



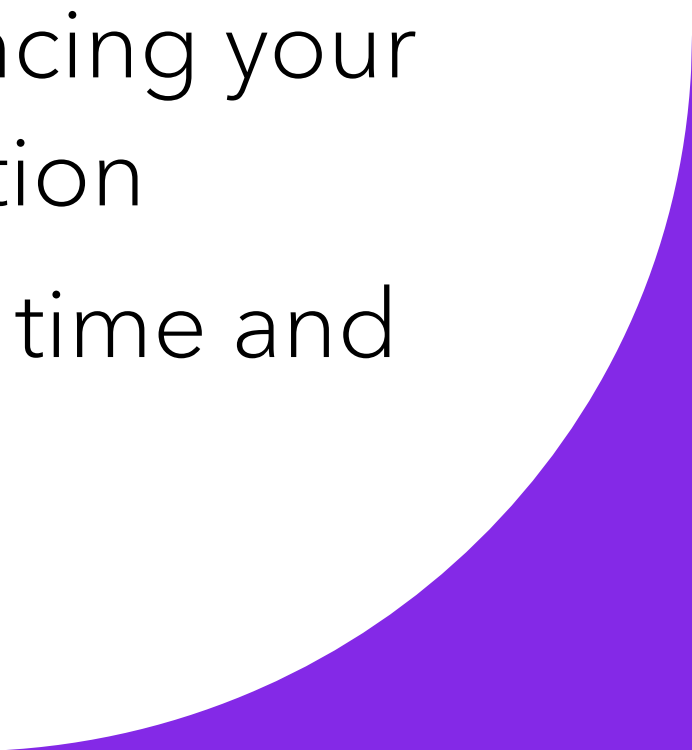
# **News Article Sentiment Analysis**

By Ethan Kunin

# Business Case

- ❑ Understand how the media perceives your brand
- ❑ Make informed decisions on which campaigns are resonating the most with customers
- ❑ In an era where public image needs to be pristine, ensure visibility to gain insights and reduce reputational risk

# Purpose

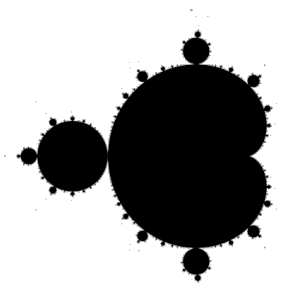
- ❑ Elevate transparency of public opinion
  - ❑ Home in on which topics are influencing your brand in a positive or negative direction
  - ❑ Track how opinion is changing over time and course correct if necessary
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# Methods

- ❑ Use newsapi to source article and filter out low quality sources
- ❑ Build test model using VADER and TextBlob on Kaggle dataset
- ❑ Use Random Forest Classifier to extract feature importance for interpretation
- ❑ Implement into dashboard to track changes over time

# The Model Used to Extract Sentiment

- ❑ Achieved 60% accuracy on a multiclass label problem using unsupervised sentiment analysis
- ❑ Combination of unsupervised machine learning models: VADER & TextBlob
  - ❑ VADER: Trained on social and returns a polarity and subjectivity score
  - ❑ TextBlob: Trained on IMDB movie review corpus



TextBlob

# What Can We Learn From This?

- ❑ How customers are feeling towards the brand
- ❑ When sentiment is changing
- ❑ What are the most polarizing articles that may need to be addressed



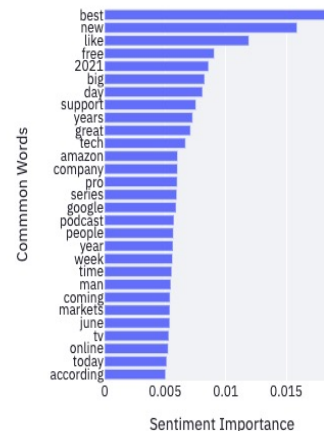
# Dashboard Capabilities

- ❑ Track changes over time
- ❑ Analyze which words have the most impact on sentiment
- ❑ Filter between positive, neutral, and negative news articles and see which words are appearing most often

