

Airbnb Reviews in New York City During Covid-19: Guests' Review Sentiments

Introduction

- Airbnb is a major player in the sharing economy and a popular marketplace for vacation and home rentals.

Motivation:

- Online reviews have become increasingly important, even on Airbnb.
- Reviews show perceptions, expectations, needs, emotions, and sentiments.
- May be even more important during the covid 19 pandemic.
 - Insights on people's perceptions and sentiments during uncertainty

Goal:

- To understand guests' views, emotions, and sentiments during the covid 19 pandemic,
- **How?**
 - Employed natural language processing on 96,630 Airbnb guest reviews in New York City.

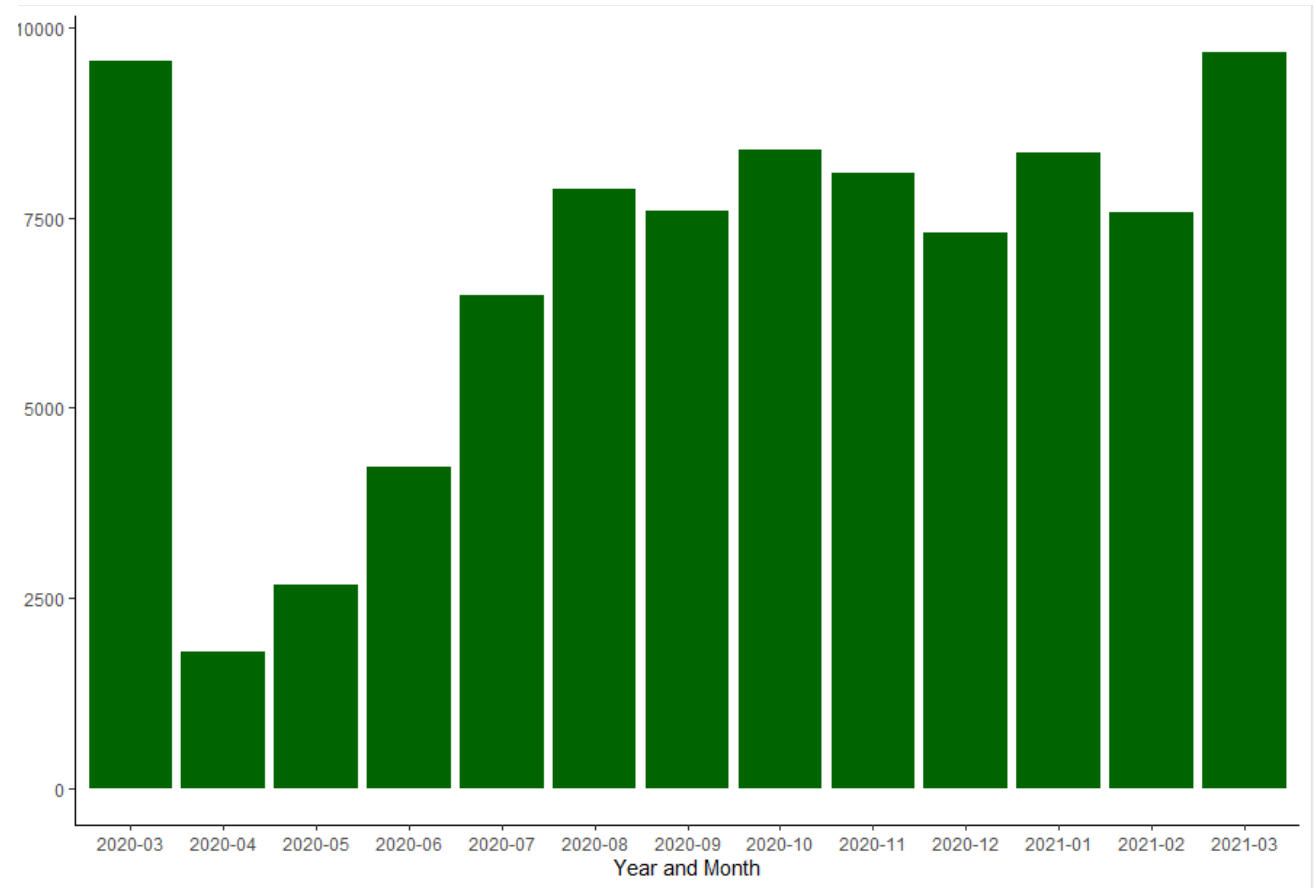
Data Description

- The dataset used in this study was collected from insideairbnb.com.
- This dataset includes Airbnb listings in New York City from March 2020 to March 2021, with 96,630 reviews and includes the following six variables:

