IST736 Text Mining

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HW\_3 Multinomial naïve Bayes for Fake Review Detection

Students from a previous text mining class created a fake restaurant review data by writing true and fake reviews. Some were positive, and some were negative.

You are going to use the Multinomial Naïve Bayes algorithm to build prediction models to classify the customer reviews by (1) sentiment (positive or negative) (2) authenticity (true or fake).

For each of the two classification tasks, try different vectorization options to build the models, and evaluate them using 5-fold cross validation method. Compare the following models’ performance. Report confusion matrix and accuracy.

Deliverable –

1. Your Python script.
2. A word document (Up to two pages) to describe
   1. Your best choice of vectorization options for each task and why
   2. Top 10 features for each category in each task
   3. Each model’s performance in accuracy, precision, recall, and F-measure
   4. Each model’s error analysis to identify areas for improvement
   5. A comparison of the difficulty in sentiment classification vs. fake review classification.

Grading criteria:

* Accuracy and reproducibility in analysis
* Clarity in explaining the analytical process and result