Reddit Post Classification

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Agenda

- Problem statement
- Subreddit background
- Preprocessing
- Modeling
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- Conclusions & Recommendations
- Sources

Problem Statement

- A data intern at Bon Appétit accidently deleted the `subreddit` tag from data they scraped from r/Cooking and r/AskCulinary . Their marketing team wants to target both subreddits for market and thus needs to differentiate the two. As a result, they approach us with the goal of predicting which posts came from r/Cooking.

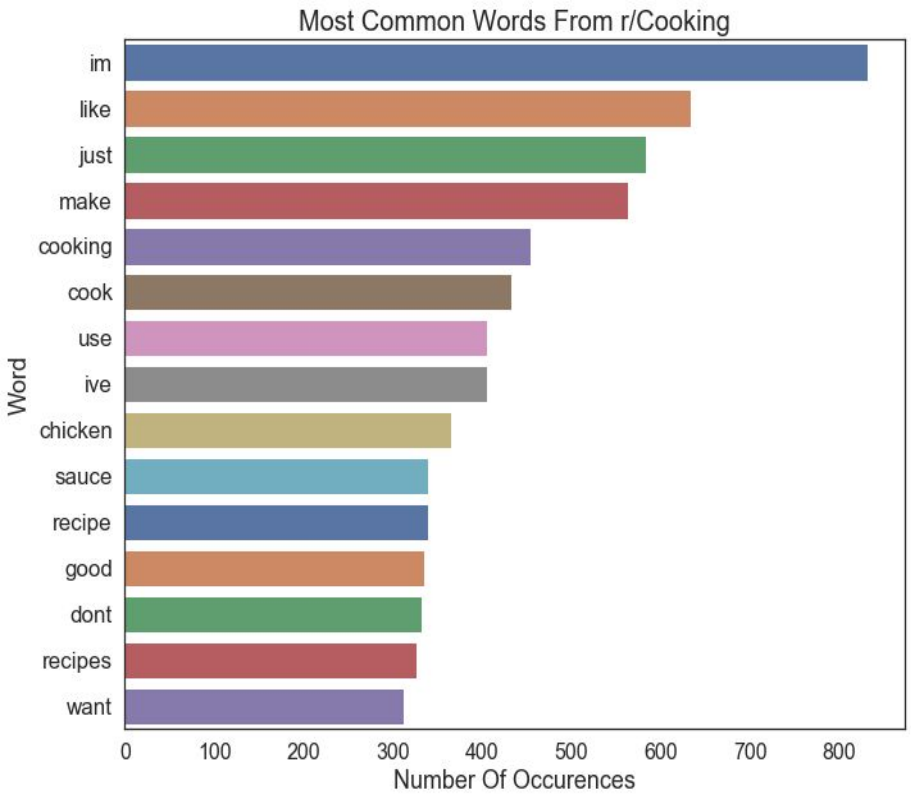
Subreddit Background

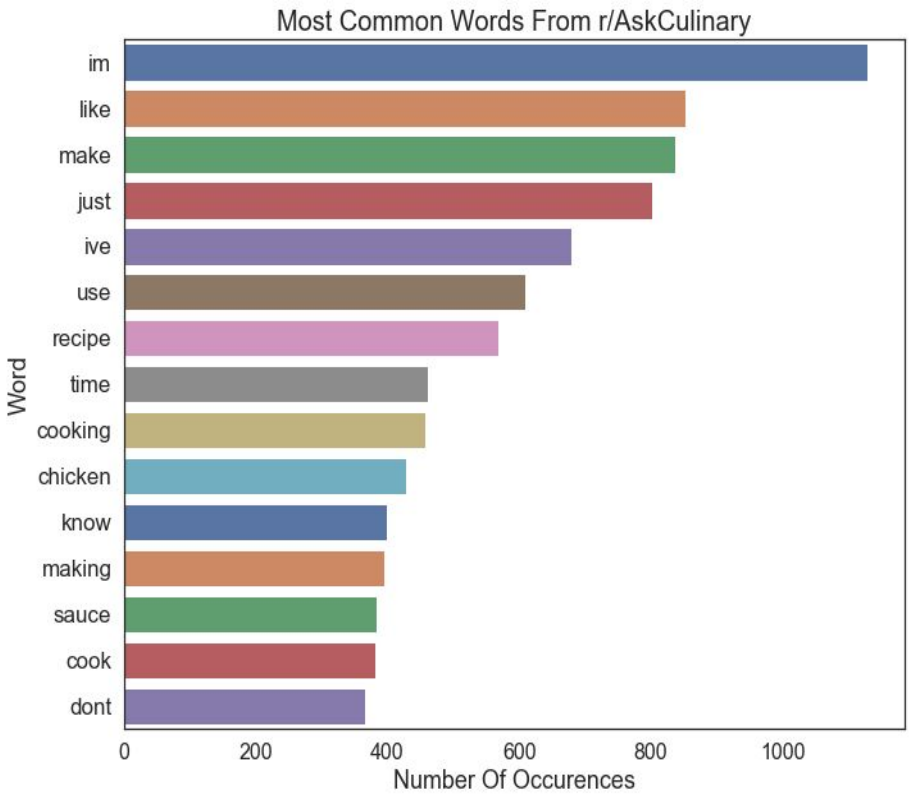
- r/Cooking is a general, non-professional cooking community
  - It has ~1.35 million subscribers and is ranked 156th (per subredditstats.com)
- r/AskCulinary is an advice community, but also a place to share knowledge
  - It has ~235,000 subscribers and is ranked 1,002nd (per subredditstats.com)

