# Final Project

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For my final project, I decided to perform Twitter research on Chipotle, the restaurant chain. My reason for choosing Chipotle is that people tend to enjoy tweeting about food. Additionally, the official Chipotle Twitter account, @ChipotleTweets, is a relatively active account with nearly 900,000 followers and 675,000 tweets. I was also curious to see if I could find any relevant information regarding the recent launch of Chipotle's own queso that was released on September 12th of this year. I had seen online after the release that people were generally not happy with the queso and I wanted to see if that could be concluded from the tweets about the queso, as well.

First, I thought it might be interesting from a marketing standpoint to see where people who tweet about Chipotle are located. There is a feature on Twitter that allows its users to share their location for each specific tweet. I decided to use this information to plot these locations. It should be noted that most people to not have this location feature made visible, so there is not an enormous amount of available location data. Regardless, I thought it might be interesting to see if any particular trends could still be visualized.

Where People are Tweeting about Chipotle in the USA
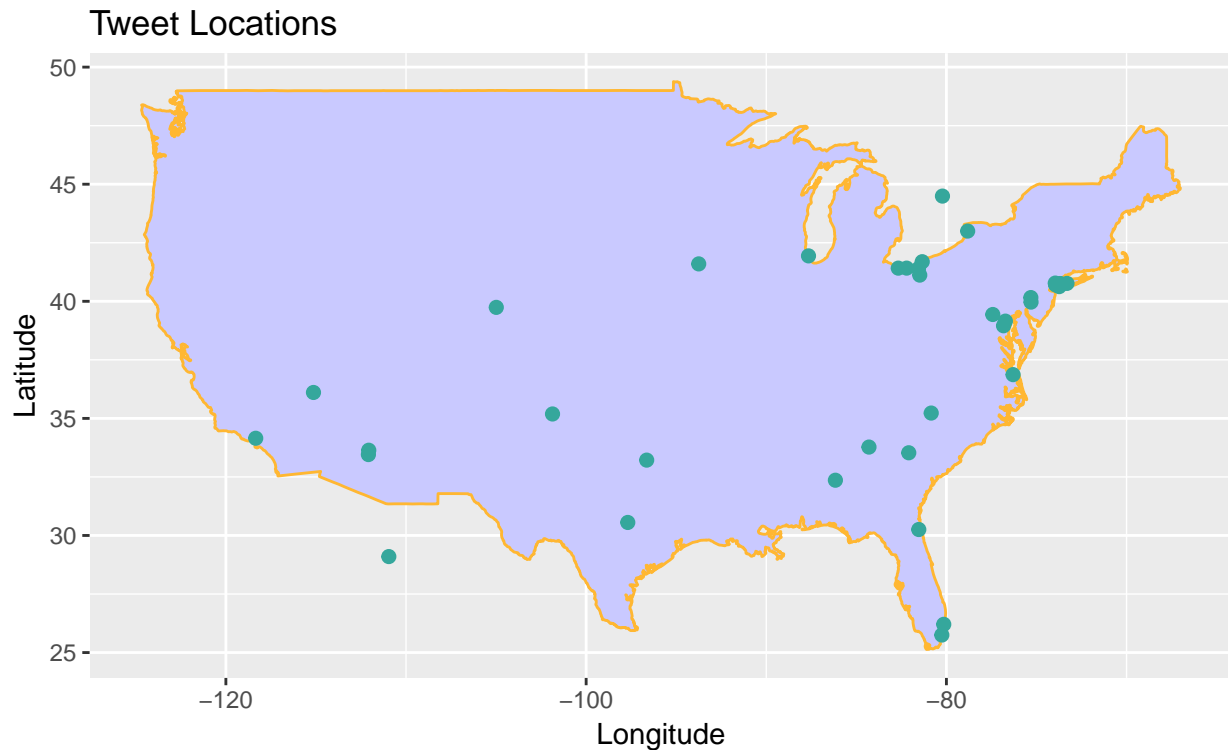
Unfortunately, as mentioned prior, it can be quite difficult to gather a plethora of locations from tweets just because not many people choose to share their location. But I was able to gather about 40 locations from 11,000 tweets and plotted the longtitudes and latitudes. Although the locations are a small data set,