Variables	Description
listing_id	Unique identifier given to each Airbnb listing
id	Unique identifier given to each host
Date	The date on which the review was created.
reviewer_id	Unique identifier given to each guest/reviewer
reviewer_name	Name of the guest/reviewer.
comments	The review made by the guest/reviewer

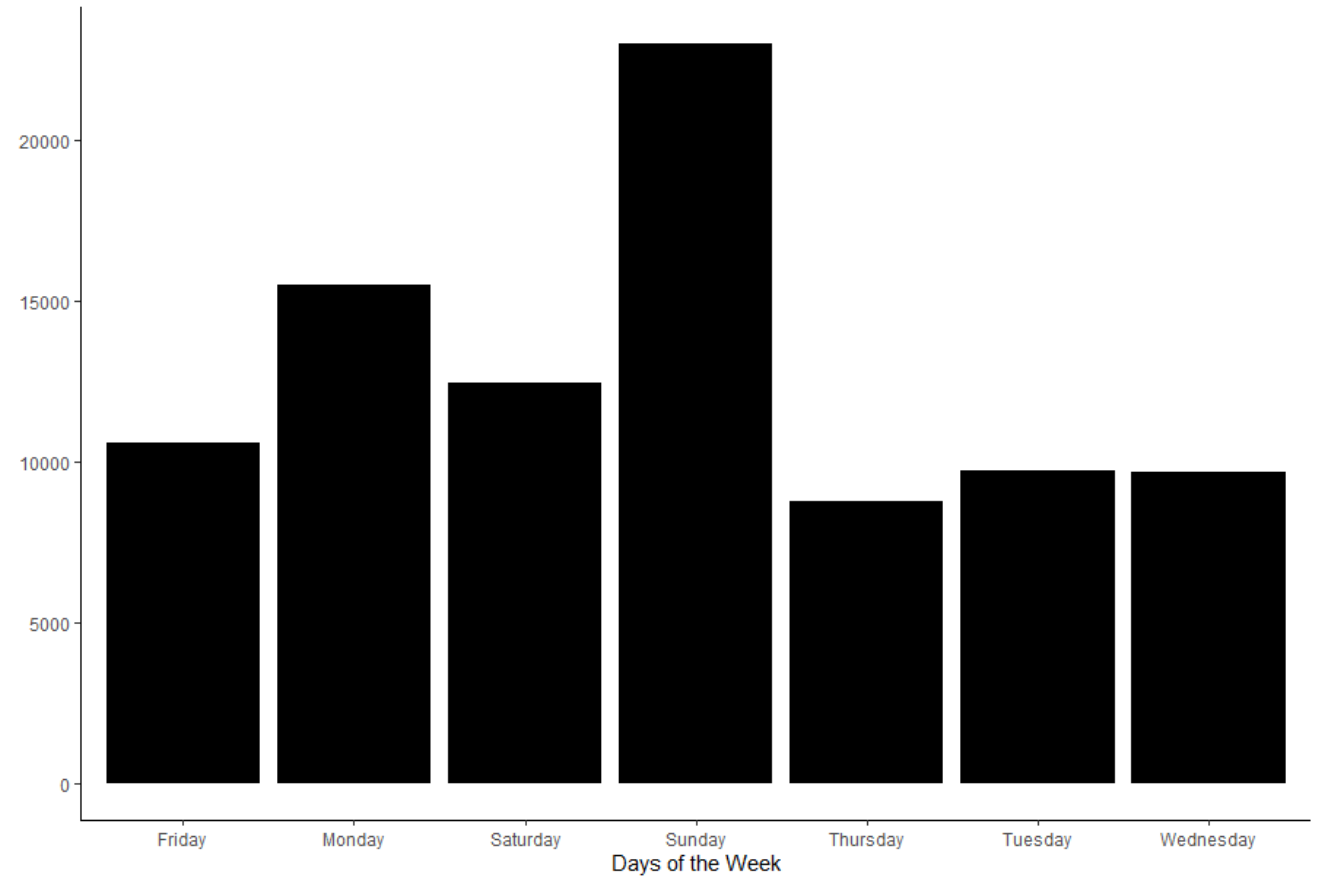
Exploratory Data Analysis

- The least number of reviews were recorded in April 2020.
 - Declining travels
- Despite the constant variation across each month, March 2020 and March 2021 have the highest number of reviews.
 - Increased sense of safety.



