




PREDICTING WHO THE ASSHOLES ARE

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Springboard Capstone #2
Dec 2020

With thanks to mentors Benjamin
Bell and Kenneth Gil-Pasquel!

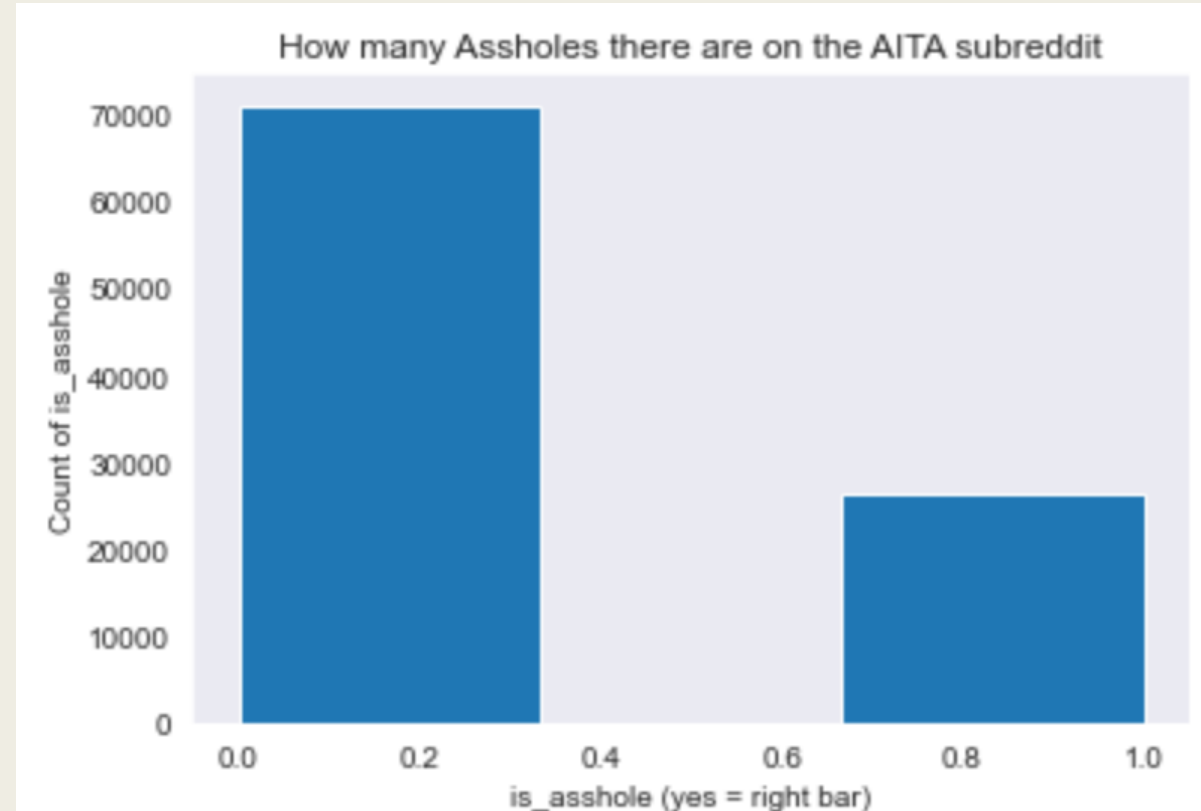


The Business Problem

- What features best help predict whether someone will see a controversial situation we're communicating positively or negatively?
 - *Applicable to businesses pitching, the field of self-help, criminal defendants before a judge & jury.*
- Explicitly: What features help predict whether or not a community judges someone to be an asshole?

The Data

- Scraped from the AITA (Am I The Asshole) Subreddit on Reddit.com
- >25% considered assholes
- ~50% about family;
- ~40% about relationships;
- ~10% about work.



The Features

- Whether the post was edited
- Frequency of pronouns (I, he/she/they)
- Length of post
- Question mark at the end of the post
- Reading level of post
- “Would I be the asshole” vs “Am I the asshole”
- Use of certain nouns, verbs, adjectives
- Categorizing posts according to family, work, or relationships
- And others!

The Wordcloud



The Notable Findings

- Question Mark at end of the post is slightly correlated with NTA
- The valence of a post's tone (positive/negative) is *not* correlated
- Higher likelihood of being an asshole if the issue is about sex (33% vs global avg ~26%)
- Younger the poster relative to his subject (e.g. talking about parents), the less likely he is to be an asshole. The converse also applies.
- Reading level of the post makes no difference
- Use of pronouns have minimal correlation with community judgment
- If post was edited, correlative with YTA.

The Modeling

- Type: Supervised Learning
- Binary Classification: 1 for YTA (You're the asshole) and 0 for NTA (Not the asshole)
- Imbalanced data – 25% YTA
- Tools: Scikit Learn
- Data splitting into train/test sets (50%, 50%)
- Weighted data to take care of imbalance problem
- **Used cross-validation for hyperparameter tuning (5-fold cv)**

The Modeling Continued

- Recall = ideal measurement for model effectiveness.
- Classification Algorithms Used:
 - *Decision Tree (max_depth = 3)*
 - *Random Forest (max_depth = 12)*
 - *Logistic Regression*
 - *Gradient Boosting*

Model Metrics + Comparison

Model	Recall	Precision	Accuracy	F1
Decision Tree Classifier	0.540	0.555	0.551	0.669
Random Forest Classifier	0.559	0.564	0.561	0.671
Logistic Regression	0.546	0.571	0.565	0.670
Gradient Boosting	0.549	0.559	0.555	0.669

Winner: Random Forest! Logistic Regression second.

Future Directions

- Group words by parts of speech
- Examine the tone of each post in more nuanced ways and compare
- Weigh comments based on scores and awards (put YTA/NTA on a spectrum).
- Grouping titles in more nuanced groupings.

Thank you!