Sarcasm Detection

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Introduction

- Sarcasm refers to use of words that mean opposite of what one wants to say
- To insult/irritate/being funny.The limits of sarcasm are not so well defined
- Sarcasm is subjective. Non-native speakers/readers may not get it.
- **Goal:** To predict whether a headline is sarcastic or not

Dataset

Kaggle-

https://www.kaggle.com/datasets/rmisra/news-headlines-dataset-for-sarcasm-detection

Number of Entries: 26709

Success Metric: Accuracy Score, Precision

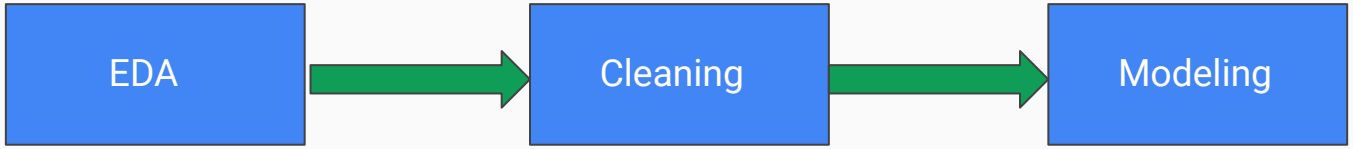
Each record consists of three attributes:

- `**is_sarcastic**`: 1 if the record is sarcastic otherwise 0

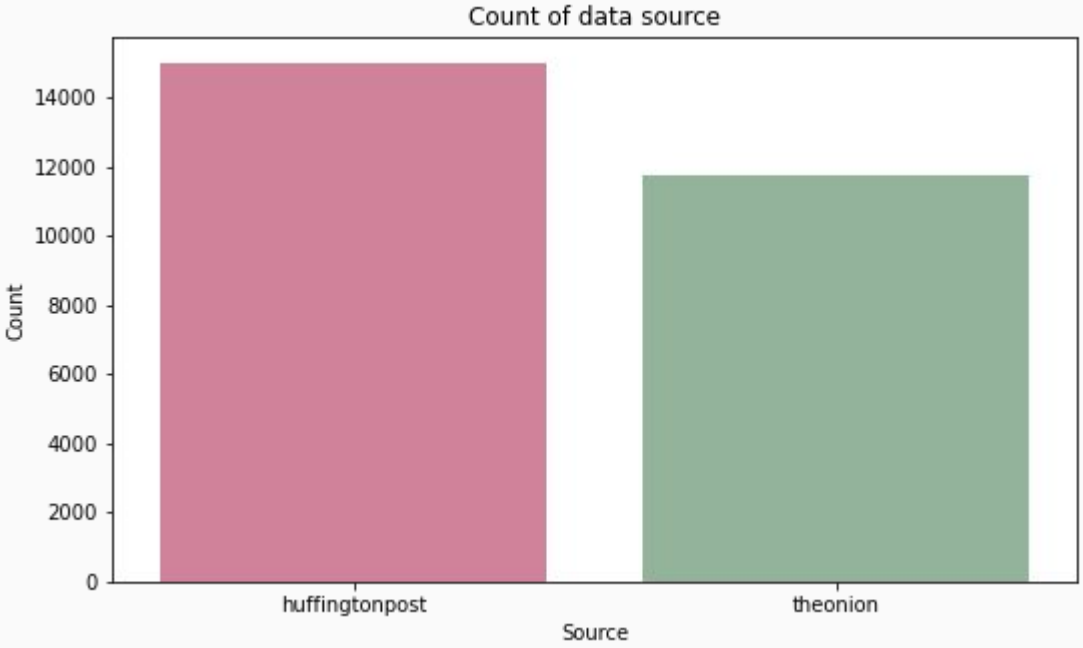
- `**headline**`: the headline of the news article

- `**article_link**`: link to the original news article. Useful in collecting supplementary data

