Twitter US Airline Sentiment Analysis

Seve Silvestre
MGSC 410

Appendix:

Information of the Dataset

- Twitter data was scraped from February of 2015 and contributors were asked to first classify positive, negative, and neutral tweets, followed by categorizing negative reasons (such as "late flight" or "rude service").
- Dataset will help pinpoint each airlines biggest complain and develop strategies to mitigate the complaints
- **Worked on the dataset on "Excel"**

Data Cleaning

- Removed tweet_id, airline_sentiment_gold, negative_reason_gold, tweet_cord, tweet_created
- Deleting NULL/Blank variables throughout the dataset

Insight Report: Findings

- **63%** (9178 out of 14640) of all sentiments were negative
- **21%** (3099 out of 14640) of all sentiments were neutral
- **16%** (2363 out of 14640) of all sentiments were positive

- American Airlines, United, and US Airways suffered with the largest amount of negative sentiments in proportion to their total sentiments per airline.
  - American (71% of all sentiments)
  - United (69% of all sentiments)
  - US Airways (78% of all sentiments)

Percentage of Positive, Neutral, and Negative Sentiment across all Airlines

- negative
- neutral
- positive

16%
21%
63%
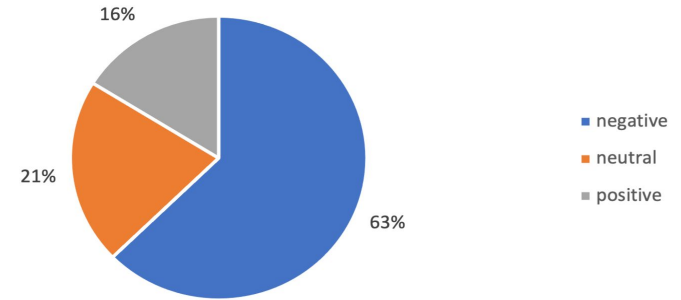
Number of Positive, Neutral, and Negative Sentiments per Airline
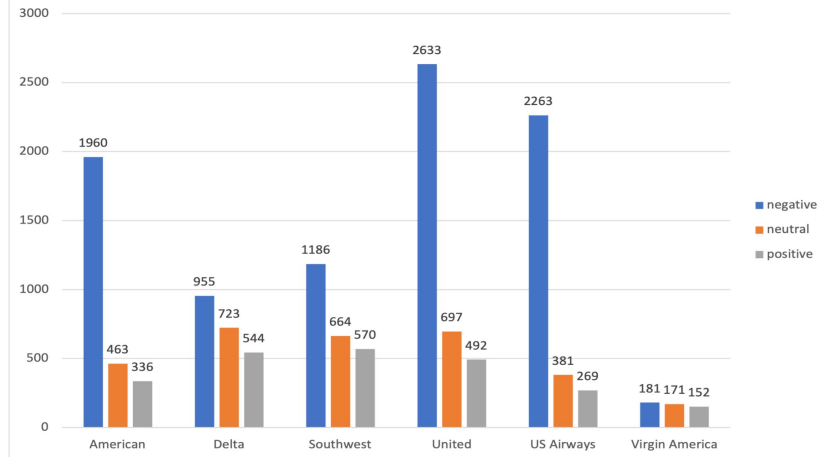
Insight Report: Findings

- 31.7% (2910 of 9178) of all negative sentiments revolve around Customer Service Issues
  - 39% (768 of 1960) of American Airlines negative sentiments come from Customer Service Issues
  - 36% (811 of 2263) of US Airways negative sentiments come from Customer Service Issues
  - 33% (391 of 1186) of Southwest negative sentiments come from Customer Service Issues

Count of negativereason Row Labels	Column Labels American	Delta	Southwest	United	US Airways	Virgin America	Grand Total
Bad Flight	87	64	90	216	104	19	580
Can't Tell	198	186	159	379	246	22	1190
Cancelled Flight	246	51	162	181	189	18	847
Customer Service Issue	768	199	391	681	811	60	2910
Damaged Luggage	12	11	14	22	11	4	74
Flight Attendant Complaints	87	60	38	168	123	5	481
Flight Booking Problems	130	44	61	144	122	28	529
Late Flight	249	269	152	525	453	17	1665
longlines	34	14	29	48	50	3	178
Lost Luggage	149	57	90	269	154	5	724
Grand Total	1960	955	1186	2633	2263	181	9178

Insight Report: Findings

- Ranking second in highest number of negative reasons is Late Flight and Cancelled Flight

- Customer Service Issues stem from a Late Flights and Cancelled Flights which could explain why Customer Services Issues rank the highest


