

McDonald's Sentiment Analysis

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Agenda

Industry Background

Data Preparation

Perceptual map

Strategic Insights

Industry Background

Industry and Business Background

Industry Overview

Key Statistics:



202K
businesses



1.8% CAGR



\$18.7B Profit

Major Players:



Business Background

- McDonald's plans to open 1,900 new locations in 2023
- McDonald's anticipate over 4% unit growth from net restaurant additions in 2023

Project Objectives

- Identify, analyze, and categorize online sentiments about McDonald's
- Perform sentiment analysis and produce a perceptual map that captures brands delights and disappointment
- Provide insights and recommendations to McDonald's based on sentiment analysis



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Data Preparation

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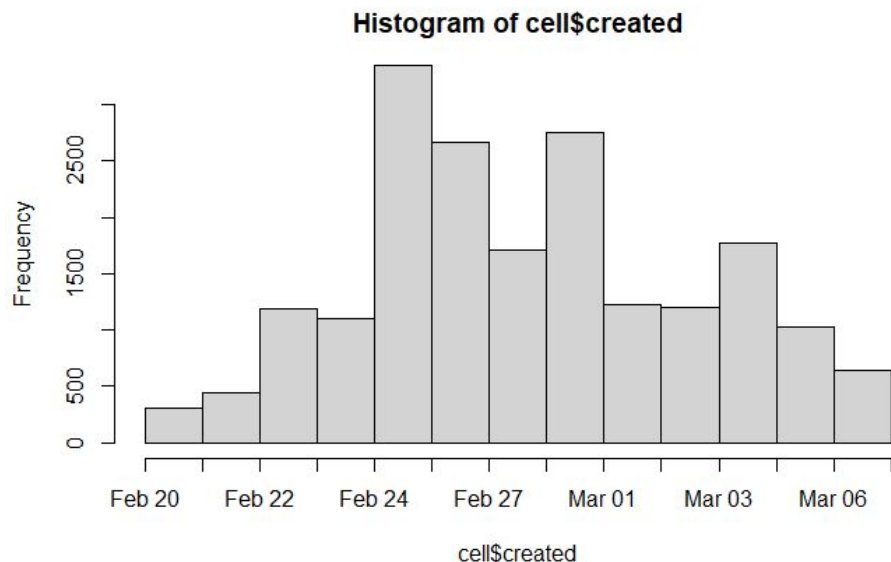
- Pull online sentiment twitter data for each of the brands in 2023
- Twitter API can only return portion of data (around 500 per brand per day), we merged data from several days to increase to volume of the data
- Data cleaning: remove stop words, punctuations, numbers, and converted all alphabets to lowercase
- We only keep McDonald's, KFC, Starbucks, and Subway for analysis due to data limitations

Data Breakdown by Tweets

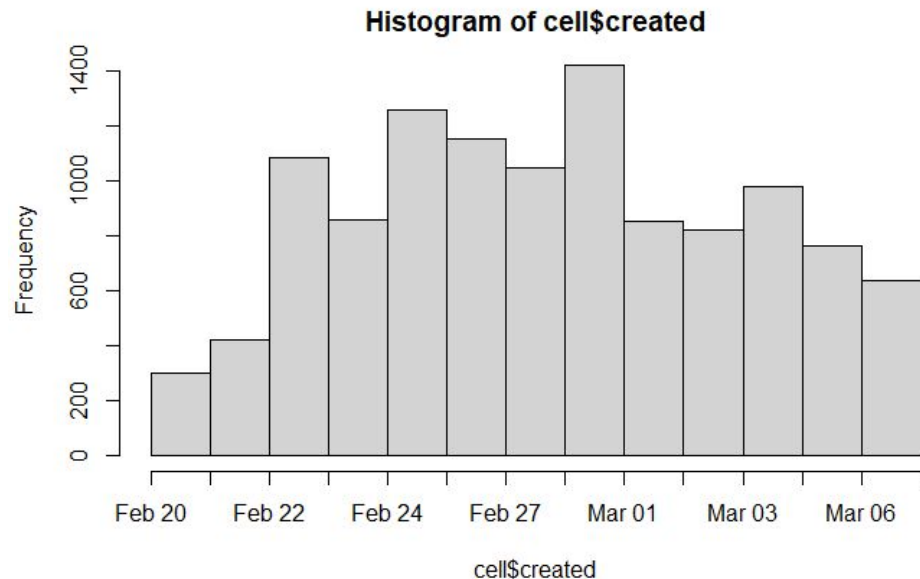
Brands	Number of Tweets
McDonald's	3.6k
KFC	2.3k
Starbucks	4.3k
Subway	1.5k
Chipotle*	0.5k
Chick-fil-a*	0.4k



