ABSTRAK

Proses penilaian ulasan pelanggan hotel yang dilakukan secara manual memiliki keterbatasan dalam hal objektivitas dan efisiensi. Untuk mengatasi hal tersebut, penelitian ini mengusulkan pengembangan sistem klasifikasi sentimen ulasan pelanggan menggunakan metode *Bidirectional Long Short-Term Memory* (BiLSTM) yang diimplementasikan pada aplikasi berbasis web. Dataset berupa 3.135 ulasan pelanggan Hotel Padma Bandung diperoleh melalui *web scraping* dari Google Maps. Data diproses melalui tahapan preprocessing mencakup case folding, *cleaning, stopword removal, stemming, dan lemmatization*. Model BiLSTM dilatih menggunakan tiga skema pembagian data (90:10, 80:20, 70:30), dengan hasil terbaik pada rasio 90:10 yang menghasilkan akurasi tertinggi sebesar 95%. Evaluasi dilakukan menggunakan *confusion matrix* serta metrik klasifikasi (*precision, recall, f1-score*). Sistem diimplementasikan menggunakan *framework Streamlit* dengan fitur input ulasan, analisis sentimen otomatis, penyimpanan hasil klasifikasi, dan visualisasi data pada dashboard interaktif. Validasi sistem melalui kuesioner kepada pengguna menghasilkan skor rata-rata 81,33% dengan nilai akhir 20,33 (kategori Setuju) atau mendekati angka 4,00 pada skala Likert. Hasil ini menunjukkan bahwa sistem yang dikembangkan mampu memberikan klasifikasi sentimen secara akurat, dinilai layak, serta bermanfaat untuk mendukung manajemen hotel dalam memahami tingkat kepuasan pelanggan dan memantau reputasi secara real-time.

Kata Kunci: Analisis Sentimen, BiLSTM, Web Scraping, Ulasan Pelanggan, Klasifikasi Teks.

ABSTRACT

The manual evaluation of hotel customer reviews has limitations in terms of objectivity and efficiency. To address this issue, this study proposes the development of a sentiment classification system for customer reviews using the Bidirectional Long Short-Term Memory (BiLSTM) method, implemented as a web-based application. The dataset consists of 3,135 customer reviews of Hotel Padma Bandung obtained through web scraping from Google Maps. The data underwent preprocessing stages including case folding, cleaning, stopword removal, stemming, and lemmatization. The BiLSTM model was trained using three data split scenarios (90:10, 80:20, and 70:30), with the best performance achieved at the 90:10 ratio, reaching an accuracy of 95%. Evaluation was conducted using a confusion matrix and classification metrics such as precision, recall, and f1-score. The system was implemented using the Streamlit framework, providing features for review input, automatic sentiment classification, result storage, and data visualization on an interactive dashboard. System validation through a user questionnaire resulted in an average score of 81.33%, with a final score of 20.33 (Agree category) or close to 4.00 on the Likert scale. These results indicate that the developed system is accurate, feasible, and beneficial for assisting hotel management in understanding customer satisfaction and monitoring reputation in real time.

***Keywords**: Sentiment Analysis, BiLSTM, Web Scraping, Customer Reviews, Text Classification*