

Political Tweets Analysis

Decoding the Landscape:
Analyzing Political Discourse
in Online Tweets

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Tweet Classification Flowchart

Data Collection

Data Cleaning

EDA

Vectorize

Modelling

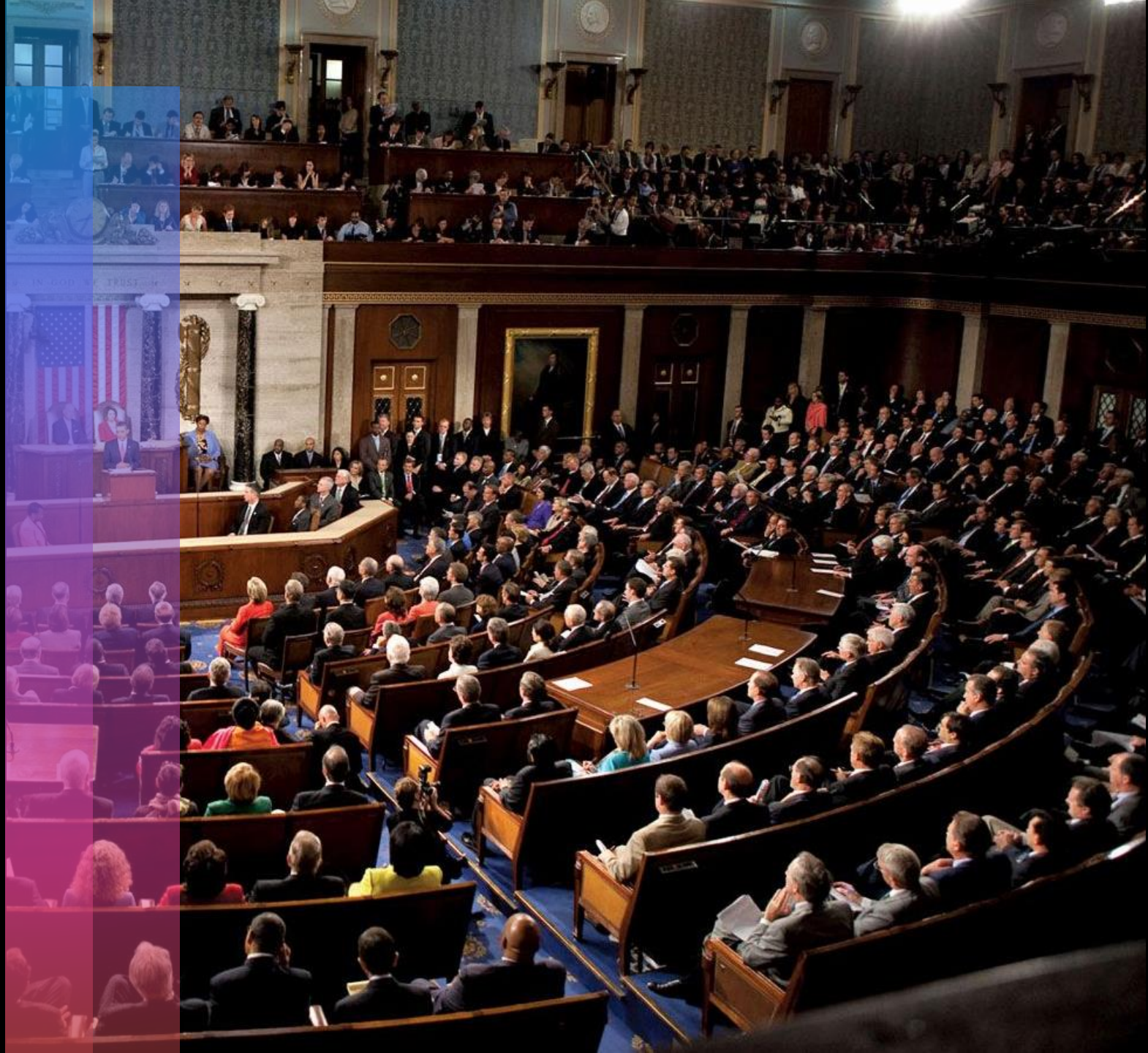
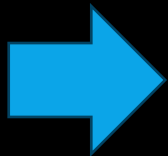
Sentiment Analysis