Time-Range of Tweets



All tweets collected with duplicates



Clean unique tweets

Methodology and Mapping Processes

Step 1: Data Cleaning all the tweets

Step 2: Using Latent Dirichlet Allocation (LDA) to find the topics and label attributes

Step 3: Using keywords to find tweets related to topics

Step 4: Perform sentiment analysis on the tweets per topic and brand

Step 5: Create a Perceptual map using Multi-dimensional scaling of brand sentiments per attribute

Perceptual Map

Latent Dirichlet Allocation

topic_num <int>	topic_size <dbl>	mean_token_length <dbl>	dist_from_corpus <dbl>	tf_df_dist <dbl>	doc_prominence <dbl>	topic_coherence <dbl>	topic_exclusivity <dbl>
1	2388.792	4.7	0.6826975	6.651704	417	-242.283290	9.936054
2	1702.856	6.7	0.6862012	8.222201	1048	-204.282406	9.957862
3	2524.081	4.1	0.6841852	2.850474	376	-245.766896	9.852280
4	1254.778	6.6	0.6791808	16.274681	1085	-8.076977	9.997783
5	2379.642	4.4	0.6810718	4.989780	382	-254.561788	9.864533
6	2042.284	9.1	0.6839816	4.885628	592	-90.443903	9.941889
7	2419.346	6.7	0.6870836	1.128117	484	-288.612218	9.926344
8	2472.188	4.1	0.6922855	1.273543	382	-234.576570	9.993408
9	2470.568	4.8	0.6873543	4.276997	285	-248.901451	9.936762
10	1316.464	4.1	0.6661678	11.425094	770	-9.869056	9.996113

