ABSTRAK

Sidik, Purnama (2024), Komparasi Metode *Random Forest* dan *Support Vector Machine* Pada Sentimen Analisis Komentar Kuesioner Kepuasan Mahasiswa (KKM) ITB STIKOM Bali. Tesis, Ilmu Komputer, Pascasarjana, Universitas Pendidikan Ganesha.

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Kata Kunci: ITB STIKOM Bali, Kuesioner Kepuasan Mahasiswa, Sentimen Analisis, Klasifikasi, Algoritma *Support Vector Machine*, Algoritma *Random Forest*.

ITB STIKOM Bali merupakan salah satu perguruan tinggi di Bali yang bergerak di bidang TI. Untuk menjaga kualitas dari ITB STIKOM Bali, pihak penjaminan mutu bekerja sama dengan puskom menyebarkan kuesioner kepuasan mahasiswa setiap akhir semester. Dalam penilaian fasilitas kepuasan mahasiswa, bagian komentar merupakan salah satu poin untuk menilai fasilitas ITB STIKOM Bali setiap akhir semester. Respon mahasiswa selama ini dianalisis secara manual. Penelitian ini mencari metode yang efektif dalam menganalisis sentimen terhadap kepuasan mahasiswa dengan mengomparasi metode *random forest* dengan *support vector machine*. Penelitian melalui beberapa tahapan, yaitu pengumpulan data, pelabelan data, *preprocessing*, *transformation*, *data mining*, *evaluation* dan visualisasi. Pada penelitian ini, metode *random forest* sebelum penerapan *augmentation text* pada perbandingan 90:10 menghasilkan *accuracy* 0.85, *precision* 0.87, *recall* 0.85 dan *f1-score* 0.83. Selanjutnya untuk metode *support vector machine* pada perbandingan 80:20 dan 90:10 menghasilkan *accuracy* 0.92, *precision* 0.92, *recall* 0.92 dan *f1-score* 0.92. Selanjutnya setelah menerapkan *augmentation text*, metode *random forest* pada perbandingan 80:20 dan 90:10 menghasilkan *accuracy* 0.92, *precision* 0.92, *recall* 0.92 dan *f1-score* 0.92. Akhirnya, untuk metode *support vector machine* pada perbandingan 90:10 menghasilkan *accuracy* 0.97, *precision* 0.97, *recall* 0.97 dan *f1-score* 0.97. Penelitian ini menghasilkan kurva ROC dengan hasil *excellent classification*. Diharapkan dengan penelitian ini, dapat menambah referensi dari penilaian kepuasan mahasiswa ITB STIKOM Bali setiap akhir semester.

ABSTRACT

Sidik, Purnama (2024), *Comparasion Method Random Forest And Support Vector Machine For Analysis Sentiment Comment* Kuesioner Kepuasan Mahasiswa (KKM) ITB STIKOM Bali. *Thesis, Computer Science, Graduate Program, Ganesha University of Education.*

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Keyword: ITB STIKOM Bali, Kuesioner Kepuasan Mahasiswa, *Analysis Sentiment*, *Classification*, *Support Vector Machine Algorithm*, *Random Forest Algorithm*.

ITB STIKOM Bali is one of the higher education institutions in Bali specializing in Information Technology. To maintain its quality, the quality assurance team, in collaboration with the university's information center (Puskom), distributes a student satisfaction questionnaire at the end of each semester. In evaluating student satisfaction with the facilities, the comments section serves as an important aspect for assessing ITB STIKOM Bali's facilities. Until now, student responses have been analyzed manually. This study aims to find an effective method for sentiment analysis of student satisfaction by comparing the Random Forest method with Support Vector Machine (SVM). The research involves several stages, including data collection, data labeling, preprocessing, transformation, data mining, evaluation, and visualization. In this study, the Random Forest method, before applying text augmentation, achieved an accuracy of 0.85, precision of 0.87, recall of 0.85, and an F1-score of 0.83 using a 90:10 data split. Meanwhile, the Support Vector Machine method, using both 80:20 and 90:10 splits, yielded accuracy, precision, recall, and F1-score of 0.92. After applying text augmentation, the Random Forest method using both 80:20 and 90:10 splits improved to accuracy, precision, recall, and F1-score of 0.92. Ultimately, the Support Vector Machine method using a 90:10 split achieved accuracy, precision, recall, and F1-score of 0.97. The study also produced a ROC curve indicating excellent classification performance. It is expected that this research can contribute as a reference for evaluating student satisfaction at ITB STIKOM Bali at the end of each semester.