DATA

Tweets from members of the House of Representatives

- Scraping user_id from 435 usernames
- Scraping tweets with Twitter API v2
- Converting from JSON to CSV



Exploratory Data Analysis

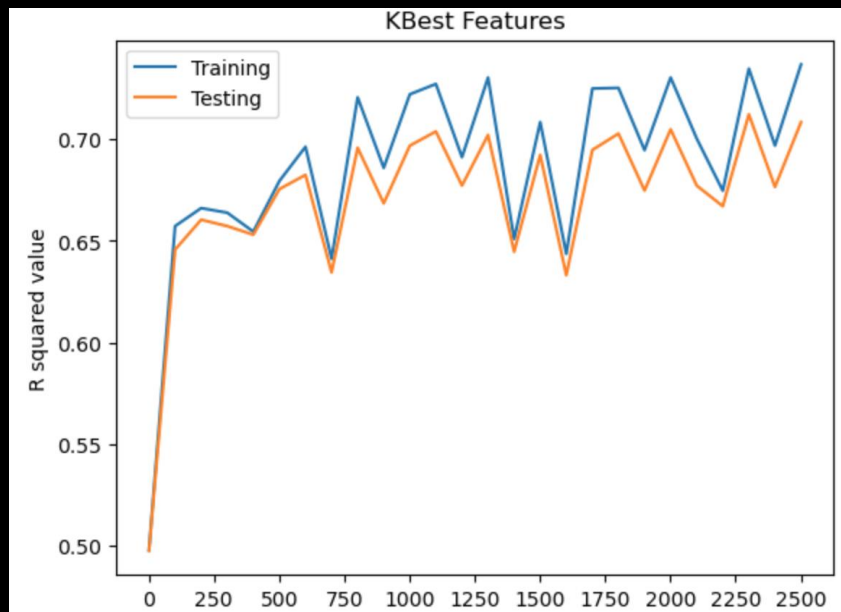
- Most common hashtags in tweets come from Democrats
- Hints at a potential inclination for embellishment in their expression
- Shared hashtags like MLKDay are categorized as blue due to their higher prevalence in Democrat tweets



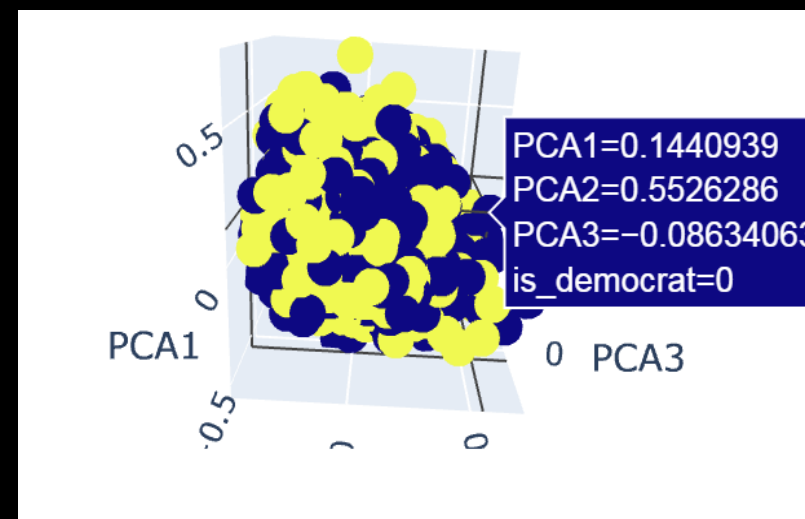
Comparing Models

Logistic Regression	Accuracy
Vectorized and Scaled	Training: 88.41% Testing: 76.95%
Hyperparameters Optimized	Best Accuracy: 76.53%
TF-IDF	Training: 91.45% Testing: 75.55%
Word Embedding	Training: 50.29% Testing: 50.00%
Other Models	Accuracy
Random Forest Classifier	Best Accuracy: 75.68%
SVM	Best Accuracy: 76.00%