Topic size: measures size of topic

Doc prominence: measures how prominent a topic is

Topic coherence: measures semantic similarity

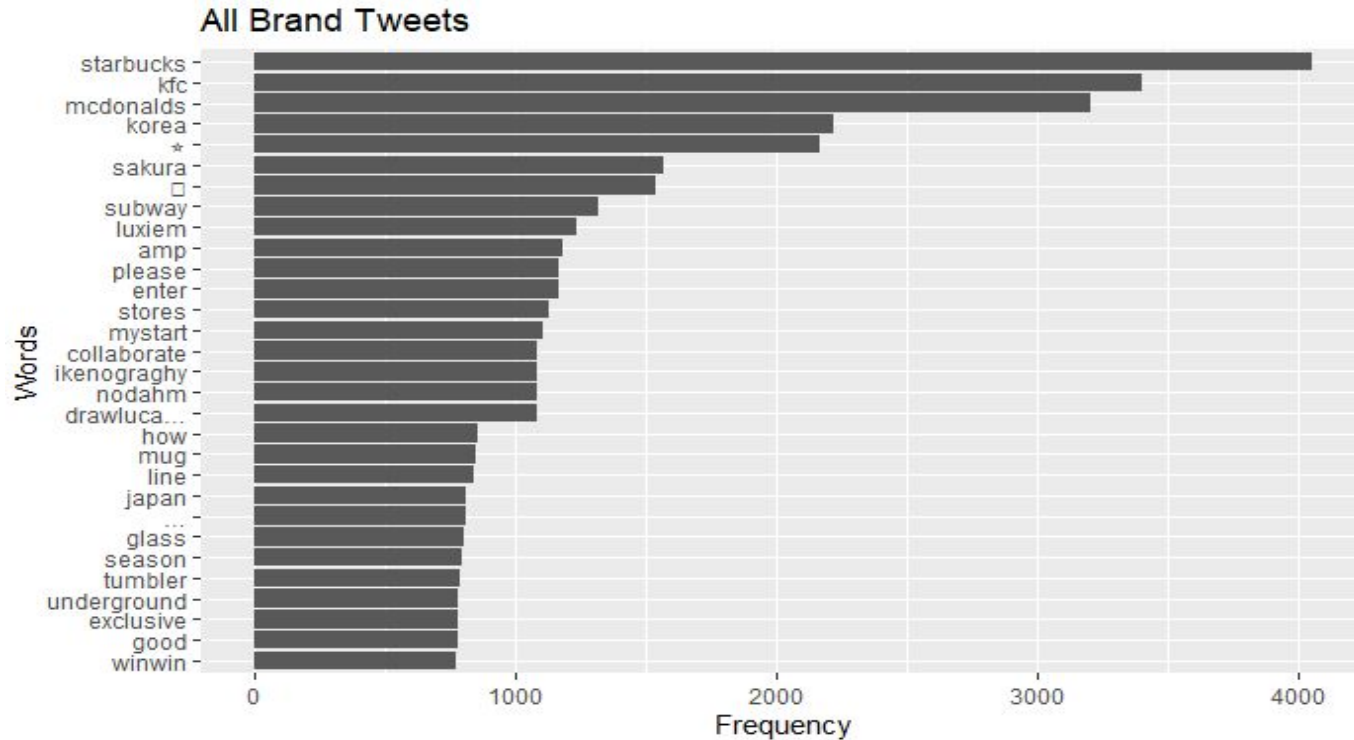
Topic 4: Brand reputation

Topic 6: Advertising and Promotions

Topic 7: Food and Beverages

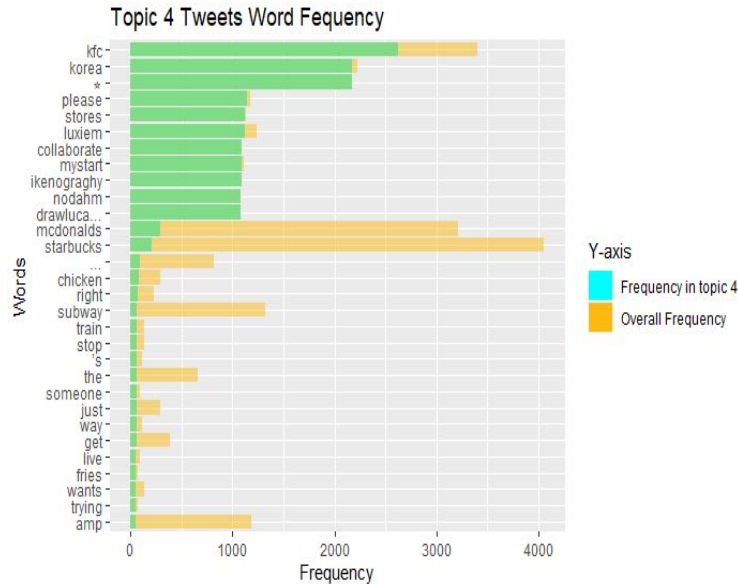
Topic 10: Social Media Engagement

Overall Frequency of Words in Tweets



