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Sentiment Analysis on Social Media and E-Commerce Reviews using Supervised Learning Techniques

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Abstract: *Sentiment analysis is a field of Natural Language Processing (NLP) that focuses on identifying and extracting subjective information from textual data. With the rapid growth of online platforms, users are continuously generating large amounts of data in the form of reviews, tweets, and posts. This paper presents an integrated approach to sentiment analysis using Twitter and Amazon product review datasets. We applied lexicon-based methods for social media content and supervised learning techniques, particularly the Random Forest classifier, for e-commerce review data. Preprocessing steps such as tokenization, stemming, and stop-word removal were performed. Results show that the supervised model on Amazon reviews achieves high accuracy while lexicon-based Twitter sentiment analysis provides insight into real-time public opinion. Our findings suggest that while lexicon-based approaches are suitable for short, real-time content like tweets, supervised models provide superior accuracy for structured review data, making a combined strategy optimal for business intelligence. The study concludes by suggesting that combining both methods can improve business intelligence strategies..*

Keywords: Sentiment Analysis, NLP, Supervised Learning, Twitter API, Amazon Reviews, NLTK, Opinion Mining

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