Number of Negative Reasons per Airline
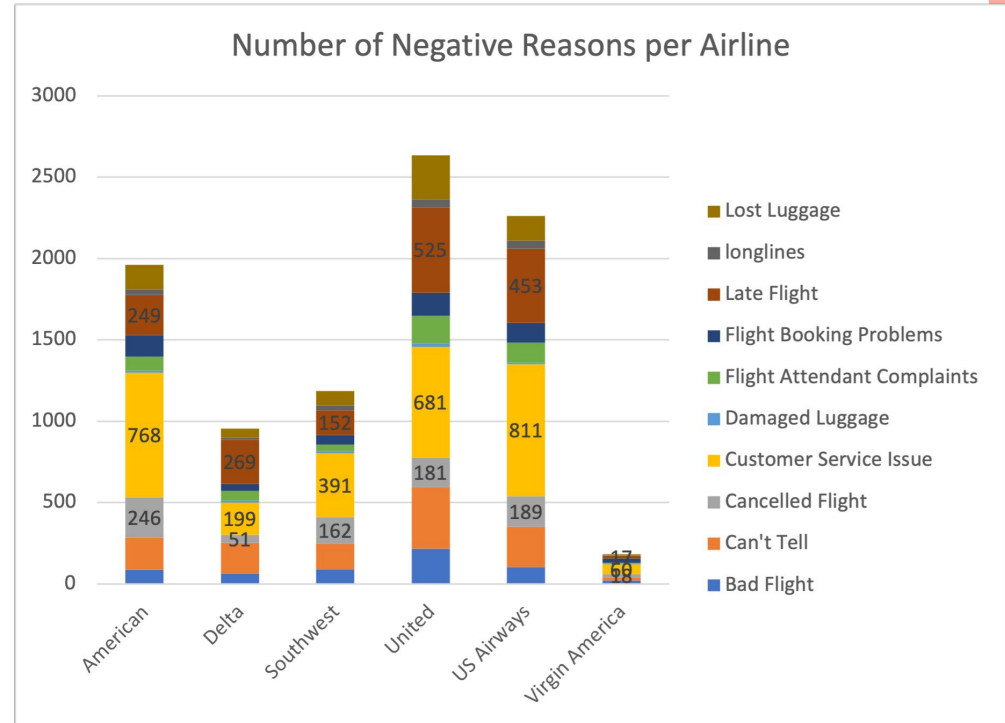
Insight Report: Analysis

Question: How much of Customer Service Issues overlap with the 2 other top negative reasons per Airline?

- Observed that many of the tweets revolving Customer Service Issues contained key words pertaining to phone calls not being answered or left on hold. Among these tweets, some mentioned the other top 2 negative reasons being Late Flights and Cancelled Flights
- From this observation, the overlap between customer service issues and late/cancelled flights would be noticed to see which issue is a more pressing issue that causes more negative responses

	"Refund"	"Delayed"	"Cancelled"	"Hold"	"Phone"
American	39	70	318	140	136
US Airways	42	133	210	297	143
Southwest	27	54	226	166	89

Insight Report: Analysis

Count of Keywords within Customer Service Issues
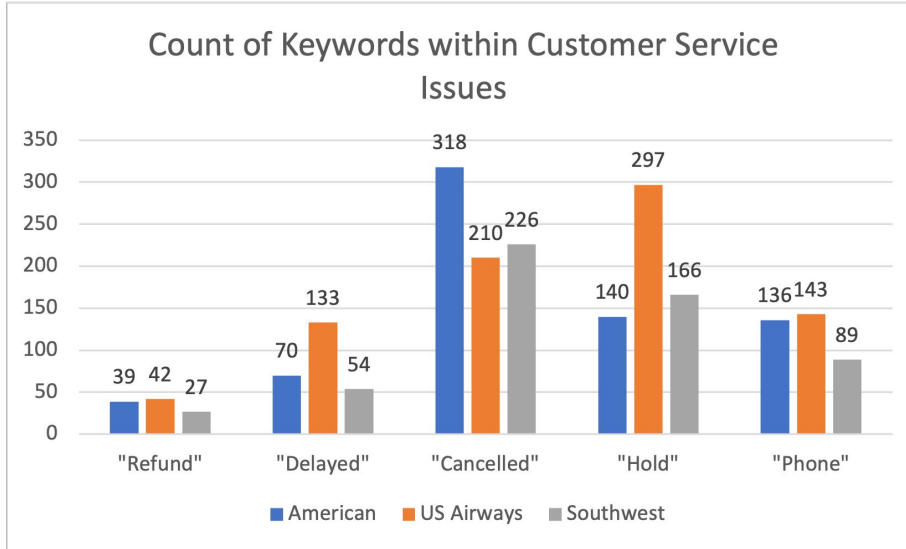
- 41% of American Airlines Customer Service Issues stemmed from "Cancelled Flights"
- 37% of US Airways Customer Service Issues stemmed from "Hold"
- 58% of Southwest Customer Service Issues stemmed from "Cancelled Flights"

Insight Report: Analysis

- Since the dataset will help pinpoint each airlines biggest complain and develop strategies to mitigate the complaints, the data shows in which aspect the 3 airlines (American, US Airways, Southwest) that ranked highest in negative sentiments towards customer service issues should focus on to mitigate the number of negative sentiments
    - Both American Airlines and Southwest should put more effort in overall customer service satisfaction when it comes to cancelled flights
    - US Airways should improve their customer service by putting customers on shorter hold while on the phone
- Because several of the negative reasons for negative sentiments fall under the same "umbrella" as Customer Service Issues, focusing on the issues ranked from the keywords will help reduce issues in multiple aspects at the same time
    - This would also apply for the other 3 airlines that weren't mentioned

Action Steps

1. Cleaned the dataset through deleting unwanted columns and rows
2. Created multiple pivot tables highlighting each airline's sentiments and their reasons
3. Created charts to visualize my data
4. Developed an in-depth question I was interested in solving after analyzing my initial findings
5. Wrote an analysis according to the data and charts to come up with a possible solution for airlines to mitigate negative sentiments