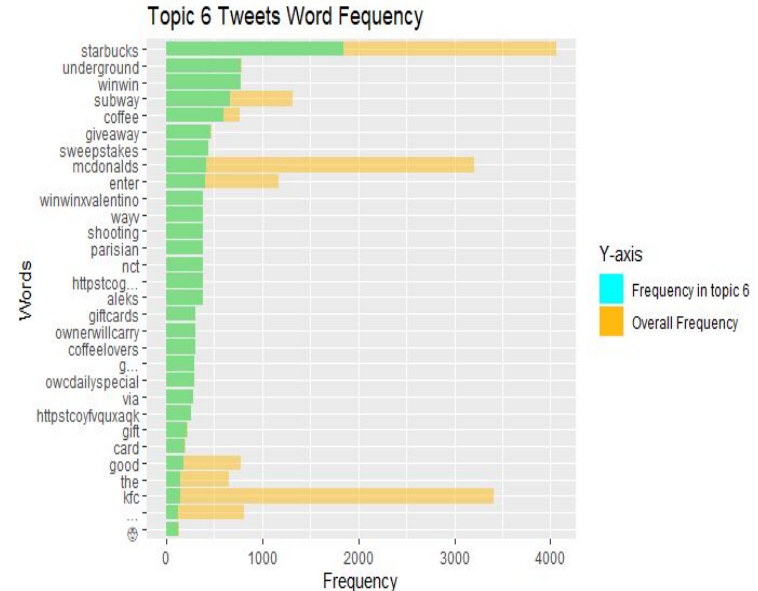
Word Frequencies - Topic 4 & Topic 6

Brand Reputation



korea, luxiem, please, stores, collaborate, customerservice, fraud, delivered, fake, eats

Advertising and Promotions

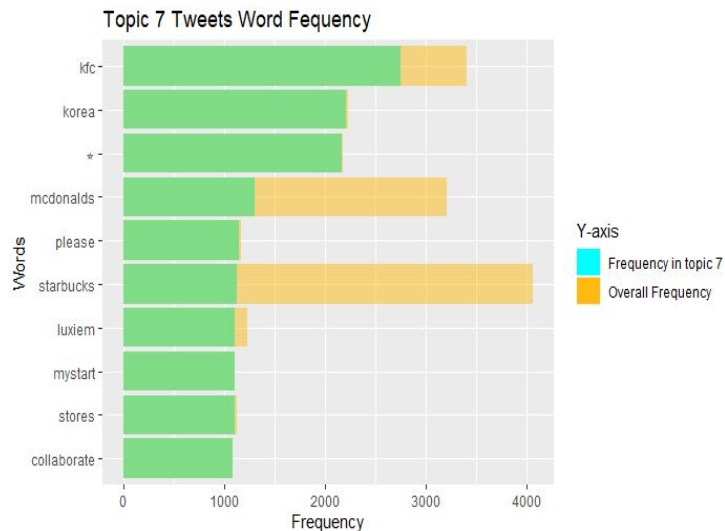


giveaway, gift, card, good, dailyspecial, winwin, value, platform, extra, foodreview, cup, elevated