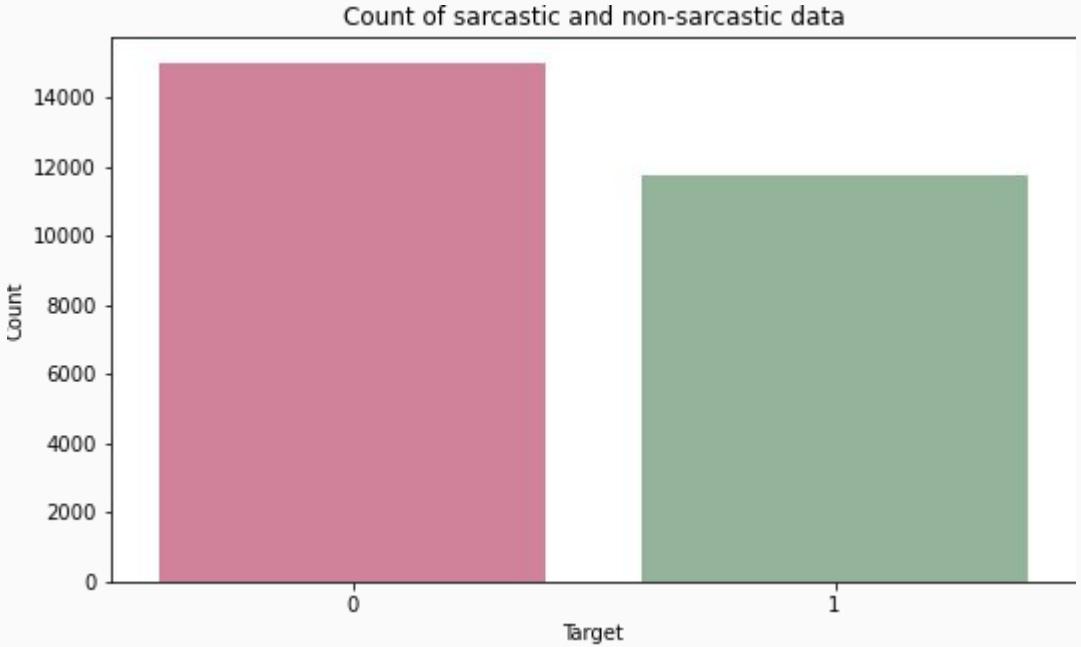
Overview of Project



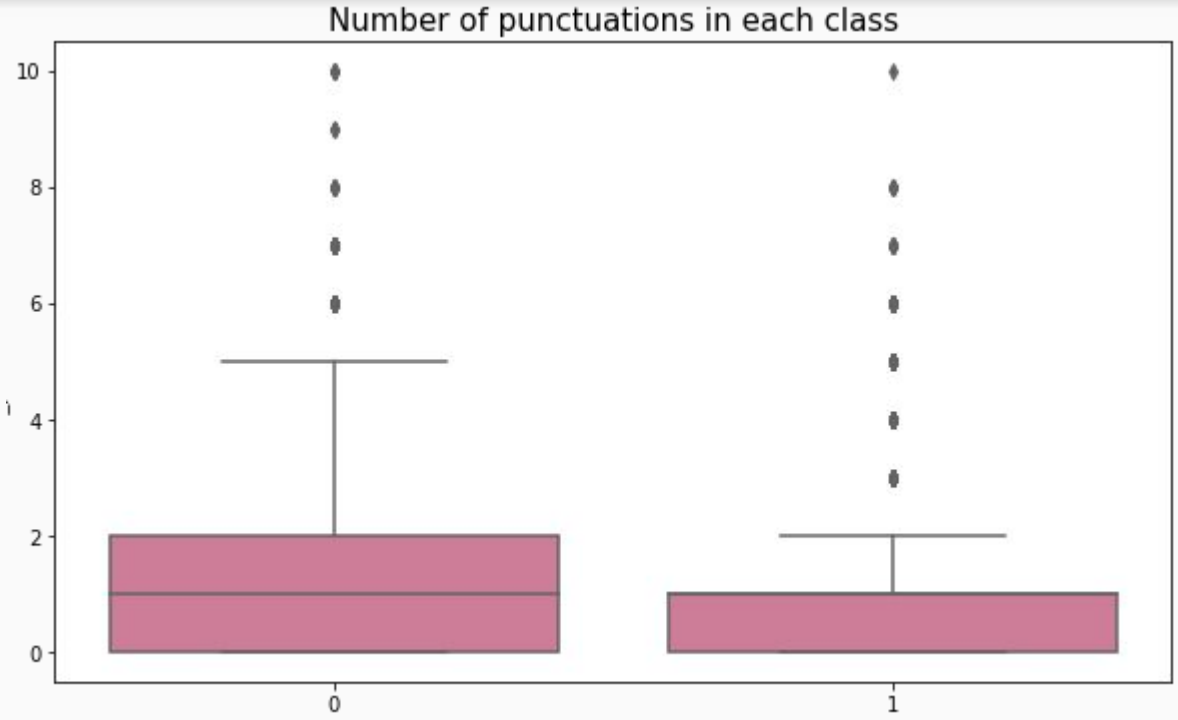
Source


Count of data source
14000
12000
10000
8000
6000
4000
2000
0
Count
huffingtonpost
theonion
Source

