




U.S. Airline Sentiment Analyses and Prediction Project

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Business Value



There are six different airline companies in this dataset; United, US Airways, American, Southwest, Delta and Virgin America. And their customers still complaining about some problems with their services/flights. We are going to analyze and making machine learning project for how airline companies could improve ourselves with our findings.



Business Problem

- In this project, main goal is the predict airline sentiment of flights with machine learning model. Our problem is customers satisfaction of flights. We are going to analyze why is that and making machine learning model to prevent at the future. Depend on customer's review (positive, neutral or negative) airline companies could take action about it.

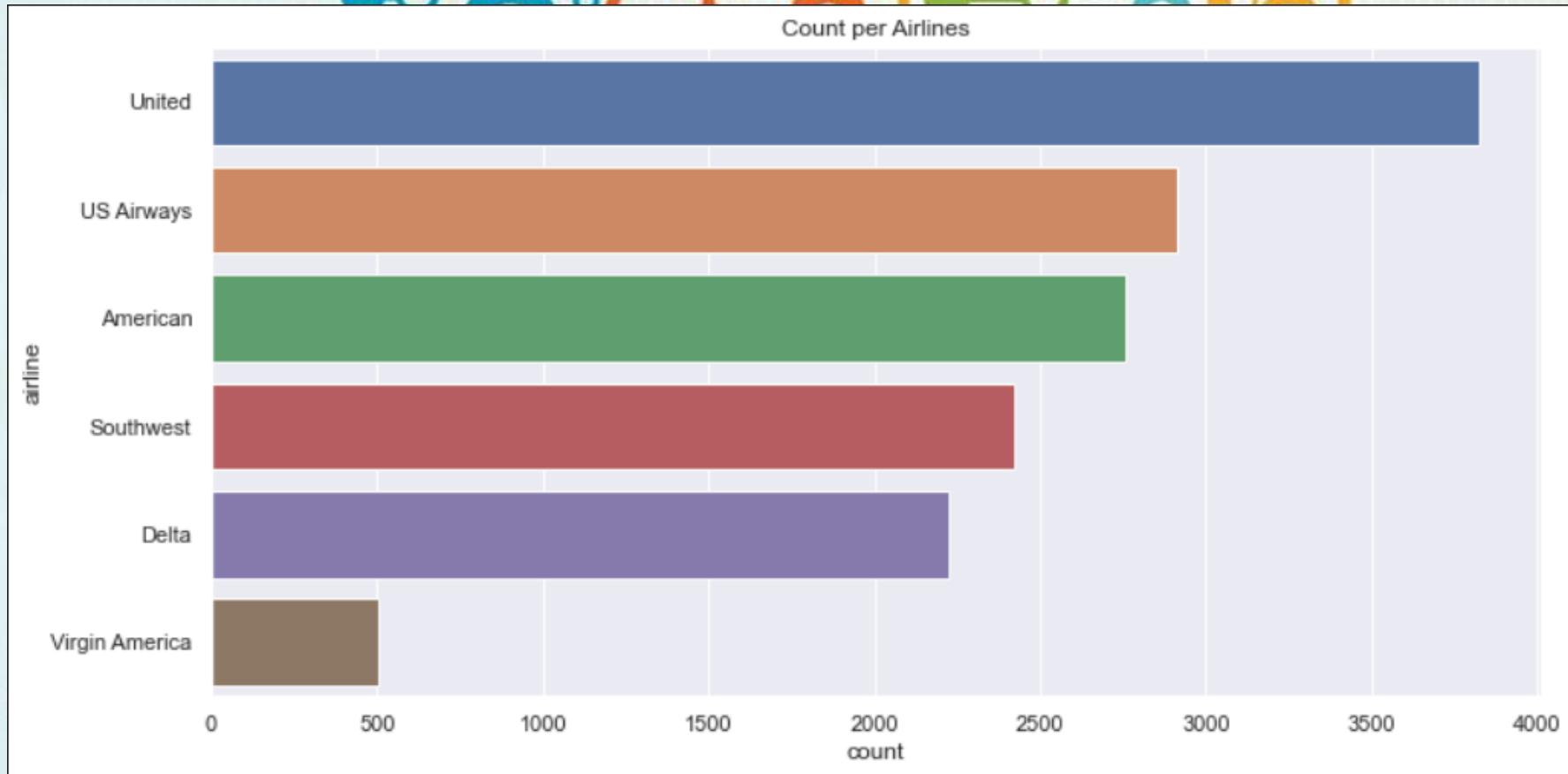
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Data Understanding

1. We have 6 different major U.S. airline companies; United, Us Airways, American , Southwest, Delta and Virgin America.
2. All the tweets scraped at 2015 February.
3. We have three different target category as positive, neutral or negative depend on tweet.