Exploratory Data Analysis

The highest number of reviews are on Sunday compared to the rest of the week.



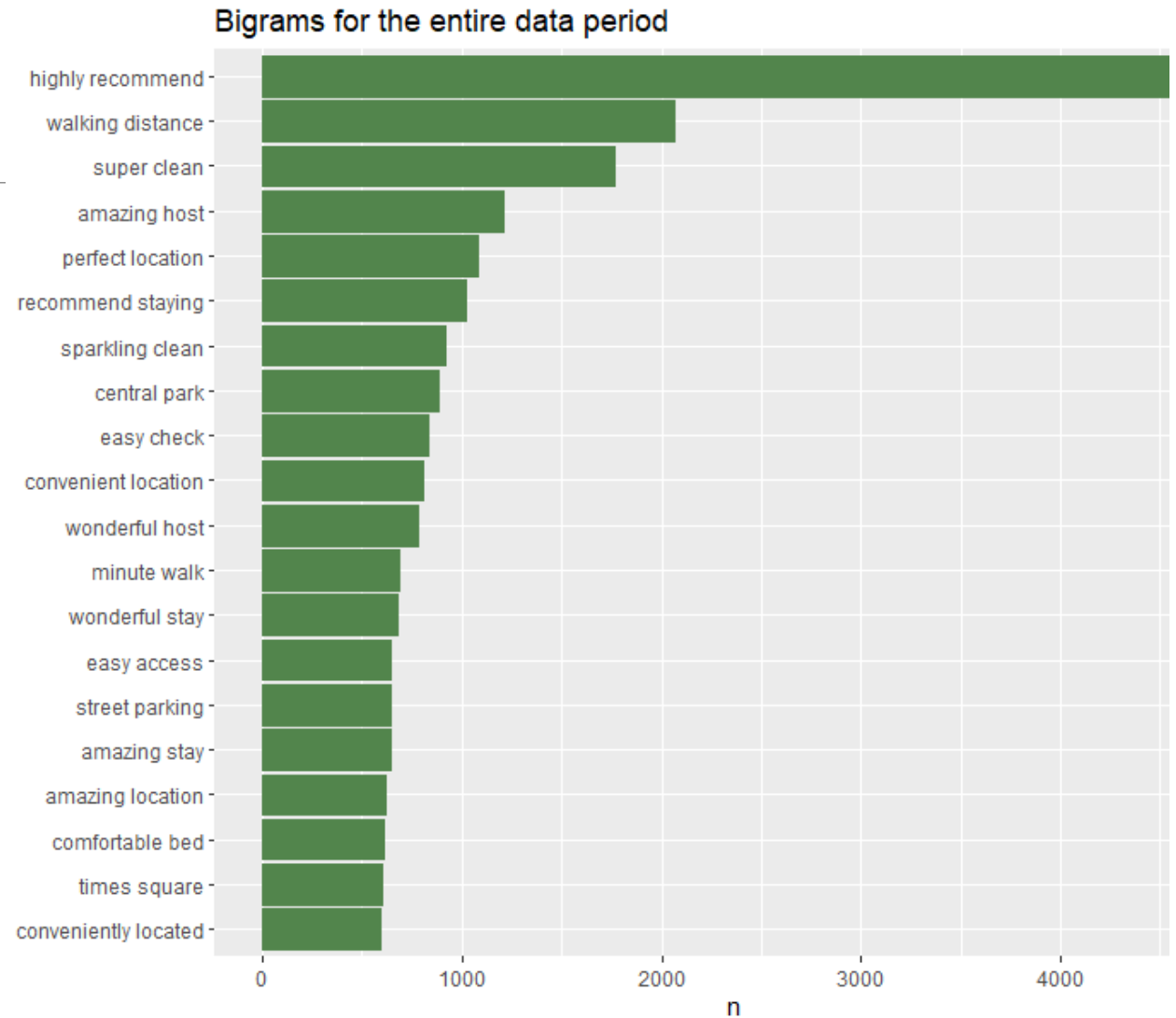
What are the most Frequent Words in Airbnb Guest Reviews?

