yelp

Reviewer Toughness Classification

yelp

Open Dataset

188,593 businesses
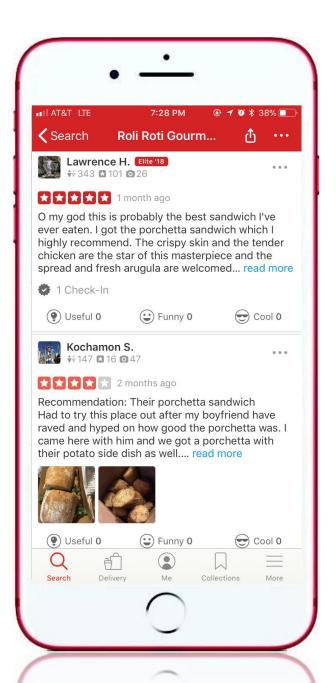
280,992 pictures

5,996,996 reviews

Search   Roli Roti Gourm...

Lawrence H.   Elite '18
343 101 26

★★★★★ 1 month ago

O my god this is probably the best sandwich I've ever eaten. I got the porchetta sandwich which I highly recommend. The crispy skin and the tender chicken are the star of this masterpiece and the spread and fresh arugula are welcomed... read more

1 Check-In

Useful 0   Funny 0   Cool 0

Kochamon S.
147 16 47

★★★★☆ 2 months ago

Recommendation: Their porchetta sandwich Had to try this place out after my boyfriend have raved and hyped on how good the porchetta was. I came here with him and we got a porchetta with their potato side dish as well.... read more

Useful 0   Funny 0   Cool 0

Search   Delivery   Me   Collections   More

Research Question:
Learn from review text data to predict reviewer toughness

Introduce $\triangle$ ⭐

$\triangle$ ⭐ = ⭐ (Review) - ⭐ (Restaurant)