KBest Features



Word Embedding 3D Viz



Top words and # on tweets for predicting party affiliation

Republicans

- Party Identity
- Pro life movements
- Critics to Biden economics

Democrats

- Focus on opposing party
- Emphasis on democracy and civic engagement
- Focus on Women, Infants, and Children

Words on Democrats



- Republican
- Reproductive
- Democracy

Words on Republicans



- Rep
- Illegal immigrants
- Boorder

Hashtags on Democrats



- #gvsurvivorsweek
- #roewwade
- #wic

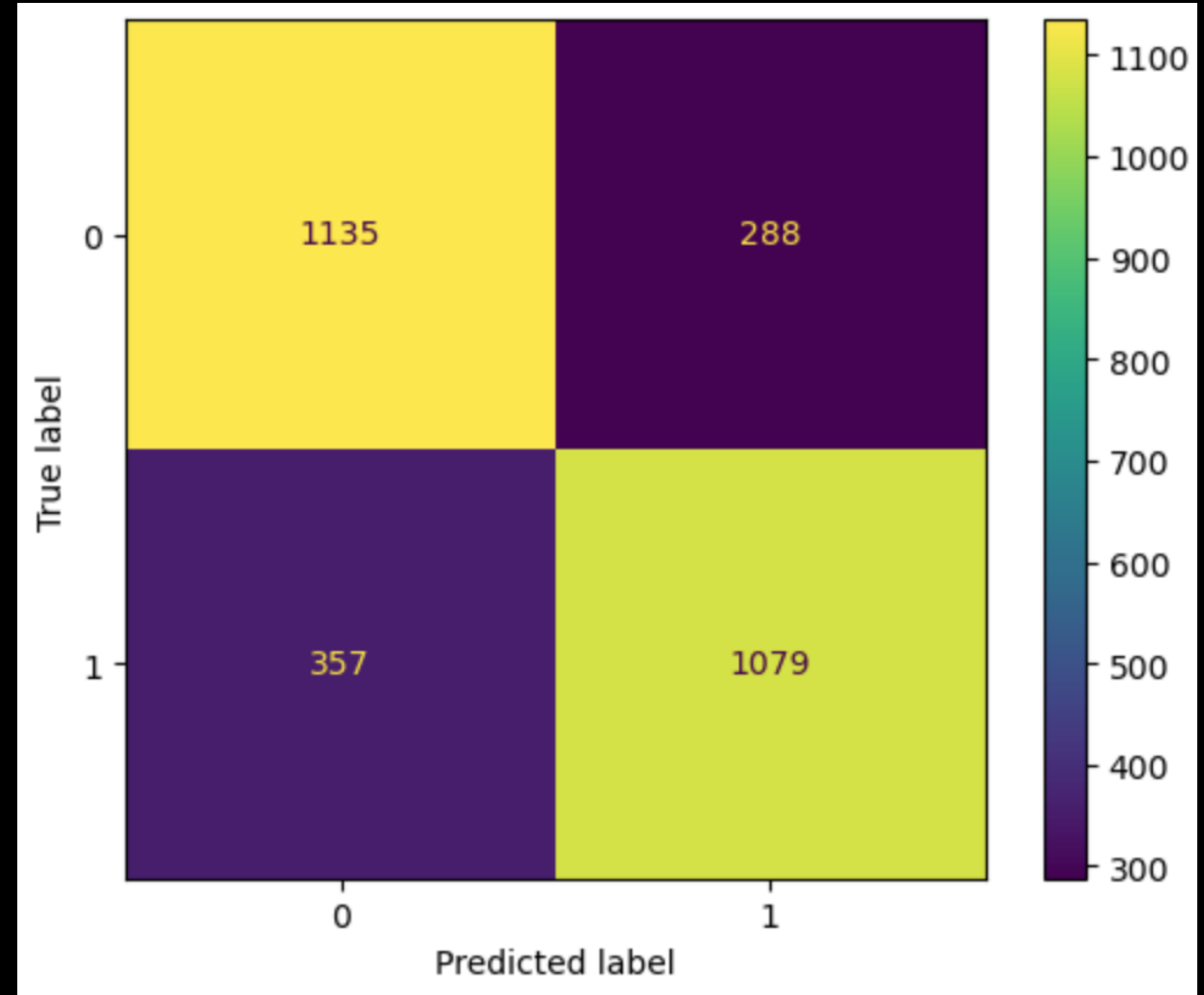
Hashtags on Republicans



- #marchforlife
- #bidenomics
- #prolife

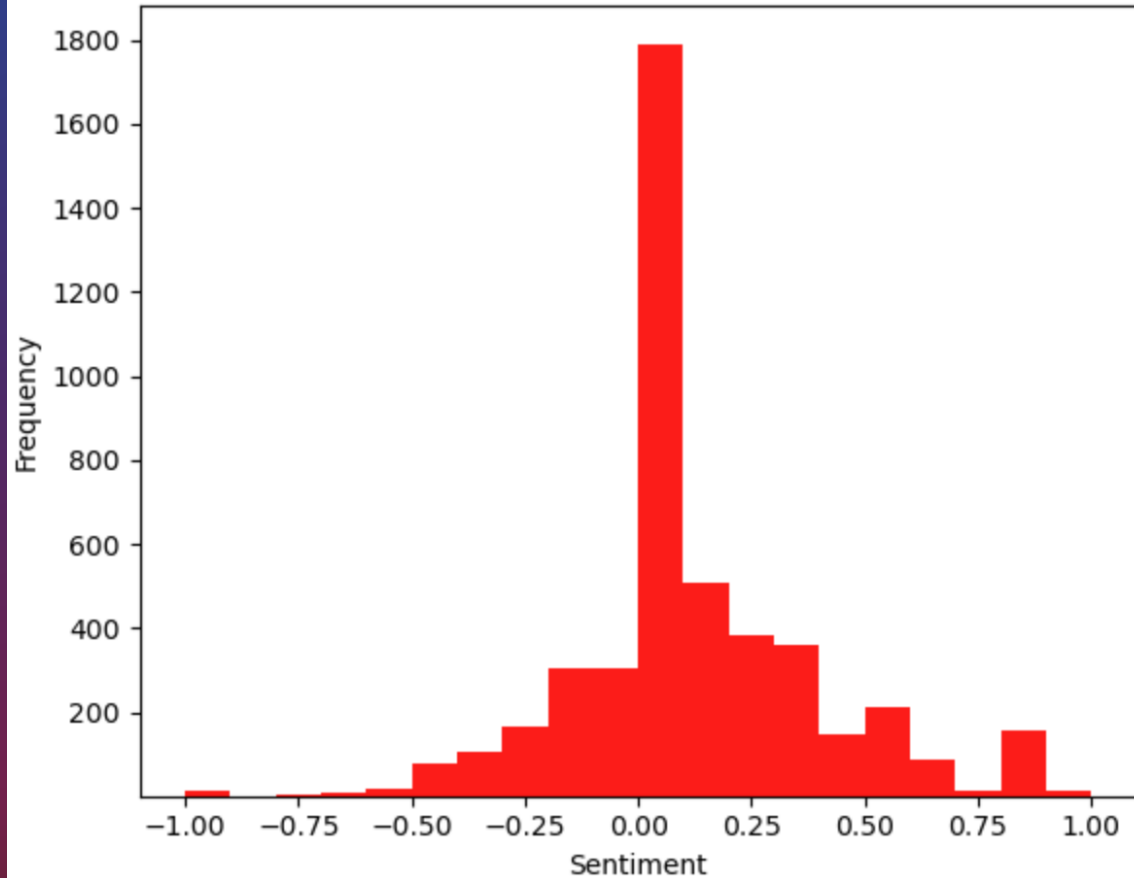
Confusion Matrix on Logistic Regression

- 288 democrats were misclassified as republicans
- 1079/1436 republicans were correctly classified
- Precision score: 78.93%
- Recall score: 75.14%

