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Tourism in Indonesia has significant potential, with the tourism industry contributing 3.2% of the gross domestic product (GDP) in 2020, amounting to Rp502.22 trillion. Bali has become a popular tourist destination, renowned among both Indonesian society and international tourists. However, some hotels and accommodations in Bali do not align with consumer preferences, resulting in decreased customer satisfaction. To address this issue, this research aims to develop a review classification model and hotel recommendation system based on reviews and ratings to provide hotel recommendations that match consumer preferences. Natural language processing (NLP) methods using BERT and RoBERTa models are employed in this study to process 5,798 consumer reviews from 16 labeled hotels. Both NLP models effectively classify hotel aspects, with the highest macro F1 score of 0.83 achieved by the BERT model. The RoBERTa model successfully provides the highest similarity score in hotel recommendations, with a value of 0.99917. These findings demonstrate that the recommendation system can be utilized by hotel businesses and online travel agents (OTAs) to enhance their business performance. The utilization of both NLP models also yields positive impacts on the hospitality business ecosystem and marketing efficiency. Consequently, hotel personalization strategies can be designed more efficiently due to a better understanding of consumer preferences.

Keywords: Consumer reviews, recommendation systems, Personalization, BERT, and RoBERTa