### Apple Sentiment Graph



June 14th - June 18th: Most Impactful Words for Apple

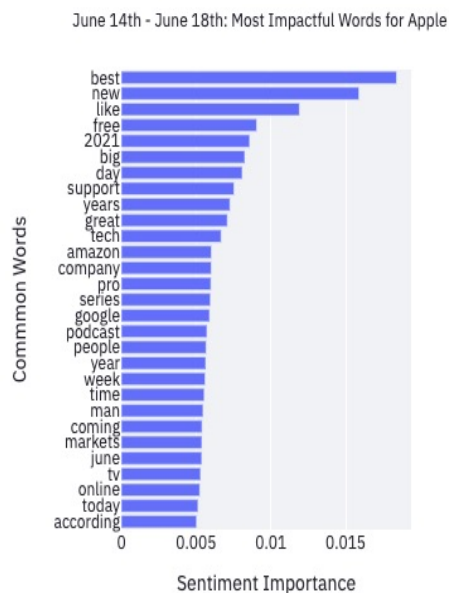


Select a Sentiment



# Using the Dashboard Pt. 1

Feature importance provides insights on which words have the most impact in driving sentiment



Choose 1 of  
6 companies

Select 1 of 2 weeks

Select Company

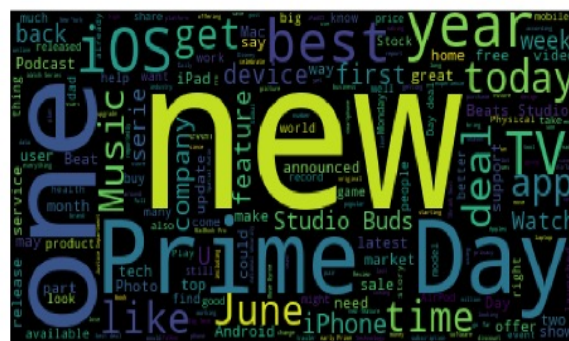
Apple

Select Week

June 14th - June 18th

Select a Sentiment

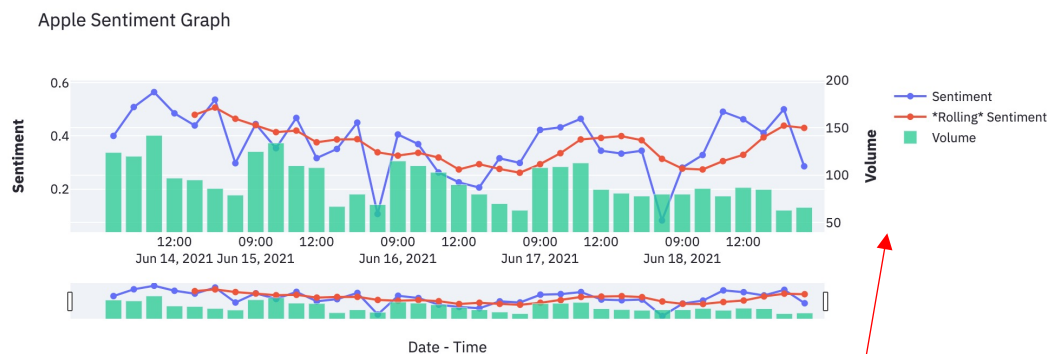
Positive ▼



## Sentiment Tracker

## Explore the sentiment of different companies

Choose between Apple, Facebook, Microsoft, Amazon, Netflix, and Google



Choose positive, neutral, or negative sentiment

Analyze number of article mentions, hourly sentiment, and rolling average



# Using the Dashboard Pt. 2

Choose a weekday to further inspect

Please choose a weekday to further inspect

Date input

2021/06/14

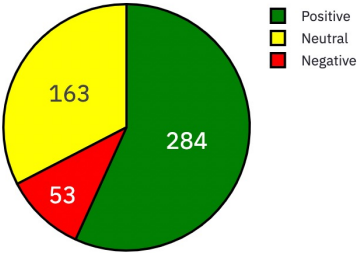
Previous

Next

	Headline	Source	Sentiment
2021-06-14T09:00:00-04:00	Lululemon (NASDAQ: LULU) Lines Up For A Run At Highs	MarketBeat	1
2021-06-14T09:00:00-04:00	'The Morning Show' Season 2 Teaser Reveals the Fallout From Alex and Bradley's On-Air Bombshell (Video)	TheWrap	-1
2021-06-14T09:00:02-04:00	Fitbit Luxe review: A luxury fitness tracker for fashion-forward folks	Android Central	1
2021-06-14T09:00:26-04:00	We can't believe how cheap these Apple products are before Prime Day	Digital Trends	1

Feature importance provides insights on which words have the most impact in driving sentiment

How did people feel about Apple on June 14, 2021?