there still appears to be some clustering going on that can still be useful information. In particular, the west and midwest regions of the country are extremely lacking in data points. There could be several reasons for this result. Perhaps Chipotle is less popular in these regions, or there may just be less Chipotle restaurant locations in these areas. I found a map online that displays Chipotle restaurant locations on a map of the USA (based on the data from "https://www.redliondata.com/chipotle-stores-map/". Interestingly enough, this map I inserted below bears a similar resemblance to the map above generated by the tweets, supporting the argument that people are tweeting about Chipotle less in the west and midwest regions of the United States because there are simply less Chipotle restaurants. The Chipotle marketing team should therefore think about focusing on the areas in which there are a high number of Chipotles, which is mainly the southern and northeast parts of the country. However, it may also be of value for the marketing team to focus efforts on the extreme northwest part of the United States due to the fact that there are quite a few Chipotle restuarant locations there but it is lacking the Twitter traffic that could be helping their branding in that region. Perhaps the official Chipotle Twitter account could try to interact with users in that area more than it currently is.
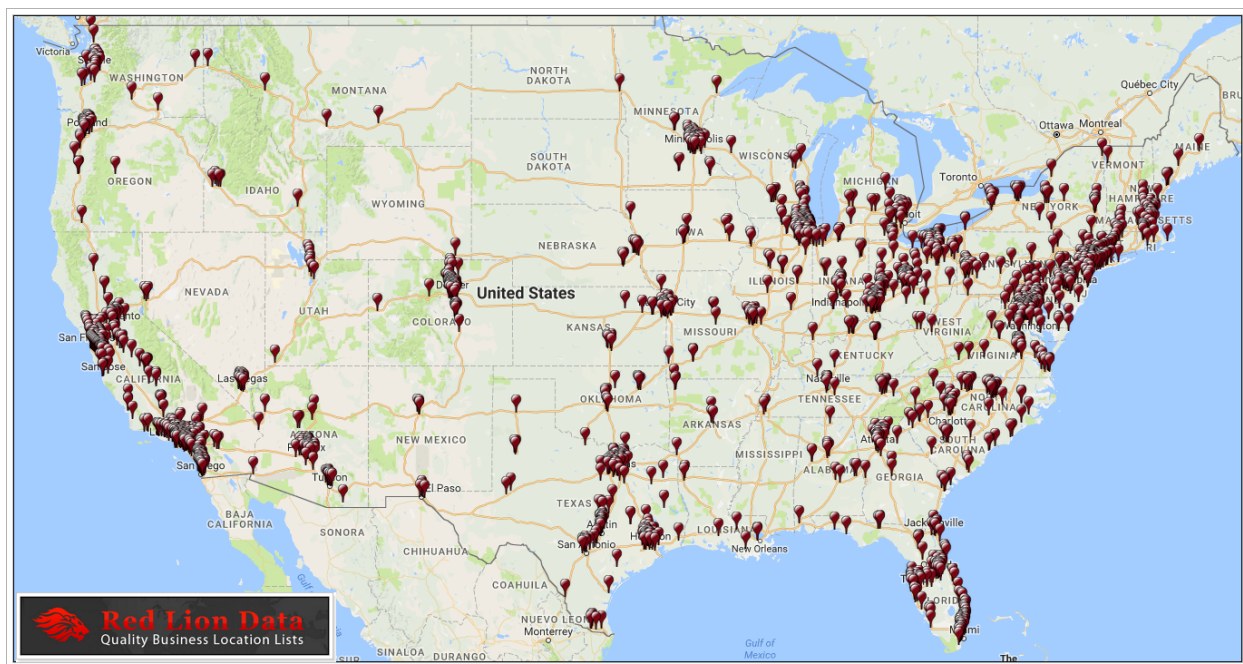

Figure 1: Chipotles in the USA

Word Cloud

Below is a link to a Shiny app I have created that is an interactive word cloud that can alternate between representing words in tweets about Chipotle and, more specifically, tweets about Chipotle's queso. You can use the drop down to select the tweets you wish to have the word cloud express and press the interactive "Change" button to watch the cloud change according to your choice. Then, you can move the sliders to modify the cloud based on the minimum frequency of the words and the maximum number of words. The bigger and bolder a word is within the word cloud, the more frequently it is used in the tweets. After looking at the word cloud at the link below, one can gather some information about how people tend to tweet about Chipotle.

