**Structure and Outline for Writing Effective Research Abstracts**

Natural Language Processing (NLP) Analysis

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This study addresses the growing need for accurate sentiment analysis in the context of online customer reviews, particularly focusing on Yelp reviews. Given the substantial volume of user-generated content, restaurants often struggle to manually extract actionable insights from customer feedback. Therefore, this research aims to classify Yelp customer reviews into positive, neutral, or negative categories, identify common complaints negatively impacting customer satisfaction, and highlight positive factors valued by customers, such as food quality, service, or ambiance. To achieve this, a comprehensive natural language processing (NLP) approach was adopted, utilizing a dataset of approximately 50,000 Yelp reviews. The methodology encompassed thorough text preprocessing—including tokenization, stop-word removal, lemmatization, handling negations, and vectorization—before employing a comparative analysis across traditional machine learning techniques (Logistic Regression, SVM, Naïve Bayes, Random Forest), deep learning models (embeddings with LSTM and CNN architectures), and advanced transformer-based models (BERT). Results demonstrated that transformer-based models, particularly BERT, significantly outperformed alternative approaches, highlighting their capability in capturing nuanced sentiment effectively. These insights hold considerable implications, as they empower businesses to strategically enhance service quality, address critical customer grievances, and reinforce successful aspects valued by customers, ultimately driving improved consumer satisfaction and business performance.