- Between March 2020 to March 2021, the most frequent words used are “place”, “great” and “stay”.
- Description of the Airbnb unit and the host
- Guests care a lot about the appearance of the unit and their experience.



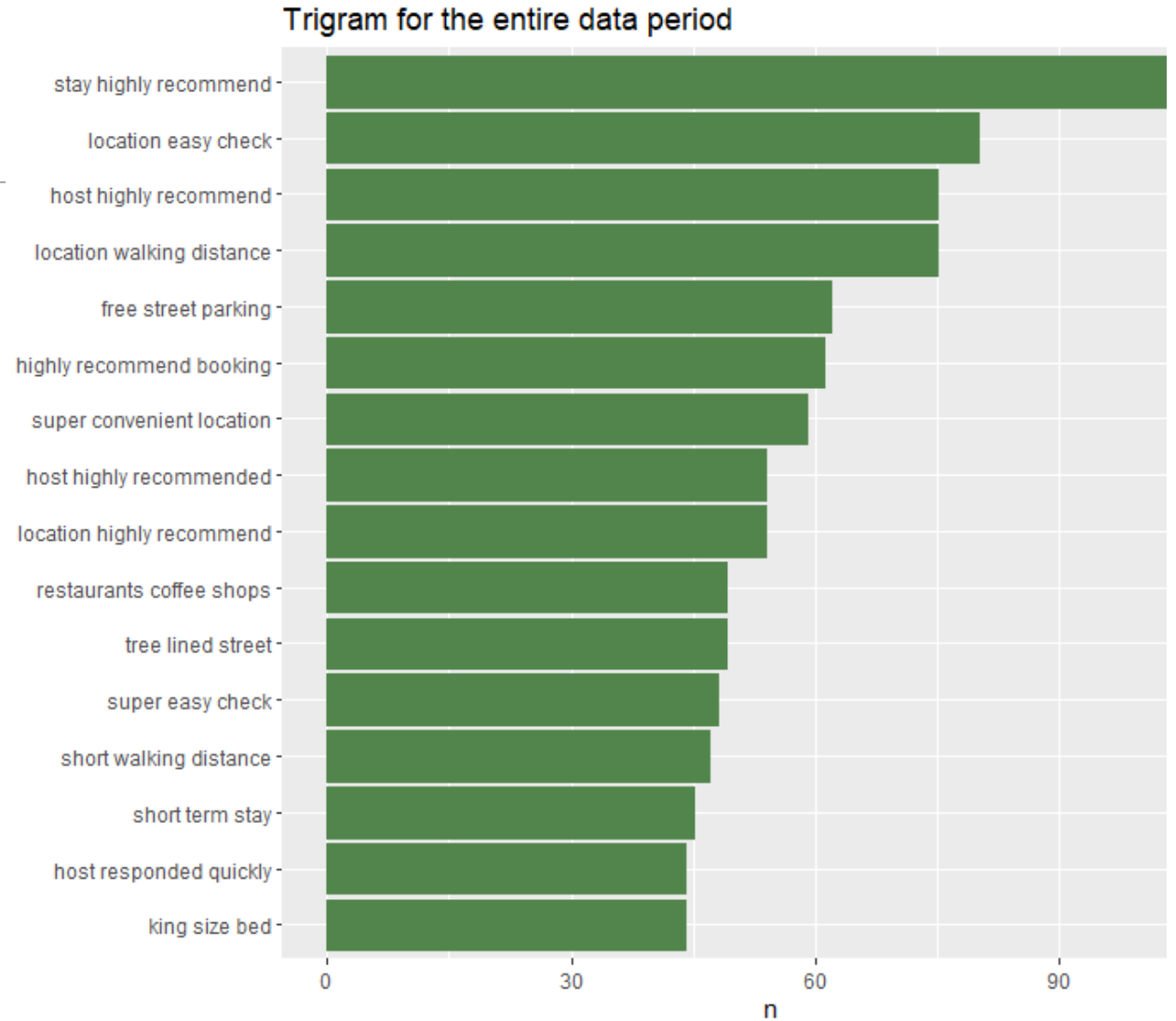
Bigrams

- The most frequent bigram is “highly recommend”
 - Not surprising!
- The individual words “great”, “place”, “stay” are very frequent and reflected in the most frequent bigram.
- The second most frequent bigram is “walking distance” followed by “super clean”.

