Title: Sentiment Analysis of Various Ride Sharing Applications Reviews: A Comparative Analysis Between Deep Learning and Machine Learning Algorithms.

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Abstract: The exponential growth of ride sharing platforms in developing countries has significantly transformed the landscape of urban transportation. It is crucial for service providers to comprehend customer feedback and opinions in order to enhance the user experience and for passengers to select a safe and secure ride. A comprehensive sentiment analysis was conducted on user evaluations of ride-sharing platforms such as Grab, Uber, Indrive, Pathao, Jatri, and Obhai. An aggregate of 12052 data points (Negative, Positive, Neutral) were extracted from ride sharing reviews available on the Google Play Store. By utilizing cutting-edge deep learning models (LSTM, GRU, BiLSTM, and BiGRU) in addition to traditional machine learning models (Random Forest, Decision Tree, Gradient Boosting Classifier, Logistic Regression, KNN, Naive Bayes, SVM, AdaBoost, and LightGBM), our research endeavors to offer substantial insights into the determinants of customer satisfaction. Support Vector Machine is the most effective machine learning algorithm in this context, attaining an accuracy rate of 76.70%. Bidirectional Gated Recurrent Unit emerged as the best-performing model in the domain of deep learning, attaining an exceptional accuracy rate of 94.97%, this algorithm demonstrates the efficacy of deep learning methodologies in the context of sentiment analysis. Our research indicates that deep learning algorithms demonstrate significant superiority when compared to machine learning algorithms.

Keyword: Ride, Uber, Pathao, Indrive, Machine Learning, Deep Learning, Sentiment Analysis NLP.

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