Easy Reviewer

avg ($\triangle$ ⭐) > 0.5

Hard Reviewer

avg ($\triangle$ ⭐) < -0.5

Agenda

Dataset/Research

EDA

Data Prep

Model Fitting
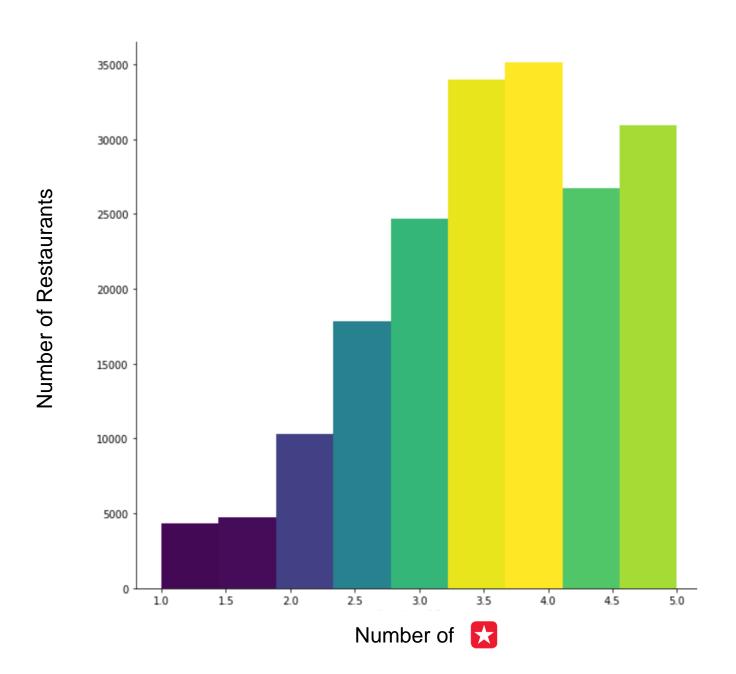
Results

Conclusion

Q&A

Count: 4,018,725
Median: 4
S.D.: 0.62
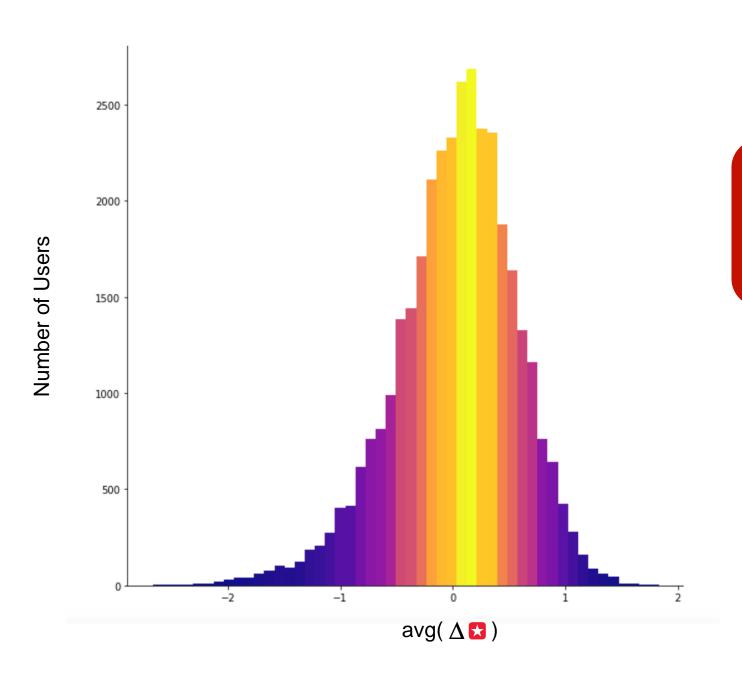
Count: 35,051
Mean: 0.02
S.D.: 0.54

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Join Datasets
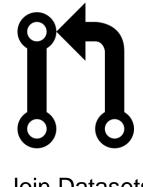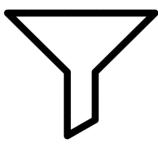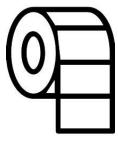
Group & Filter

Create Labels

Drop Stop Words
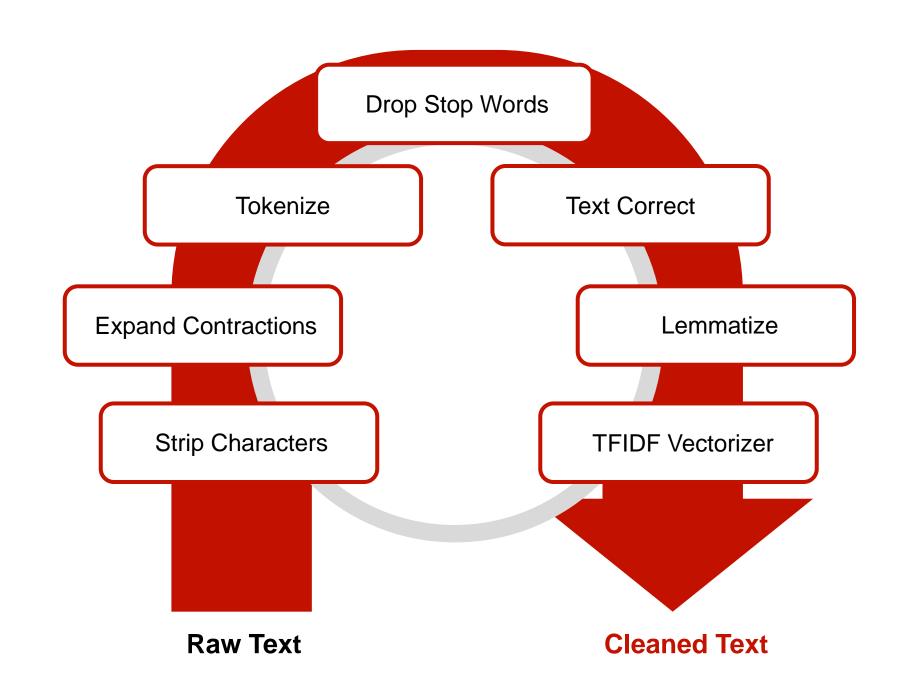
Tokenize

Text Correct

Expand Contractions

Lemmatize

Strip Characters

TFIDF Vectorizer

Raw Text

Cleaned Text

Model Accuracy

PAC	72.25%
Linear SVC	71.55%
MLR(L2)	74.07%

Model Recall

	MLR (L2)	Linear SVC	PAC
Recall (Easy)	29.81%	11.81%	16.92%
Recall (Hard)	49.89%	27.67%	36.10%

