Building of Informatics, Technology and Science (BITS)
Volume 99, No 99, Bulan 2023 Page: 999−999
ISSN 2684-8910 (media cetak)
ISSN 2685-3310 (media online)
DOI 10.47065/bits.v9i9.999

Abstract−This research investigates the effectiveness of the Long Short-Term Memory (LSTM) model in performing aspect-based sentiment classification on English-language reviews of the iPhone 15 sourced from the YouTube platform. The study focuses on five key product aspects frequently mentioned by users: charger port, camera, screen, design, and battery. To evaluate the model's performance, two distinct labeling strategies were employed. The first involved manual annotation, where human annotators identified both the relevant aspects and the associated sentiment in each review. The second strategy integrated additional sentiment cues derived from a lexicon-based method, Valence Aware Dictionary and sEntiment Reasoner (VADER). In this approach, the polarity output from VADER was prepended to each review to enrich the input with emotional context. The experimental results demonstrate that supplementing review texts with sentiment polarity information from VADER contributes to a modest but measurable improvement in sentiment classification accuracy. Specifically, using the micro-average accuracy metric, defined as the ratio of correct predictions to the total number of test instances, the model's performance improved from 67% under the manual only annotation to 68% with VADER enhanced input. Additionally, aspect classification remained consistently strong, showing a slight improvement from 90% to 91% after incorporating VADER. Furthermore, based on macro-average accuracy an evaluation metric that calculates the mean performance across all classes regardless of class distribution, accuracy improvements were observed in several aspects, particularly the camera, screen, and design. However, a minor decline in performance was noted for the battery and charger port aspects. These results suggest that enriching review data with sentiment polarity information derived from lexicon-based tools like VADER can enhance the model's ability to comprehend emotional nuance, leading to more accurate identification of user sentiments within aspect-specific reviews.

Keywords: Sentiment Analysis; Aspect-Based; iPhone 15; LSTM; VADER