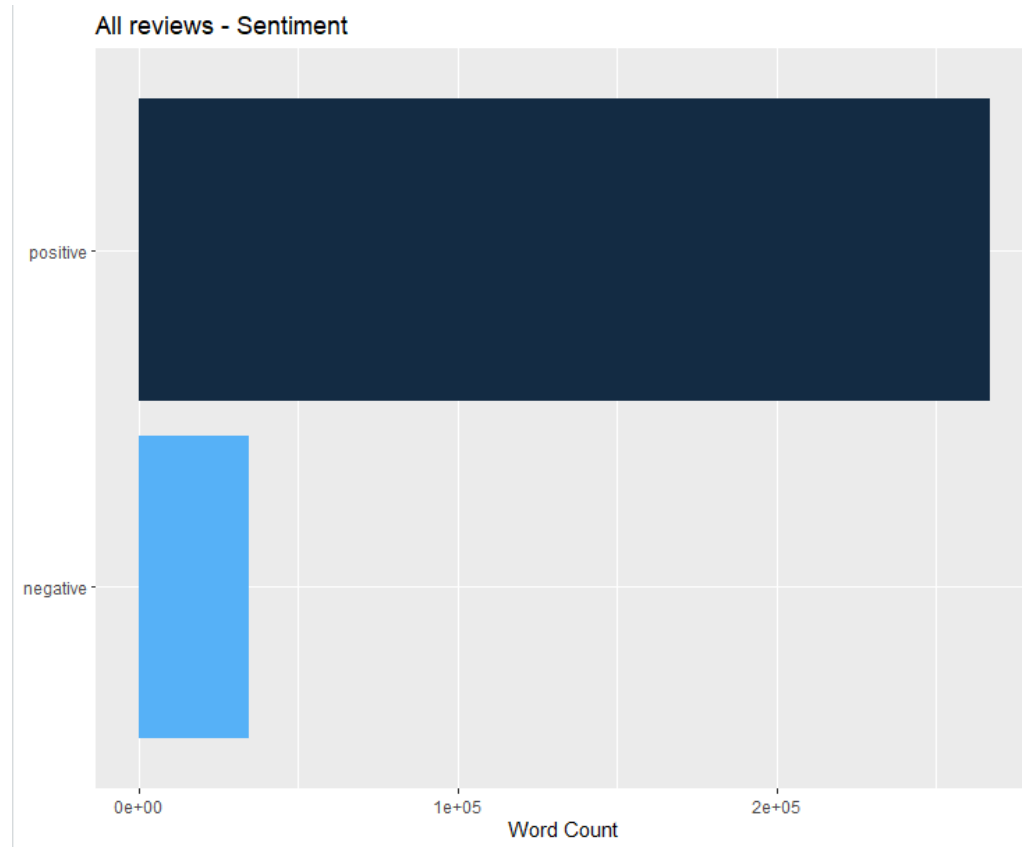


Trigram

- The most frequent trigram is “stay highly recommend”, similar to the bigram.
- The second is “location easy check” followed by many phrases about location.