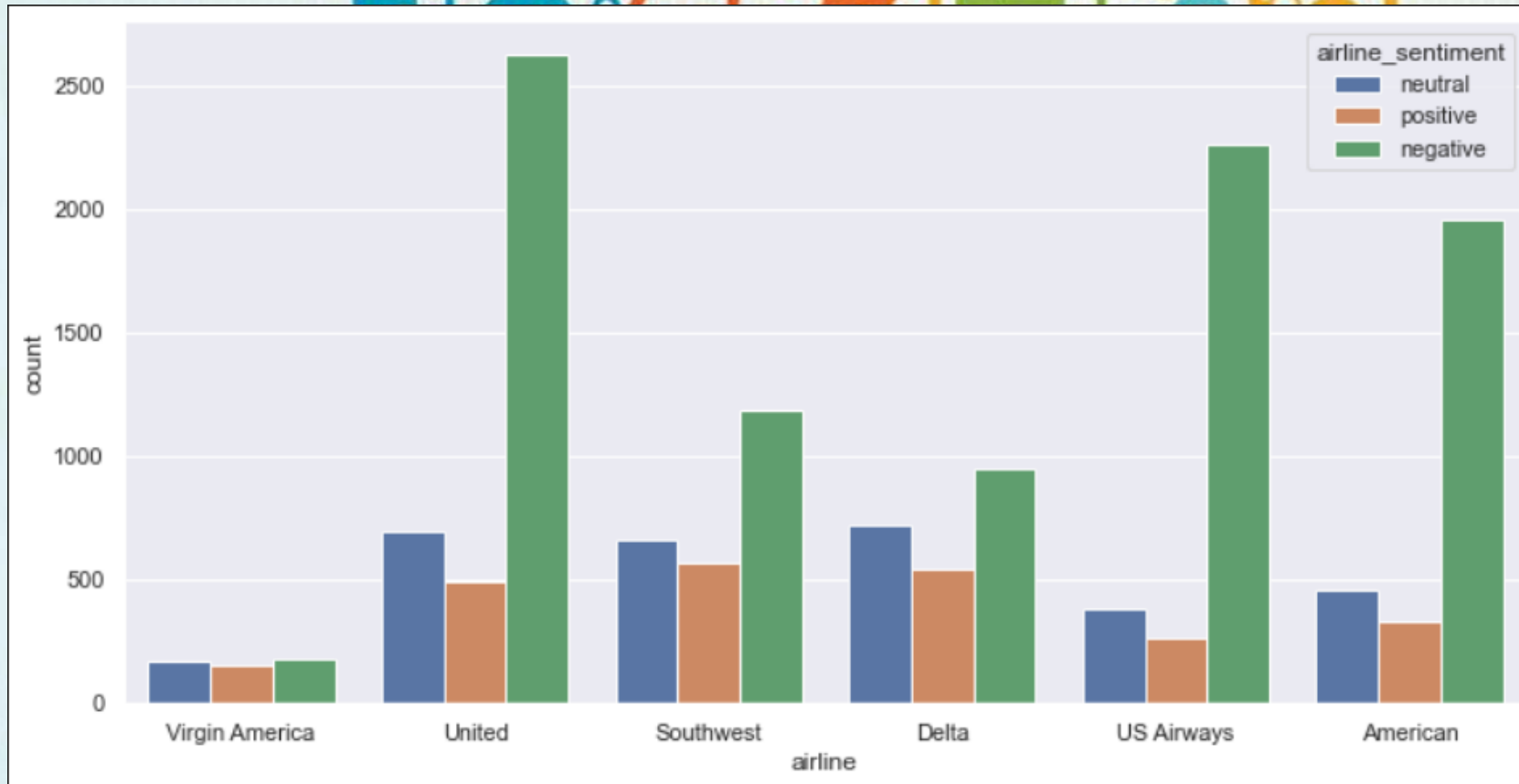
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Tweet Counts per Airline Companies