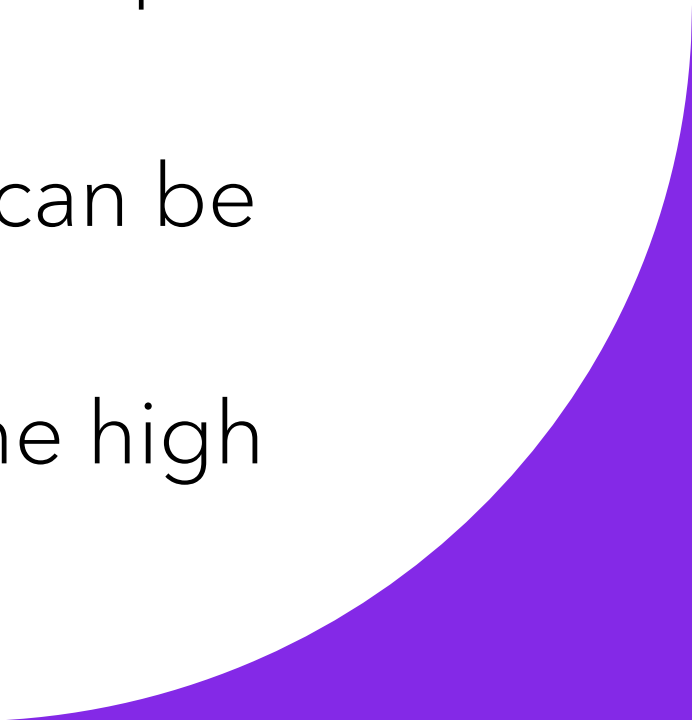
Here were the most polarizing Apple articles from June 14, 2021

	publishedAt	Headline
0	2021-06-14T09:00:00-04...	'The Morning Show' Sea...
1	2021-06-14T09:04:52-04...	At least seven shot - ...
2	2021-06-14T09:14:29-04...	The Onus Of Security: ...
3	2021-06-14T09:30:00-04...	Podcast Episode #1072:...
4	2021-06-14T09:33:09-04...	Deals: Apple's 256GB W...
5	2021-06-14T09:51:29-04...	The next problem for t...
6	2021-06-14T09:58:51-04...	Jennifer and Reese Spl...
7	2021-06-14T09:59:54-04...	US Justice Department ...
8	2021-06-14T10:00:31-04...	How Design Thinking Le...
9	2021-06-14T10:05:31-04...	Which Apple iPad shoul...
10	2021-06-14T10:17:59-04...	'The Morning Show' Sea...

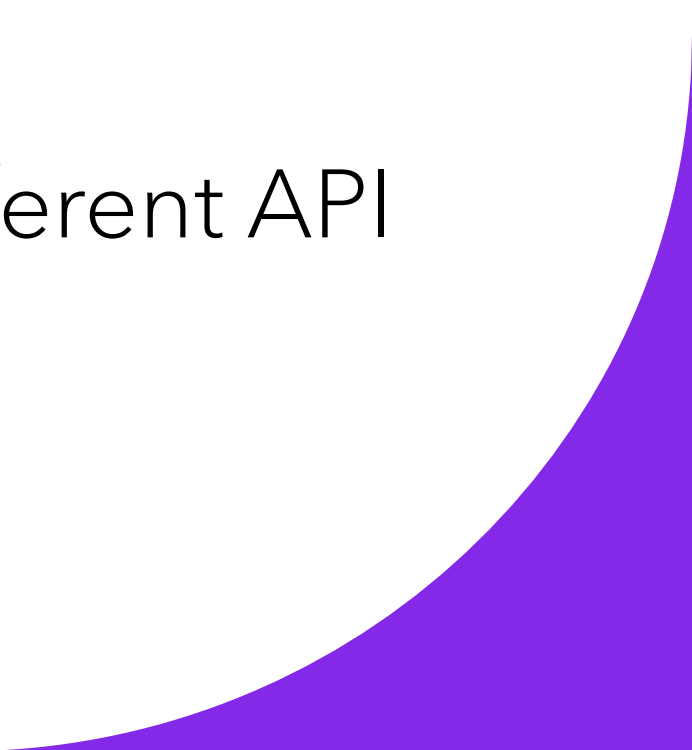
Display time of publish, headline, source, and sentiment score

Only displays the most polarizing news articles

# Conclusion

- ❑ Sentiment Analysis is still nascent because computers are only recently becoming adept at handling unstructured data
  - ❑ Massive amounts of unstructured data can be harnessed to produce actionable insights
  - ❑ Brand integrity needs to be at an all time high
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# Further Work

- ❑ Topic Modeling with Latent Dirichlet Allocation
  - ❑ Livestream news articles using a different API
  - ❑ Integrate social media listening
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**Are there any  
further  
questions or  
comments?**

Thank you for listening