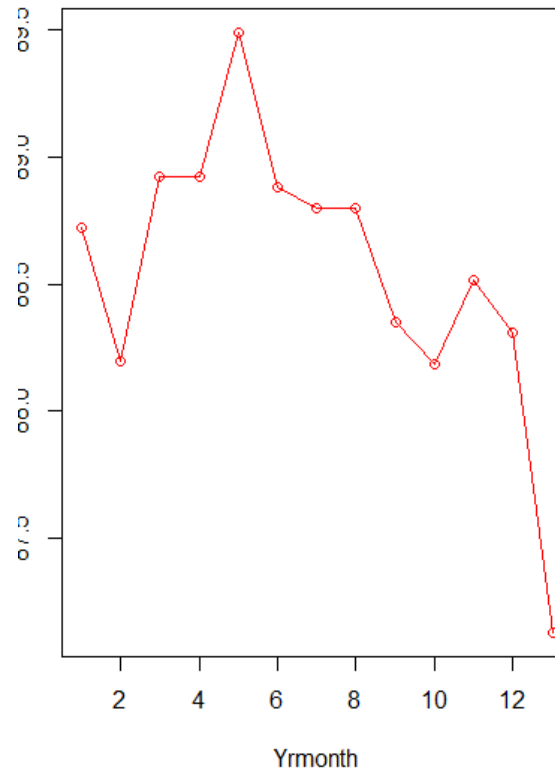
NLP-Text Analysis



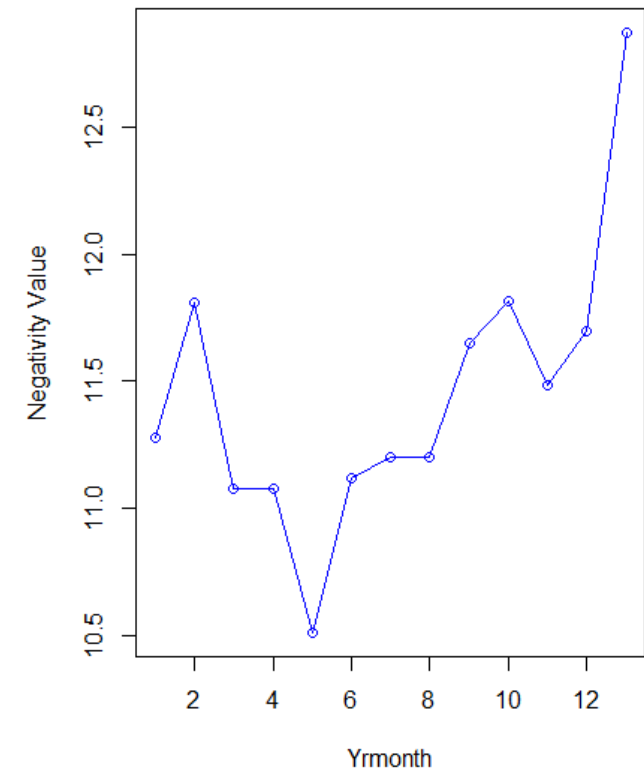
NLP - Text Analysis

- The level of positivity or negativity varied over the period studied.
- Positivity has generally declined, despite some fluctuations and increase.
- Consequently, the level of negativity in the reviews increased towards the end of the sample period.

Percentage Sentiment of Positivity chart



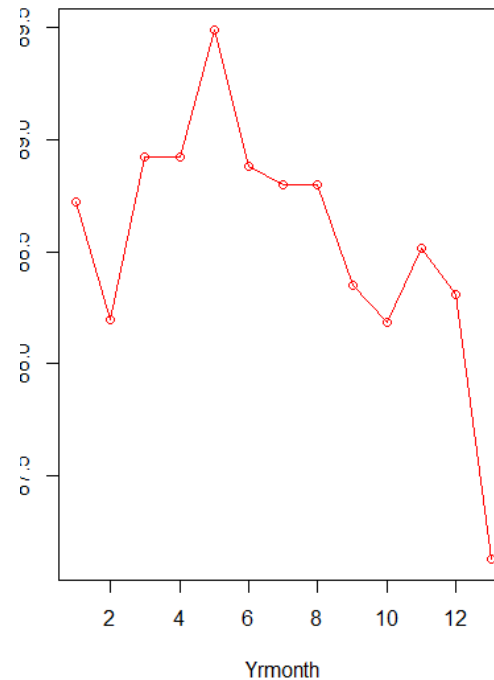
Percentage Sentiment of Negativity chart