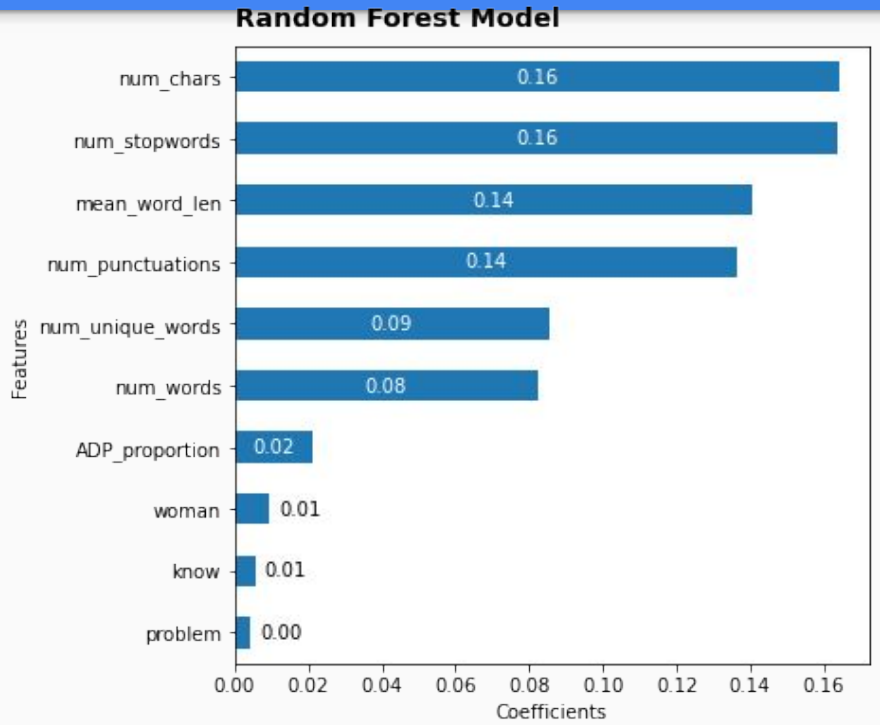
Target Categories



Punctuations in each class



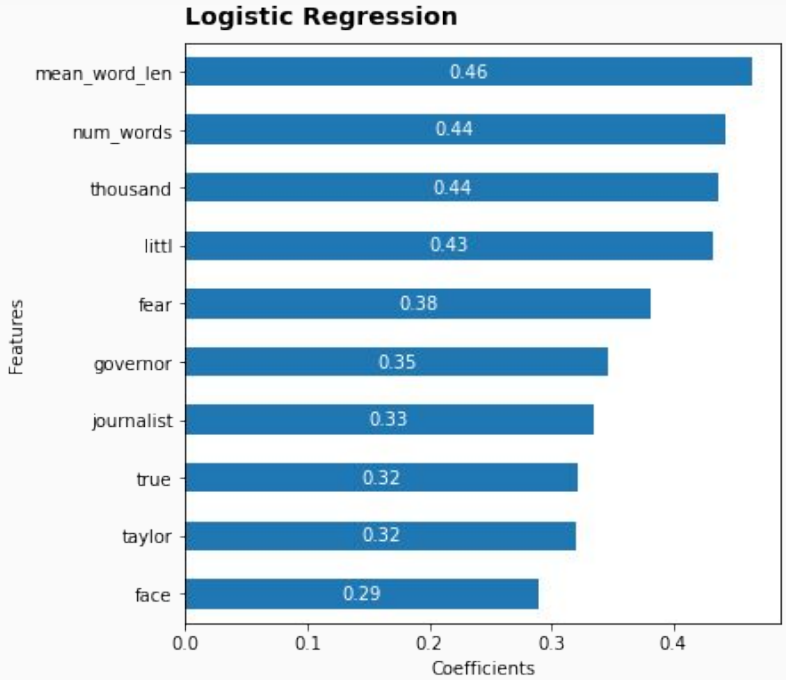
Random Forest Classifier



Accuracy: 65%

Precision: 0->66% 1->64%

Logistic Regression



Accuracy: 63%

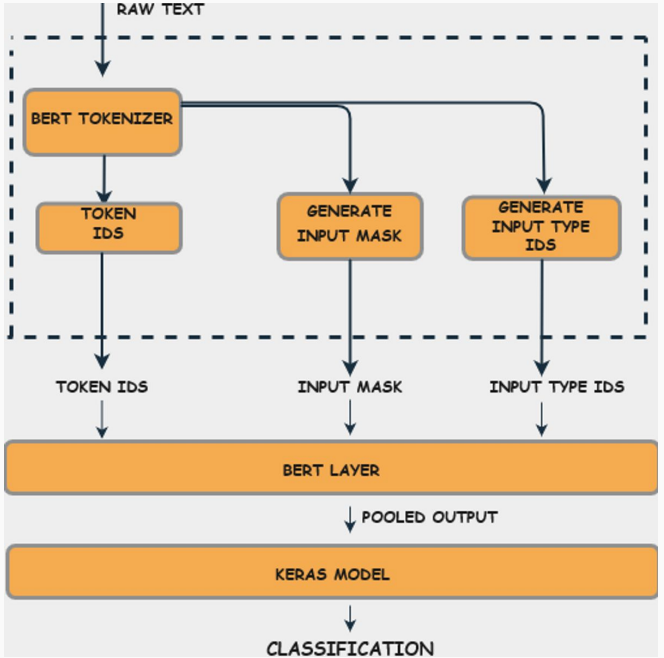
Precision: 0->65% 1->58%

BERT

- Reads the entire sequence of words at once

- This characteristic allows the model to learn the context of a word based on all of its surroundings (left and right of the word).

- Accuracy: 80%



Conclusion

Conclusion : Context matters for sarcasm and hence BERT seems apt for text classification and performed best among the models in this project.

Recommendation: BERT should be the production model.

Limitations: Only applicable for English language

Next Steps: Explore more contextual neural nets and techniques

Applications

- This analysis can be used to design intelligent chatbots
- Can help in adding emotions into voice detection systems
- E-commerce websites can use such it to have a better understanding of product/service reviews posted by users