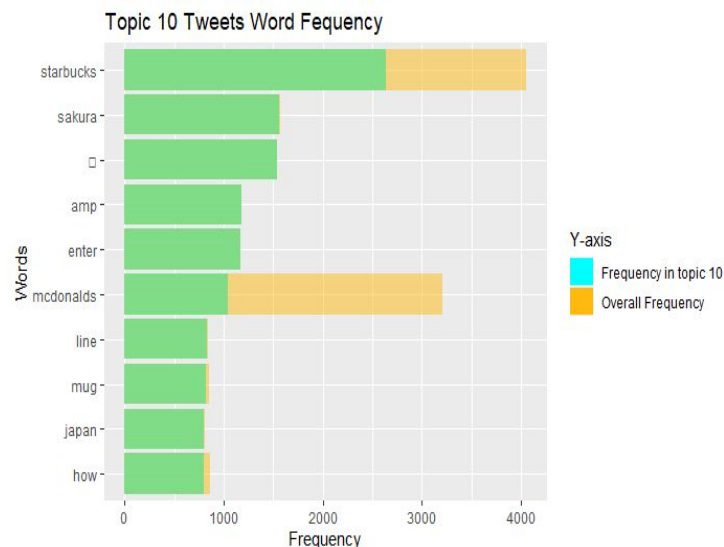
Word Frequencies - Topic 7 & Topic 10

Food and Beverages



food, fastfood, drinks, happymeal, restaurant,
frappuccino, vanilla, party

Social Media Engagement

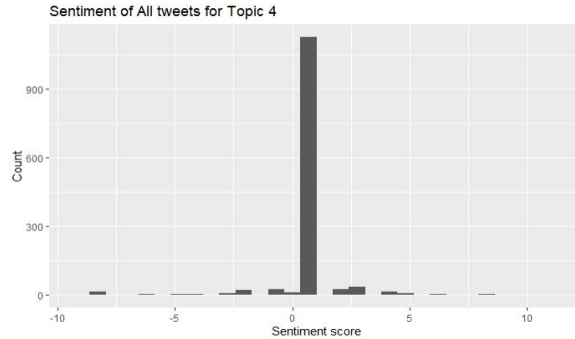


sakura , japan, exclusive, shining, giveaway,
biggest, voice, apologize, england, enter