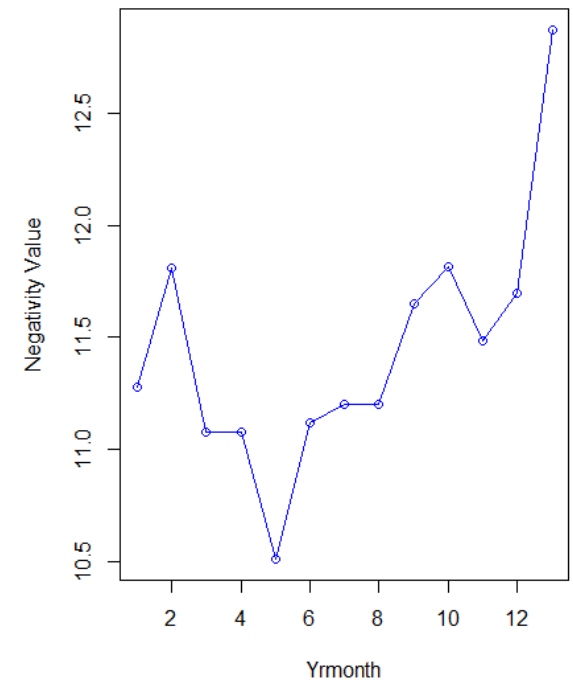
NLP - Text Analysis

- The pandemic may have had some effect on the emotions of the guests and their experience.
- Guests may be more critical of certain things given the risk and uncertainty involved with the pandemic.
- However, I am not sure what the specific emotions were and how they contributed to a positive or negative sentiment.

