans were put in place.

Sentiment Analysis

To understand people's sentiment towards the airline industry during the pandemic, we analyzed Twitter tweets that included airline-related hashtags. In this investigation, we first looked at how people's sentiment is distributed, and then generated word clouds to visualize the most frequent words. As we see, most tweets expressed neutral sentiment, followed by positive sentiment, and then negative sentiment. This is surprising as we initially expected most tweets to be negative. This difference might be due to a large number of tweets being purely informational and hence not opinionated.









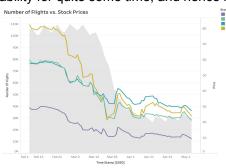
Distribution of Twitter Sentiment Stock Market Analysis

Word cloud on whole corpus

Negative word cloud

Positive word cloud

We then did a stock market analysis on how the drop in flight numbers affected the four biggest US stocks. This analysis is performed by looking from a price and volume perspective. From the graph, we see that as the number of flights offered decreases, stock prices plummeted, while trading volume shot up. This was expected as COVID-19 is expected to affect people's travelling ability for quite some time, and hence news on COVID-19 prompted people to quickly sell off their airline shares.





Datasets:

Flight Numbers: https://www.flightradar24.com/data/statistics

Twitter Dataset: https://www.kaggle.com/smid80/coronavirus-covid19-tweets#2020-03-15%20Coronavirus%20Tweets.CSV

Stock Data: https://finance.yahoo.com/guotes/API,Documentation/view/v1/

COVID-19 Data: https://github.com/nytimes/covid-19-data