https://jahorn.shinyapps.io/chipotle-wordcloud/

First looking at the Chipotle tweets word cloud when it is set to minimum frequency 10 and maximum number of words 85, significant words that stand out, besides the obvious "Chipotle", are "ceo", "founder",

"steve", "ells"","support","changed","struggling","fundraiser", and"turnaround". These words show that many people are tweeting about the issues that the CEO of Chipotle, Steve Ells, is facing. He has been trying to save Chipotle from the many mishaps of E. coli and poorly received queso release. (To learn more about the outbreaks of E. coli and other illnesses caused by Chipotle, the FDA discussing them in detail here https://www.fda.gov/Food/RecallsOutbreaksEmergencies/Outbreaks/ucm470410.htm .) However, there are some words like"fundraiser" and "support" that are likely to be from more positive tweets about Chipotle, since Chipotle often helps organizations hold fundraisers at their restaurants. Also, "turnaround" could be indicative of people tweeting about how Chipotle is making a positive turnaround from its near-disastrous illness outbreaks.

Next, let us look at the Chipotle queso tweets word cloud. I selected tweets for this word cloud that were after September 12th, 2017 to ensure that what people were saying was indeed after the queso was released and not just the hype beforehand. For a good visual, set the minimum frequency to 20 and the maximum number of word to 75. Significant words that stand out with this word cloud are "good", "sh*t","garbage","super","bad", and"norovirus"."Norovirus" refers to the outbreak of the norovirus around the Boston College area from Chipotle food. Unfortunately, there seem to be many negative words in the cloud referring to their new queso. The spike in the word "norovirus" could be because people fear that with a new food item being introduced to the Chipotle restaurants comes along a new concern that this item may not be safely stored or not adequately prepared to prevent foodborn illnesses.

Emoji Analysis

Next, we will look at the emojis that frequently appear in tweets about Chipotle.

Most Common Emojis Tweeted with 'Chipotle'
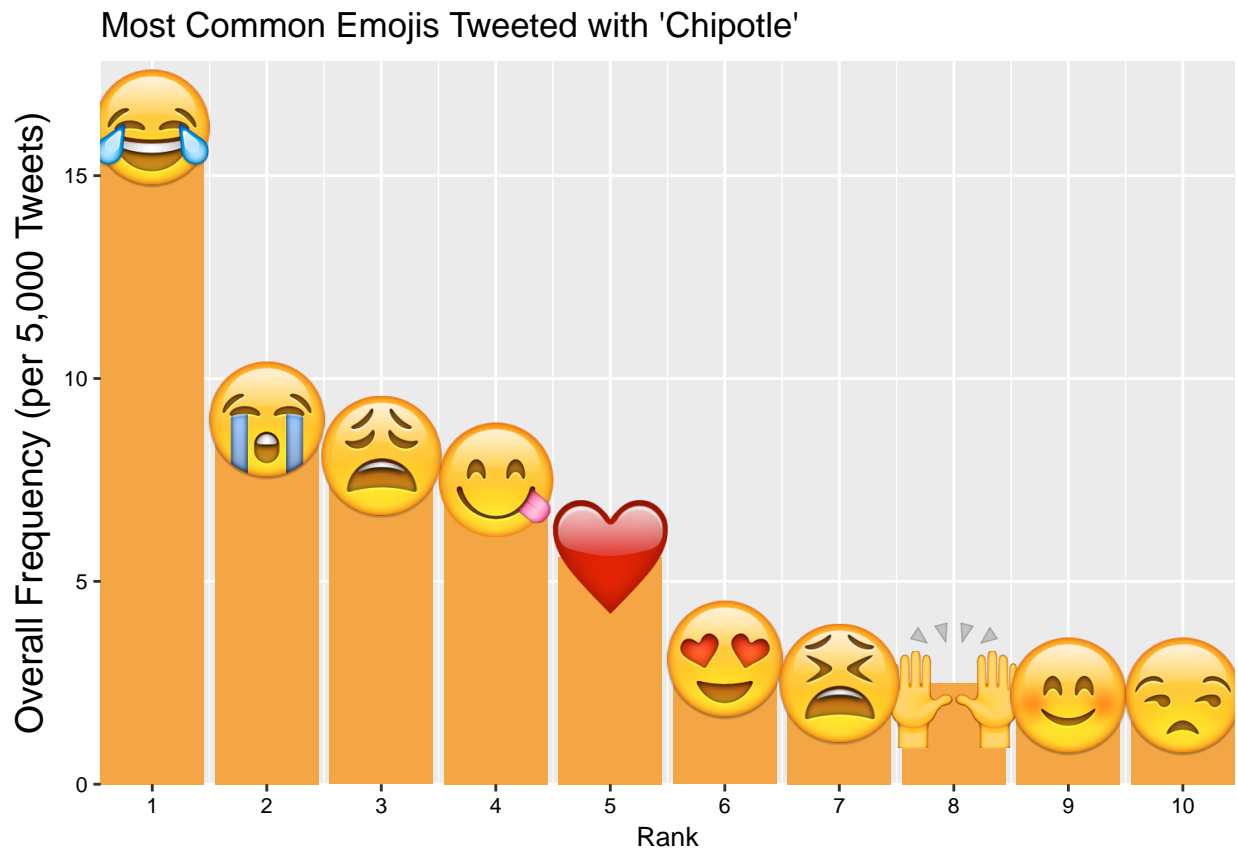
This chart above looks at the emojis being used in tweets about Chipotle and ranks the top ten starting from the most used starting at the left. Some of the top emojis can be logically interpreted, such as the heart eyes