Percentage Sentiment of Positivity chart

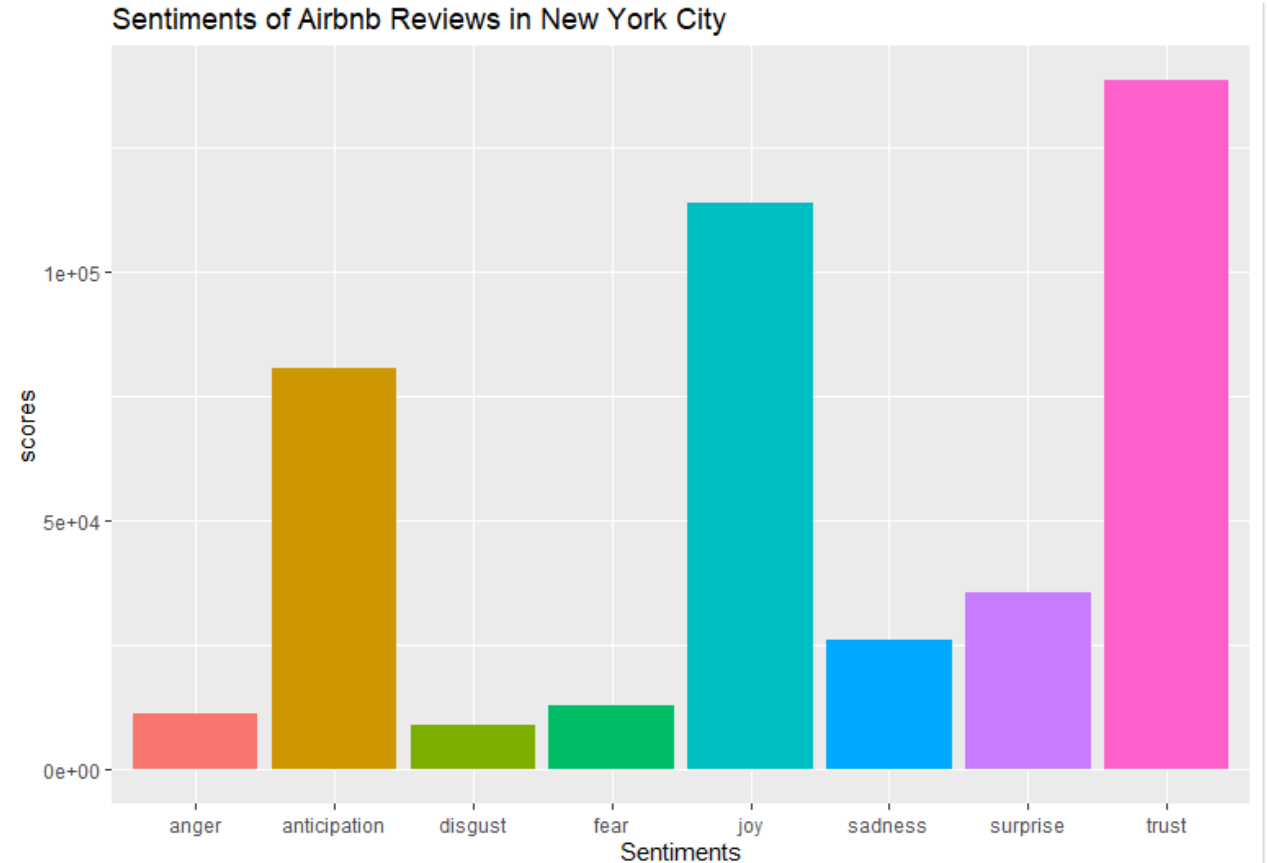


Percentage Sentiment of Negativity chart



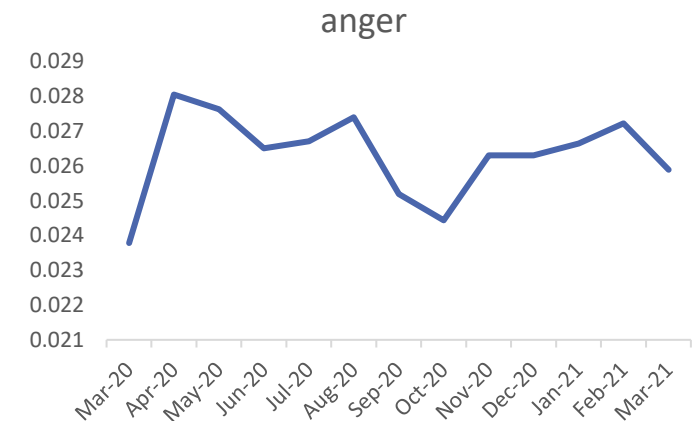
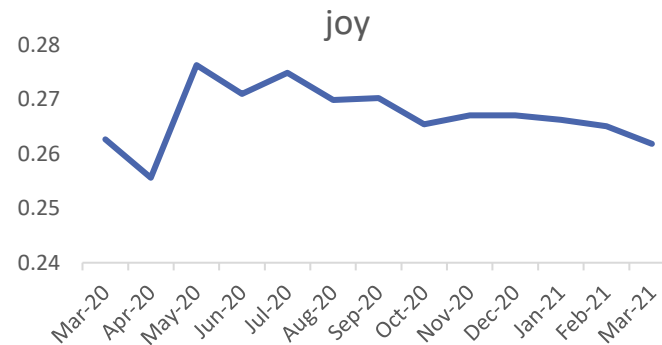
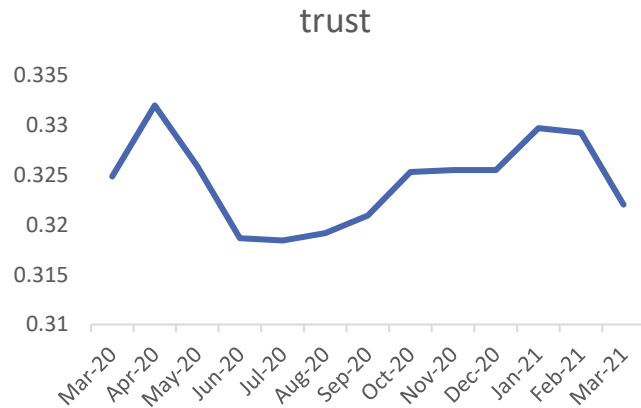
EMOTIONS IN THE REVIEWS

- The thorough analysis of the emotions shown in the reviews were explored using the NRC lexicon.
- The NRC lexicon categorizes sentiment words into positive, negative, anger, anticipation, disgust, fear, joy, sadness, surprise, and trust.
- Trust was the most frequently seen emotion, followed by joy, and anticipation. So, the guests were excited about their Airbnb experiences.



Emotions in the reviews

- The levels of emotions show fluctuation.
- Slight decline in the level of trust and fear and slight increase in anger and joy when we compare March 2020 to March 2021.
- Sharp increase in trust, anger, and fear in the early sample period.
- The level of fear increased from March 2020 to May 2020
 - May be due to the increased intensity of the spread of the Covid 19 pandemic.



CONCLUSION

- I have been able to analyze online reviews on Airbnb using the natural language processing (NLP).
- Understand the sentiments and emotions expressed by the guests during the covid 19 pandemic.
- The results show that the general sentiment in the reviews is positive, however degree of negativity increased over the time.
- The level of anger increased during the pandemic and may serve as an opportunity for future research.

THANK YOU!