Preprocessing

- Cleaning the data was fairly simple: we removed nulls, non-letters, cross-posts, & URLs
- We combined our two sets of texts: `title` and `selftext`
- The most common words from both subreddits were added to our stopwords
- The text was run through a lemmatizer

Most Frequent Words



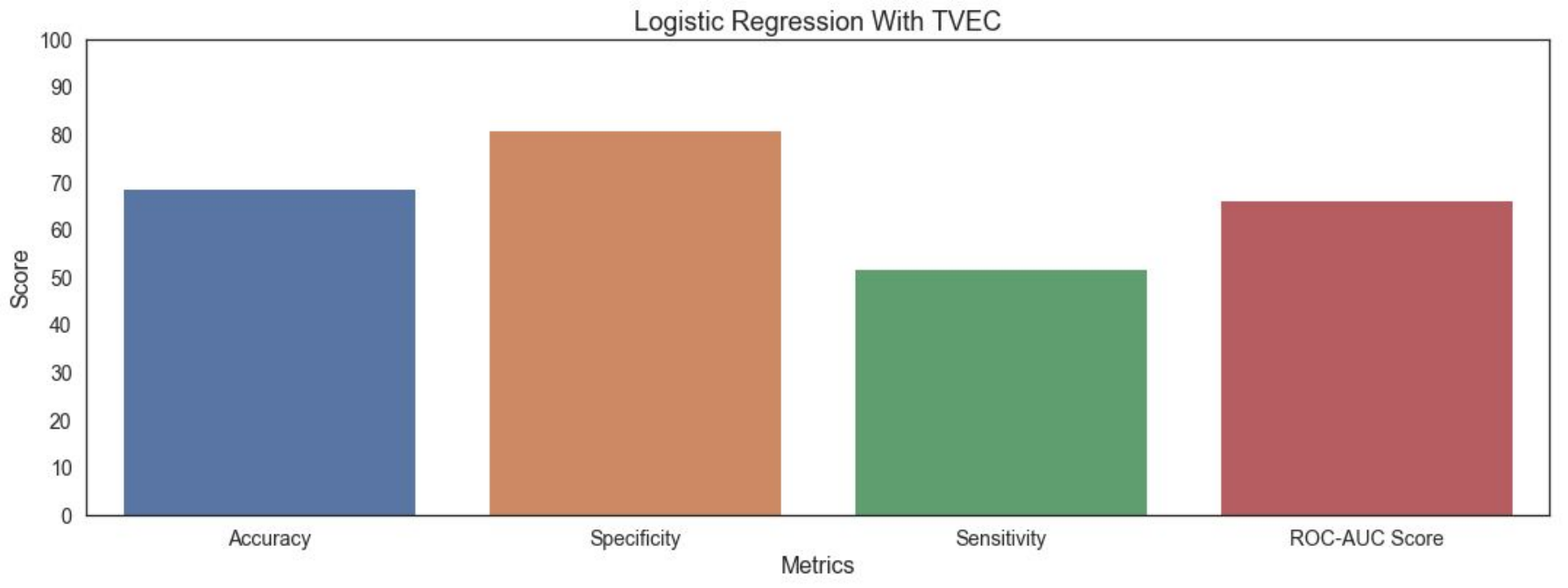


Modeling

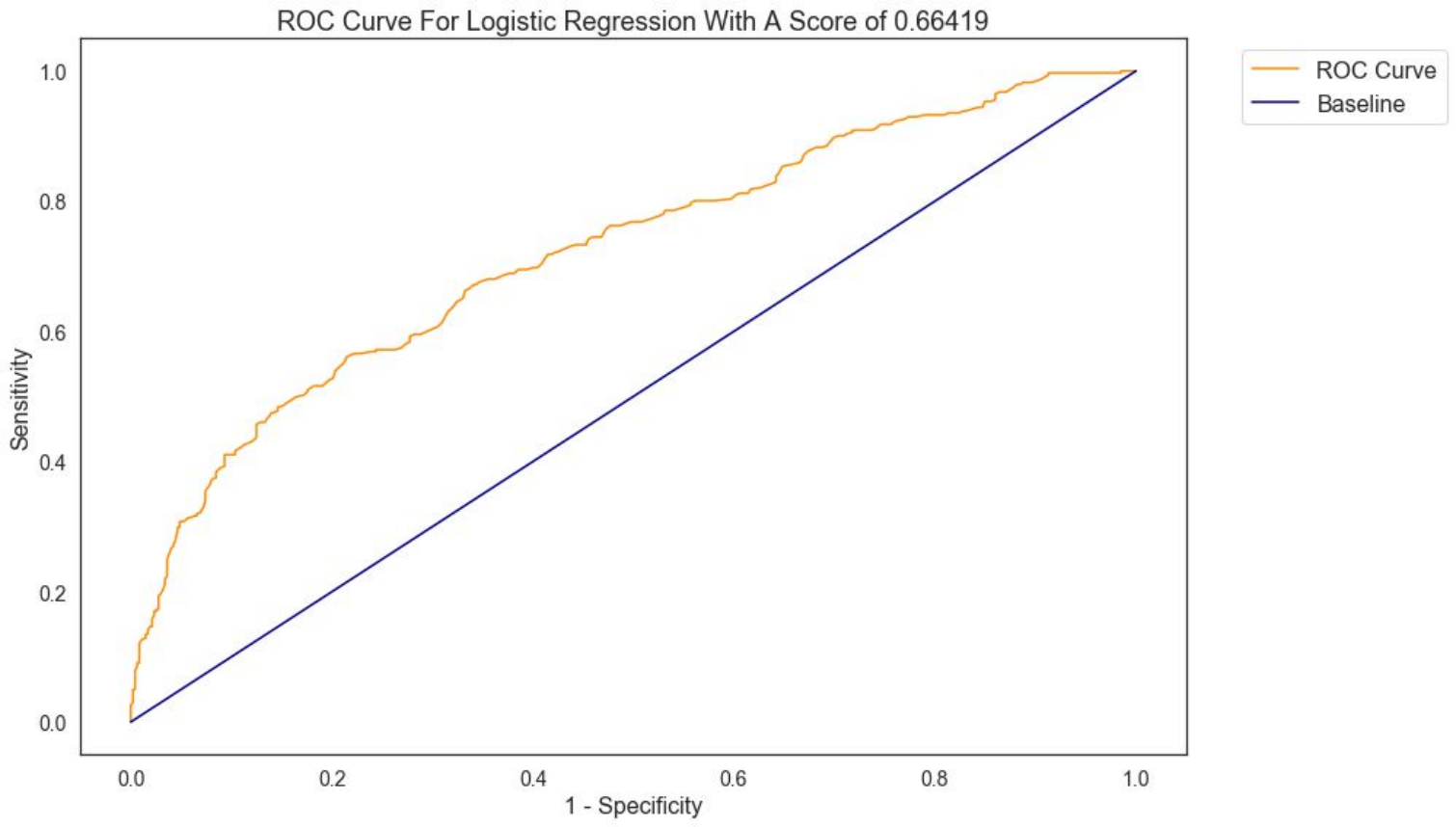
- We used four models: logistic regression, SVC, random forest, & XGBoost
- Each model was run twice: once with count vectorization and once with TFIDF vectorization
- Every model was optimized with grid-searching
- We grid-searched hyperparameters for the models and vectorizers

Evaluation

- The best model was a logistic regression with TFIDF vectorization



Evaluation


ROC Curve For Logistic Regression With A Score of 0.66419
Sensitivity
1 - Specificity
0.0
0.2
0.4
0.6
0.8
1.0
ROC Curve
Baseline

Conclusions & Recommendations

- We cannot recommend using our best model for distinguishing subreddits
- Our specificity was high but the sensitivity was low
- Accuracy did perform better than our baseline
- The model has a highly variable performance
- Going forward we want to experiment with different vectorizers
- We would also like to try more complex classifiers such as FFNNs

Sources

- https://subredditstats.com/r/Cooking
- https://subredditstats.com/r/AskCulinary