face, heart, praise hands, and smiling faces. However, the top two emojis can be a little confusing out of context. The top emoji tweeted along with "Chipotle" is the laugh crying face, followed by the crying face. These may seem sad or of mocking nature, but below are some example of tweets with these emojis to get a general idea of what the context of the tweet usually is.

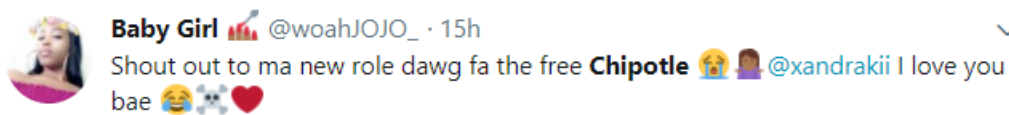Figure 2: Laugh crying face


Figure 3: Crying face and laugh crying face

Figure 4: Crying face

These tweets pictured above are good examples of the context of the tweets containing these emojis. One can conclude from the chart and the tweets that most people tweeting about Chipotle and using emojis are tweeting positively about the restaurant chain, often saying they are craving the food.

Sentiments Expressed in Tweets about Chipotle

Below we will look at the sentiments of tweets about Chipotle, but in relation to Twitter users' word choices.

# Negative vs. Positive Words in Tweets about Chipotle
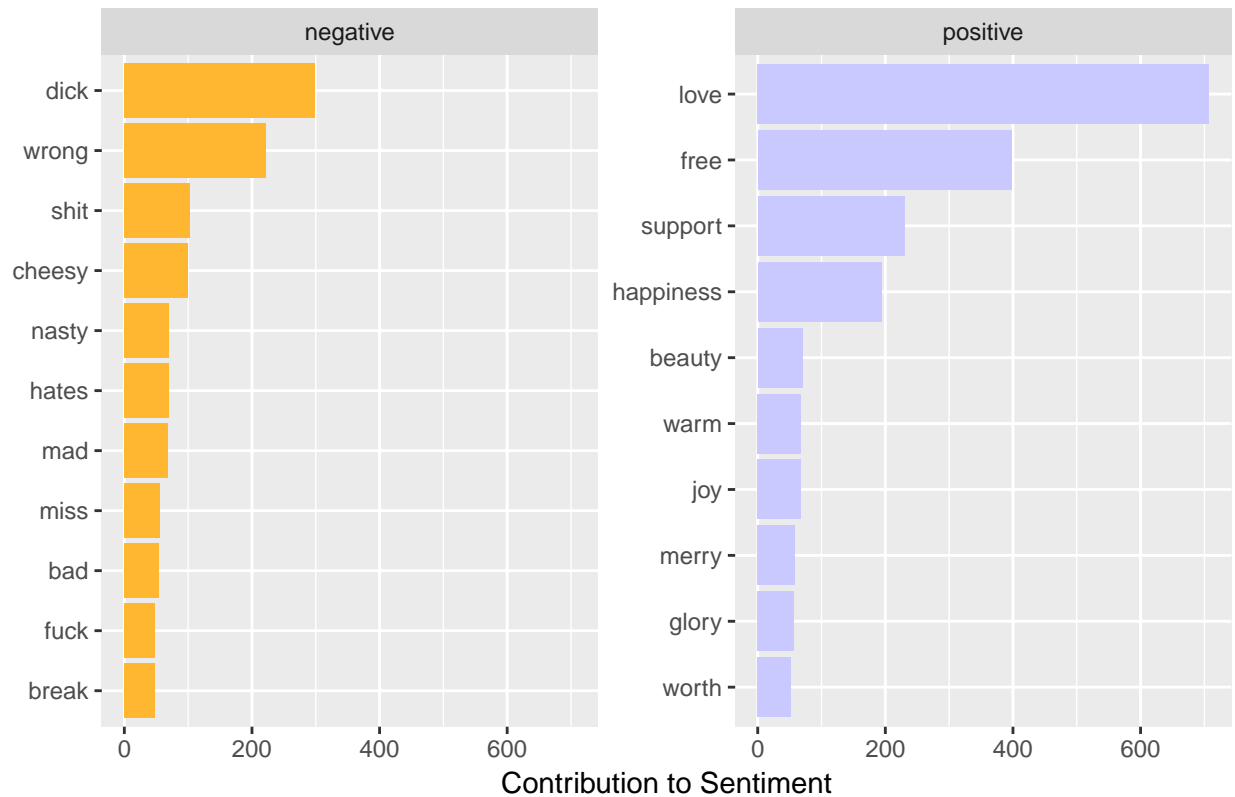
The chart above looks at positive and negative words used in tweets about Chipotle. There are relatively high contributions of positive sentiment words to the tweets. "Support" is a very popular positive word being tweeted with "Chipotle". Below is a table that includes a sample of 25 tweets that are about Chipotle and include the word "support", to show a glimpse of what these types of tweets look like.

Sample "Support" Tweets:

still over an hour left take a study break and head on over to chipotle to support

pport the french club tomorrowchipotle i would appreciate it very much make sure to sh

pr chipotle night has beguncome in enjoysupport ur favorite patriots

no need to cookcome to chipotle tonight we would love your support

rget tomorrow tomorrow tomorrow come out a support yellow jacket basketball from pmcl

t to stop in to chipotle tonight beforepm and make sure to tell your cashier youre there to