▲ Recall (Easy)   ▲ Recall (Hard)
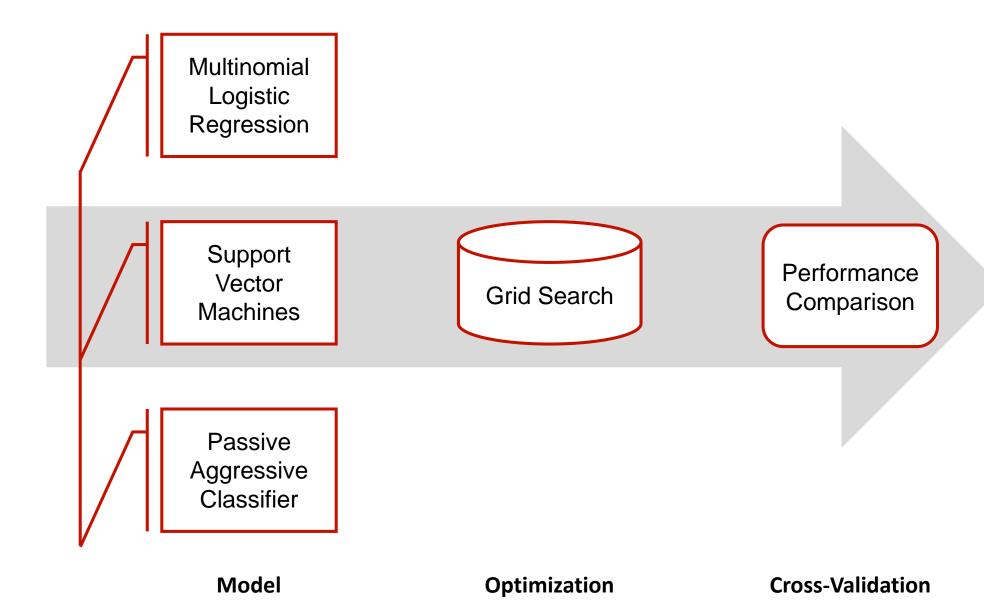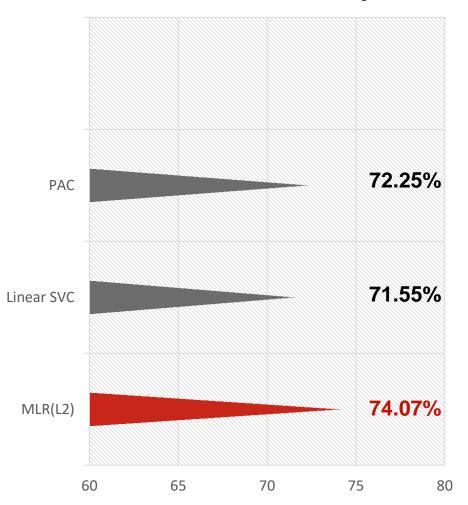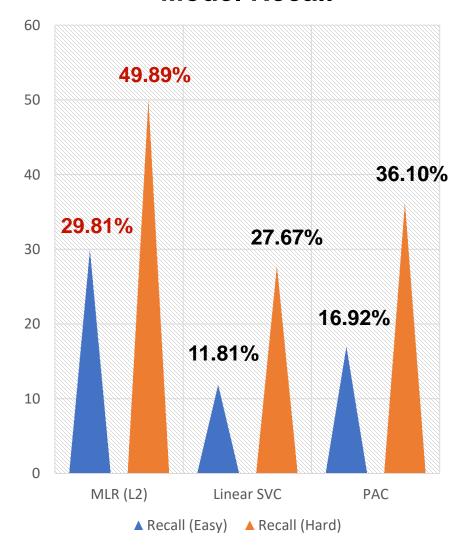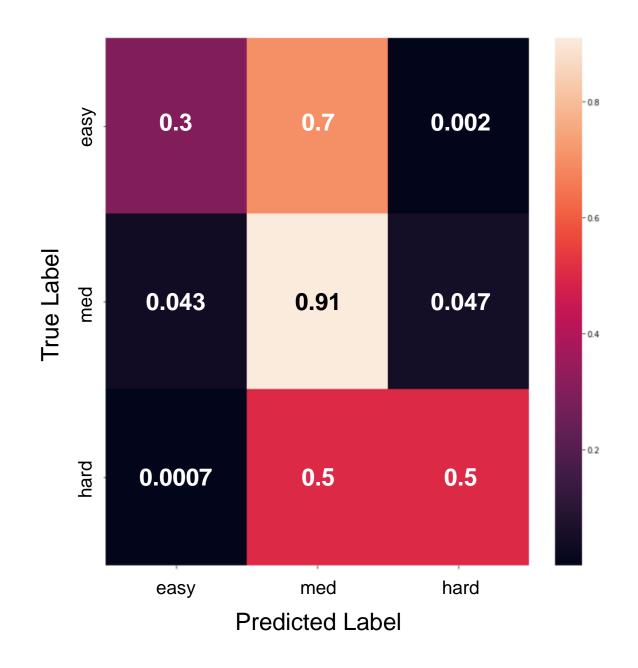
Confusion Matrix for Logistic Regression (L2)
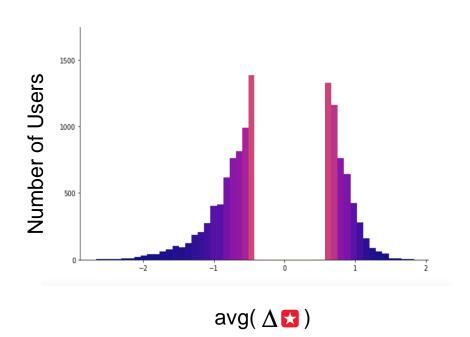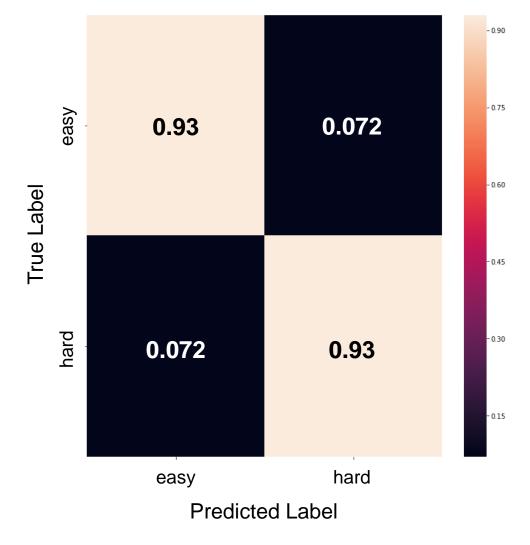
Non-Med-Reviewer Model
Recall: 92.9%

