KOMPARASI ALGORITMA *NAIVE BAYES* DAN *K-NEAREST NEIGHBOR* DALAM KLASIFIKASI SENTIMEN GAME FREE FIRE

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ABSTRAK

Free Fire merupakan salah satu game daring paling populer di Indonesia, namun tetap menghadapi berbagai ulasan dari pengguna terkait pengalaman bermain mereka. Ulasan-ulasan ini mencerminkan persepsi pengguna yang beragam, baik dalam bentuk pujian maupun keluhan, sehingga penting untuk dianalisis guna memahami tingkat kepuasan terhadap game tersebut. Penelitian ini bertujuan untuk melakukan klasifikasi sentimen terhadap ulasan pengguna Free Fire yang diambil dari Google Play Store dan App Store, serta membandingkan kinerja dua algoritma klasifikasi teks, yaitu *Naive Bayes* dan *K-Nearest Neighbor* (KNN). Proses pengumpulan data dilakukan dengan teknik *web scraping*, dilanjutkan dengan pelabelan manual oleh validator ahli, serta preprocessing teks yang mencakup *cleansing, tokenizing, stopword removal,* dan *stemming*. Pembobotan kata dilakukan menggunakan metode *Term Frequency-Inverse Document Frequency* (TF-IDF) sebelum data dianalisis dengan kedua algoritma. Hasil pengujian menunjukkan bahwa algoritma *Naive Bayes* memperoleh akurasi tertinggi sebesar 73,23% pada dataset dari Google Play Store, 71,84% pada dataset App Store, dan 72,78% pada dataset gabungan. Sementara itu, algoritma KNN mencatat akurasi tertinggi sebesar 66,77% pada dataset Play Store, 46,51% pada dataset App Store, dan 45,91% pada dataset gabungan. Berdasarkan hasil tersebut, *Naive Bayes* terbukti lebih unggul dan efektif dalam mengklasifikasikan sentimen pengguna terhadap game Free Fire. Temuan ini diharapkan dapat memberikan masukan yang konstruktif bagi pengembang dalam meningkatkan kualitas dan pengalaman bermain bagi para pengguna.

Kata Kunci: Analisis sentimen, Free Fire, *Naive Bayes*, *K-Nearest Neighbor*, TF-IDF, klasifikasi sentimen.

COMPARISON OF NAIVE BAYES AND K-NEAREST NEIGHBOR ALGORITHMS IN SENTIMENT CLASSIFICATION OF FREE FIRE GAME REVIEWS

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ABSTRACT

Free Fire is one of the most popular online games in Indonesia, yet it continues to receive various reviews from users regarding their gaming experience. These reviews reflect diverse user perceptions, both in the form of praise and criticism, making sentiment analysis essential to understand user satisfaction. This study aims to perform sentiment classification on user reviews of Free Fire collected from the Google Play Store and App Store, as well as to compare the performance of two text classification algorithms, namely Naive Bayes and K-Nearest Neighbor (KNN). Data were collected using web scraping techniques, followed by manual labeling by expert validators and text preprocessing, which included cleansing, tokenizing, stopword removal, and stemming. The Term Frequency-Inverse Document Frequency (TF-IDF) method was applied for word weighting prior to classification. The experimental results show that the Naive Bayes algorithm achieved the highest accuracy of 73.23% on the Google Play Store dataset, 71.84% on the App Store dataset, and 72.78% on the combined dataset. Meanwhile, the KNN algorithm obtained its highest accuracy of 66.77% on the Play Store dataset, 46.51% on the App Store dataset, and 45.91% on the combined dataset. These findings indicate that Naive Bayes is more effective and reliable in classifying user sentiment toward the Free Fire game. The results of this research are expected to provide constructive input for developers in improving the quality and user experience of the game.

Keywords: Sentiment analysis, Free Fire, Naive Bayes, K-Nearest Neighbor, TF-IDF, sentiment classification.