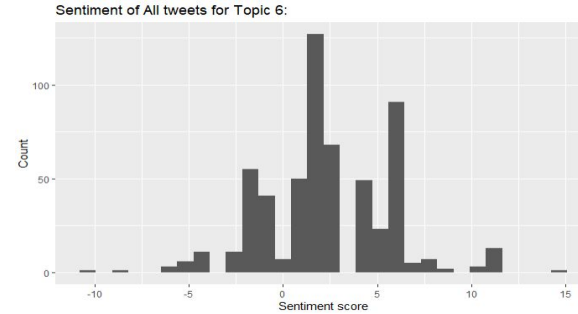


Overall sentiments for selected topics

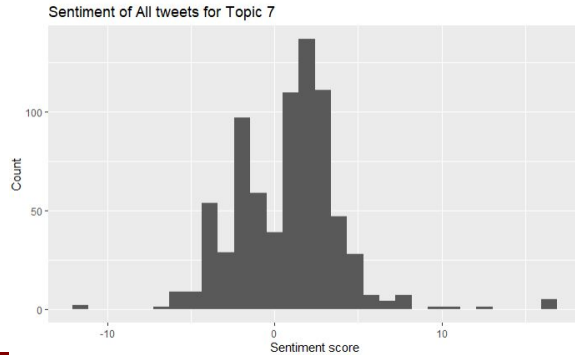
Brand Reputation



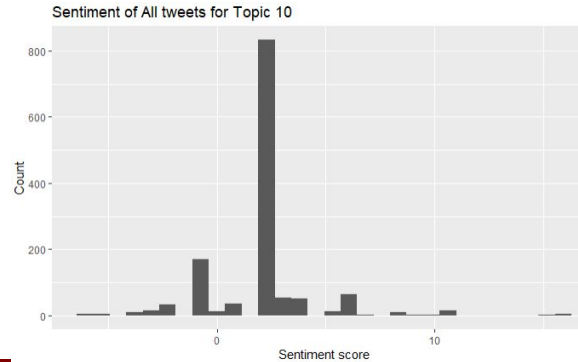
Advertising and Promotions



Food and Beverages



Social Media Engagement



Brand sentiment scores for each brand

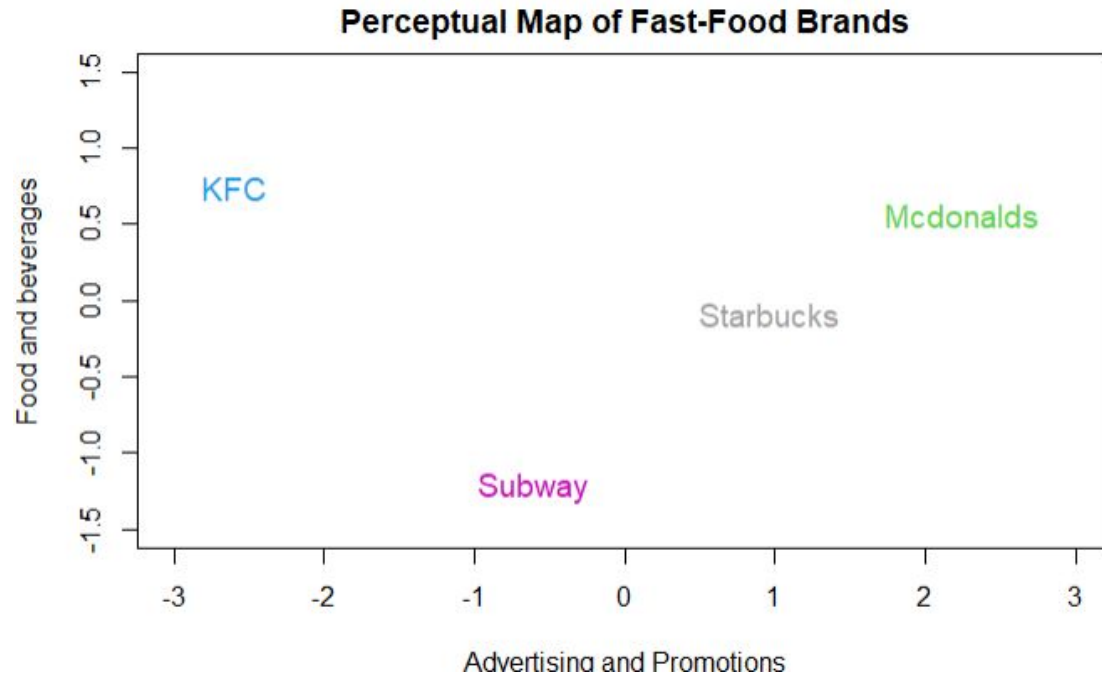
	Brand Reputation	Advertising and Promotions	Food and Beverages	Social Media Engagement
Mcdonalds	0.2195122	3.4193550	0.8156028	1.015428
KFC	0.9682647	-1.3076920	1.3809520	1.622642
Subway	2.3333330	0.8888889	0.3132530	1.523810
Starbucks	1.1666670	2.3800740	1.1992750	2.061545

Applying
Multi-dimensional
Scaling :

Brand	X1	X2
Mcdonalds	2.2450407	0.56099680
KFC	-2.5950542	0.74430033
Subway	-0.6146597	-1.22281011
Starbucks	0.9646732	-0.08248702



Perceptual Map



Strategic Insights

Strategic Insights

Takeaways

Competitors:

- Subway has not been doing well lately. Currently being sold and there are already 3 bidders. The company fell in value from \$16B in 2016 to \$10B in 2022
- KFC has the overall best food and beverages, but suffers in advertising and promotions. They try to make up for this with their social media engagement.
- Starbucks performs well across all attributes. Their social media engagement is the best and they have regular promotions and giveaways

Mcdonald's:

- Mcdonald's has the best advertising and Promotions which makes up for its average food and beverage attributes.
- Mcdonald's could put more effort in improving food quality to increase customer perception
- Mcdonald's is the worst brand for Social Media Engagement. We need to take advantage of our Advertising and Promotions to further engagement with customers.



Limitations and Future Improvements

Limitations

- We could only pull a maximum of about 2000 tweets per day per brand. The twitter API only returns a few of the tweets daily and we merged the tweets for each brand daily to collect sufficient unique tweets per brand
- Data is only pulled from twitter. Other channels like news articles, other social media platforms and reviews website could be used for a more comprehensive analysis

Future Improvements

- Gather more data on different social media platforms, include more competitors in the perceptual map, and generate topics like customer service
- Perform sentiment analysis in different domains, for example, in different countries and regions