avg(Δ⭐)

Things Learned:

- Multinomial Logistic Regression (L2) performs best given our research question

- Preprocessing and training models with text data is computationally expensive

- Classification is challenging without clear class separation

- Hypothesize that some reviewers have skewed interpretation of review star ratings

Questions?
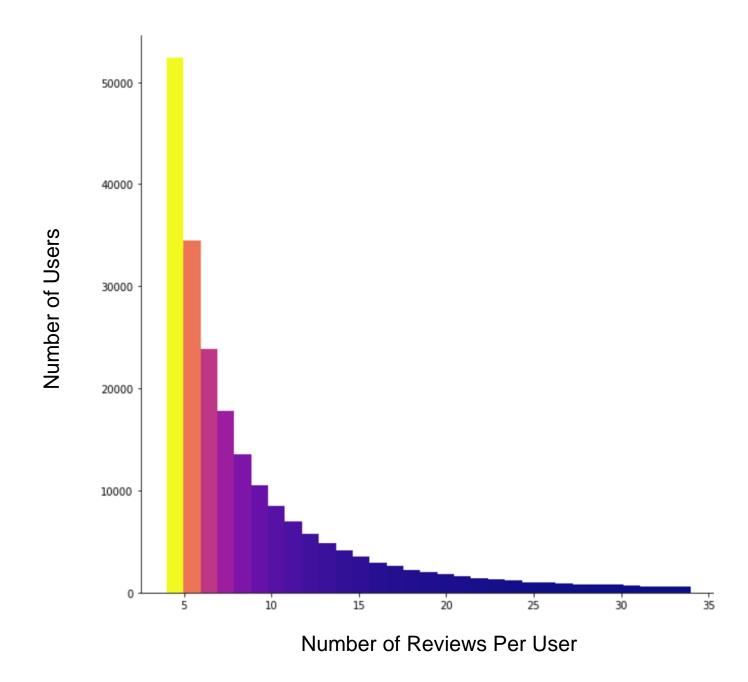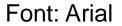
Font: Arial
Color Scheme:
Red – 196/18/0
Charcoal – 36/36/36