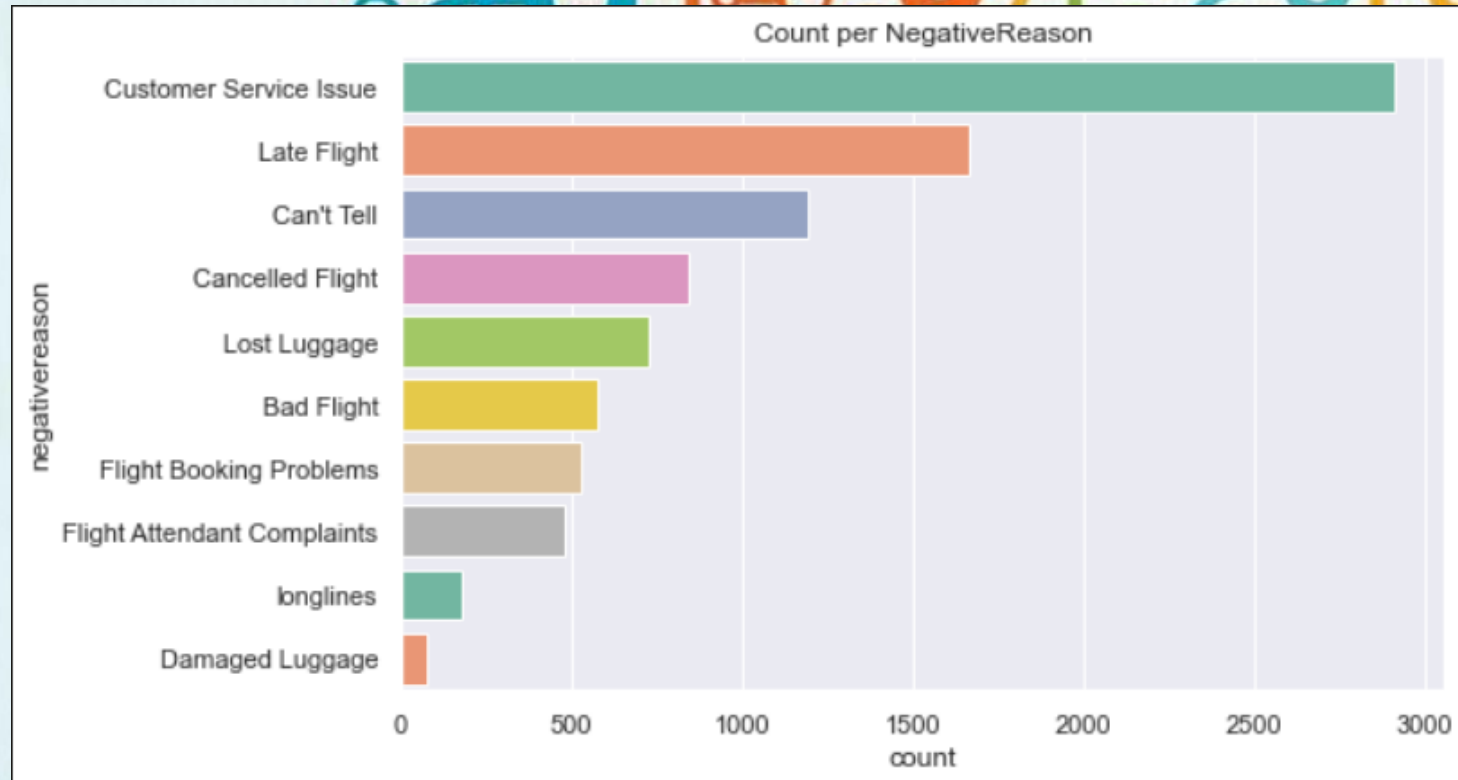
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Sentiment per Airline Companies



In this graph, we can see with greens are negative tweets and most of them are negative. Specially United, Us Airways and American Airlines have the most negative customer reviews.

Negative Reasons



This visual shows us general negative reasons from customers. Customer service issue and late flight leads for negative reasons.

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Negative Reasons per Airline Companies



Recommendations

- For all the 6 companies should work on customer issue problems.
- Virgin America needs to check booking problems.
- Delta Airlines needs to look into late flight problems.
- Overall late flight and cancellation flight problems needs to be solve for better service/more satisfied customer.

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Conclusion

In this project tried different machine learning models to find best result. Some of basic models names are ; Logistic Regression, Random Forest, Gradient Boosting. But improved model called neural network model gives us best result as 80% accuracy on dataset.

What this number mean is model will predict 80% true (positive, neutral or negative) on given tweet. Forexample;

We will give our model as tweet "didn't enjoy flight". Model result will be 'Negative'.

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Future Step



- We can work on detail text and improve our model.
- For example we still get little bit of false positive, neutral or negatives. We would work why is that and what we could do more on our model.
- Also gather more tweets about these airline companies.



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Thank
You

By Ahmet

karaoglanahmet@hotmail.com