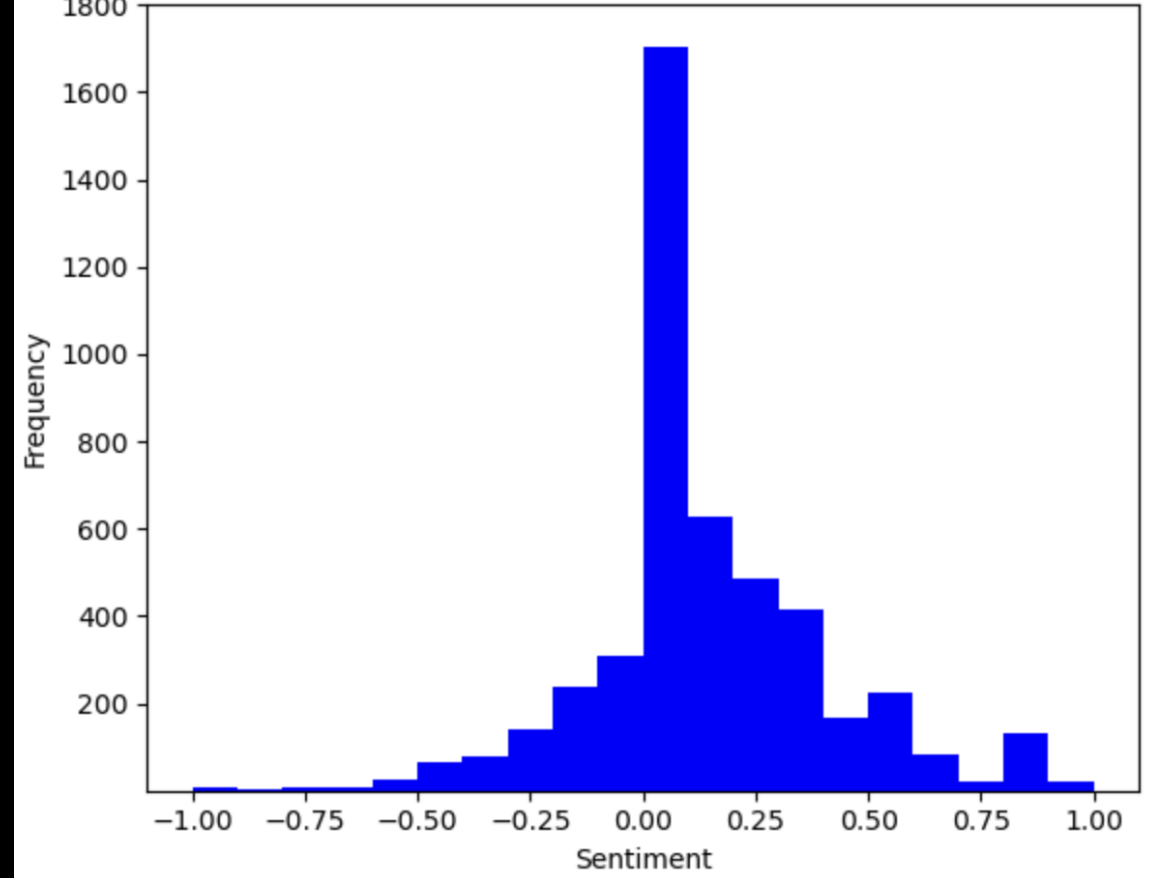


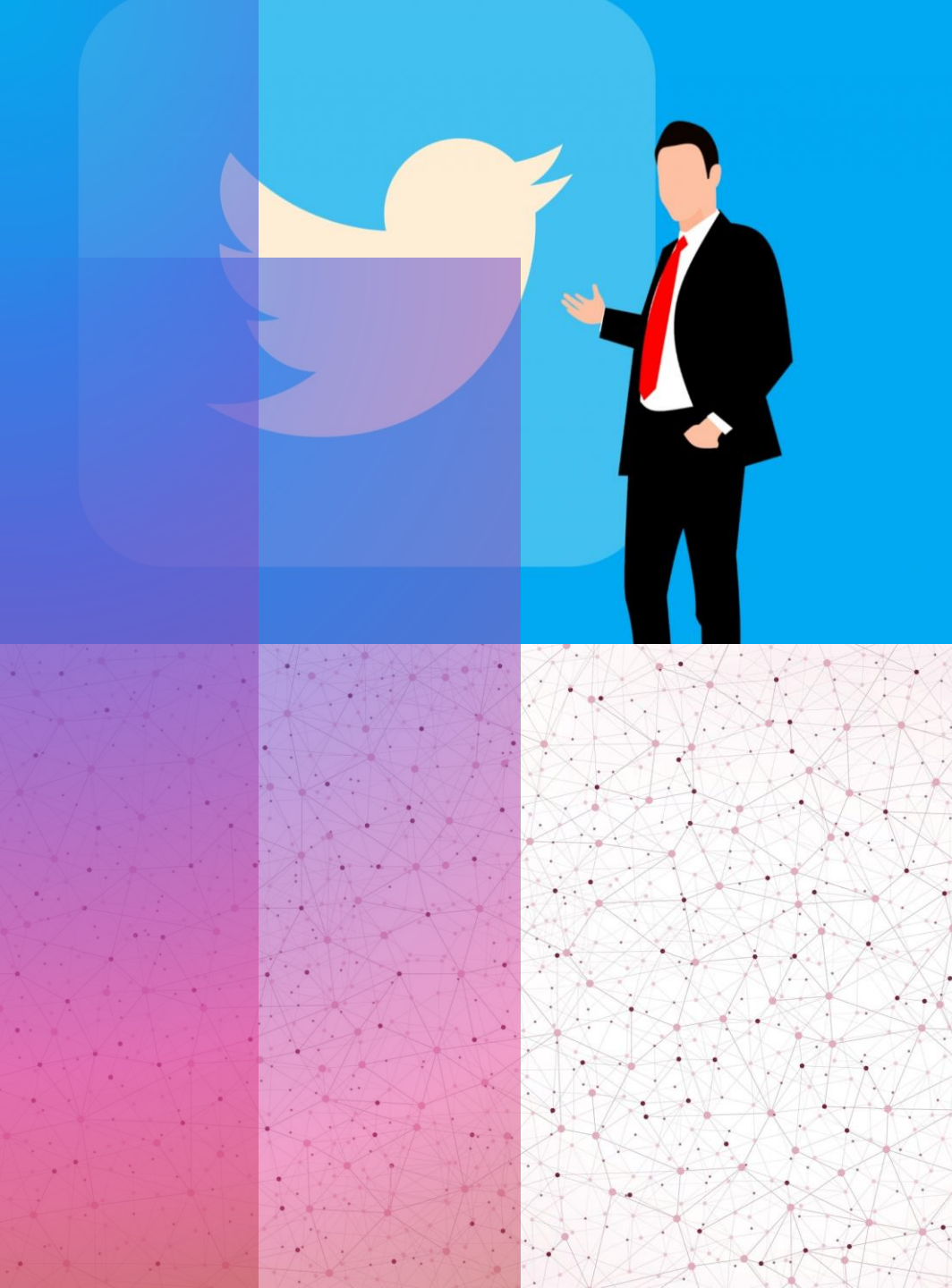
Sentiment Analysis

Distribution of Sentiment Amongst Republican Tweets



Distribution of Sentiment Amongst Democrat Tweets





Thanks!

Erick Rudelman