

Tania Soutonglang

CS 585-02

Sept. 27, 2023

Homework 2 Problems 2 and 8

2. Assume you have a trivial baseline classifier that flags every text presented to it as clickbait. What is the precision, recall, and F1-score of such a classifier on your test set? Do you think there is another good baseline classifier that would give you a higher F-1 score?

Test size: 478, clickbait: 159

True positive: 159

False positive: 319

False negative: 0

Precision: $159 / (159 + 319) = 0.33$

Recall: $159 / (159 + 0) = 1.00$

F1-Score: $2 * ((1.00 * 0.33) / (1.00 + 0.33)) = 0.50$

There probably is another good baseline classifier that would give a higher F-1 score. This one flags all items as clickbait, making all the items that are not clickbait a false positive and then making the precision score low.

8. Compare your rules-based classifier from the previous problem with your machine-learning solution. Which classifier showed the best model metrics? Why do you think it performed the best? How did both compare to your trivial baseline (Problem 2)? If you had more time to try to improve this clickbait detection solution, what would you explore? (There is no single correct answer to this question; review your results and come up with your own ideas)

Problem 5: Precision: 0.83 Recall: 0.75

Problem 8: Precision: 0.73 Recall: 0.20

The machine learning model from problem 5 had better precision and recall scores compared to the classifier from problem 8. I think that performed better because it was able to pick up patterns that the rules classifier may have missed.

If I had more time I would try to see if preprocessing the headlines even further would improve anything. I only did lowercasing, but I want to see if stemming, lemmatization, and/or removing stop words would help improve it.