

Custom Experience Analysis in the Hospitality Service Sector using AI-Based Hotel Review Analytics

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Abstract: *The hotel industry has experienced rapid online portal development which has produced enormous volumes of customer review data that businesses can use to assess public perceptions and make their operational choices. Hoteliers can achieve better service delivery and higher customer satisfaction by using online hotel reviews to identify customer needs through advanced review analysis techniques. The proposed study presents an AI-driven hotel review analytics model to analyze customer experience in the hospitality industry. The proposed approach will execute text preprocessing, followed by sentiment labeling, TF-IDF feature extraction, and supervised ML-based sentiment classification. A TripAdvisor hotel reviews dataset consisting of 20,491 records is used to test different models for their performance evaluation. The XGBoost model exhibits robust results that surpass the performance of BERT, SVM, and LSTM models, while the MLP model obtains the highest performance with an F1 score of 95.85 and an accuracy of 93.00%. The comparative outcomes prove the effectiveness and consistency of the offered method regarding sentiment analysis. This study is valuable because it offers an effective AI-driven approach for extracting meaningful insights from customer feedback at scale. This solution helps organizations make data-driven decisions and improve personalized services and customer experience management in the hospitality sector.*

Keywords: Hotel Review Analytics, Sentiment Analysis, Customer Experience Analysis, TF-IDF, Machine Learning, Hospitality Service Sector