nutes you can enjoy some great food while supporting a great cause from pm today chip

enjoying good food while supportingchipotle spirit night yummy

pport the french club tomorrowchipotle i would appreciate it very much make sure to sh

l support the th grade class ofshow this flyer when ordering chipotle at holmdel plaza we

no need to cookcome to chipotle tonight we would love your support

no need to cookcome to chipotle tonight we would love your support

no need to cookcome to chipotle tonight we would love your support

hipotle restaurant night tonight frompm come out to support student council bulldognatio

ny chipotle do you have yours come and support hilliard darby sophomore cabinet night t

e to stop out to hudson chipotle and supportwith their fundraiser make sure to mention it

o chipotlewaverly tomorrow between pm to support the mens lacrosse programbe sure to

If you take a look above at the group of tweets I pulled about Chipotle, it seems to be that a many of these tweets that include "support", which is a large proportion of positive tweets about Chipotle, are about different fundraisers that are being held at Chipotle and the tweets are mostly inviting people to come and "support" by coming to the participating Chipotle. This is much more reassuring about the reputation of Chipotle, being that the word clouds were slightly more negative. This chart may represent that there is still a lot of positivity surrounding the company, despite its various scandals and obstacles it has encountered in the recent years. Since these tweets are from the beginning of this current year on, we know we are getting tweets that have occured after most of the major negative publicity instances of Chipotle, showing that despite the issues Chipotle has had, many people still take on the opportunity to fundraise with the company and do good, which is beneficial to Chipotle's reputation as well.

Negative vs. Positive Words in Tweets about Chipotle's Queso
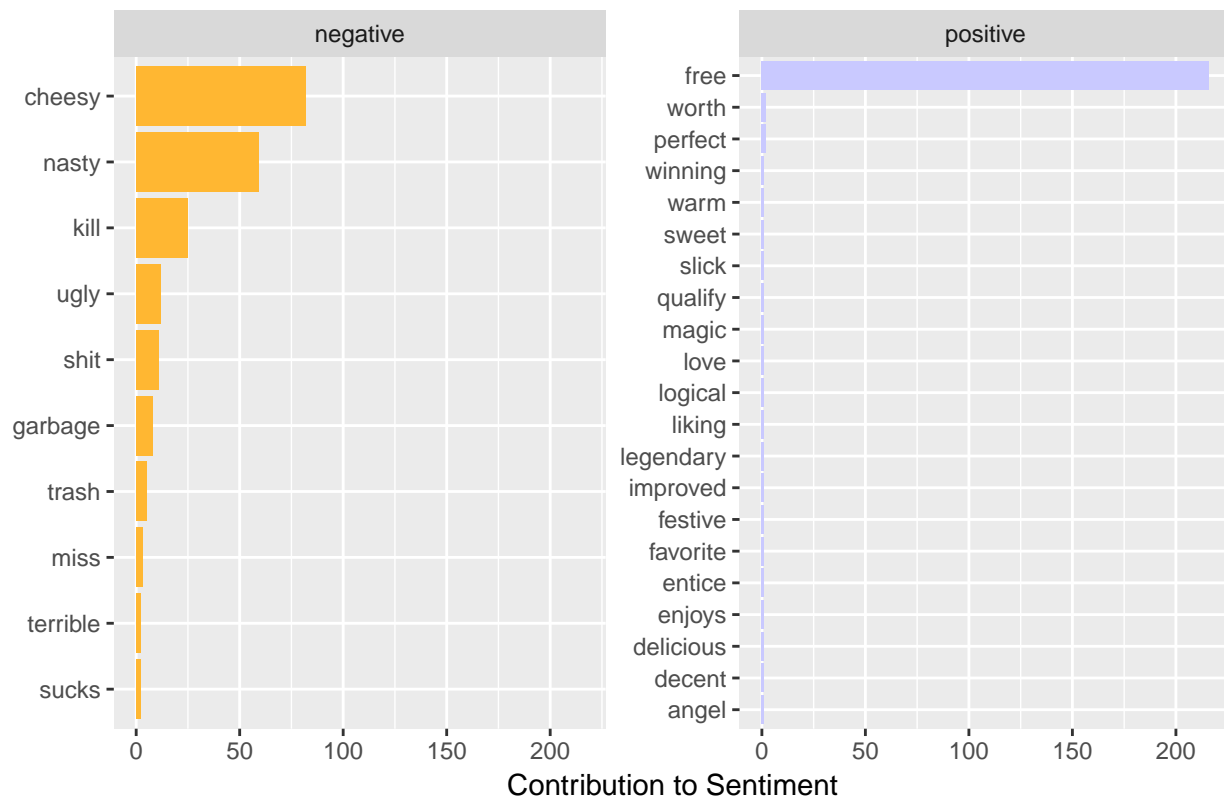
Looking at the second set of charts regarding sentiment, which looks more specifically at sentiment regarding Chipotle's queso, there are sadly not many positive words being used in tweets regarding the new queso. On the other hand, there are much more negative words being used and at at a higher frequency. For example, "garbage" or "trash" tend to usually be at the top of the negative side, which does not mean good news for Chipotle. The queso was supposed to be a new marketing technique to help get customers back that may have made the decision to frequent the restaurant chain less often perhaps due to the E. coli breakouts that occurred in 2015 and 2016.

Final Thoughts

The bid to get back its diners with queso does not appear to have been received well based on the tweet text analysis that has been performed. However, Chipotle should not lose hope because as shown in the first sentiment chart, there is still a fair amount of positivity surrounding the company. But perhaps Chipotle should focus its efforts on coninuing to enhance its humanitarian image in conjunction with promoting their efforts to ensure safe food preparation, rather than promoting its new queso.