

**Klasifikasi Pelayanan Kesehatan Berdasarkan Data Sentimen Pelayanan Kesehatan
Menggunakan *Multiclass Support Vector Machine***

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ABSTRAK

Penelitian ini bertujuan untuk melakukan perbandingan *Multiclass Support Vector* fitur *unigram* dengan fitur *bigram* baik dengan pendekatan *One versus One* (OvO) maupun *One versus Rest* (OvR). Sumber data sentimen berasal dari data laporan survei kepuasan pelayanan puskesmas denpasar 2021 oleh *Center for Public Health Innovation* (CPHI) FK UNUD. Pemrosesan data melalui preprocessing data yang terdiri dari: *casefolding*, *cleaning*, *tokenizing*, *stopwords*, *stemming*, dan *weighting*. Pada proses *weighting* digunakan metode TF-IDF satu *term/unigram* dan dua *term/bigram* lalu kemudian diolah menggunakan *Multiclass Support Vector Machine* OvO dan OvR. *KFold Cross Validation* digunakan untuk membagi data latih dan data tes sekaligus memvalidasi model dengan jumlah 5 *fold*. Hasil yang didapatkan algoritma SVM OvO dan OvR dengan *term unigram* dan *bigram* dapat mengklasifikasikan data sentimen pelayanan kesehatan ke dalam 6 kelas yaitu: Netral, Pelayanan, Sarana dan Prasarana, Sumber Daya Manusia, Administrasi dan Manajemen, serta Peralatan. Hasil perbandingan klasifikasi didapatkan pendekatan dengan *term unigram* memiliki performa lebih baik jika dibandingkan dengan *term bigram* baik pada pendekatan OvO maupun OvR. Didapatkan juga perbandingan pendekatan OvO dan OvR pada *term* yang sama memiliki performa yang relatif sama.

Kata-kata kunci: klasifikasi, SVM, OvO, OvR, TF-IDF

*Classification of Health Service Based on Health Service Sentiment Data Using
Multiclass Support Vector Machine*

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ABSTRACT

This study aims to compare the Multiclass Support Vector of unigram features with bigram features using both the One versus One (OvO) and One versus Rest (OvR) approaches. The source of sentiment data comes from data from the 2021 Denpasar Public Health Center service satisfaction survey report by the Center for Public Health Innovation (CPHI) FK UNUD. Data processing through data preprocessing which consists of: case folding, cleaning, tokenizing, stopwords, stemming, and weighting. In the weighting process, the TF-IDF method uses one term/unigram and two terms/bigram and then it is processed using the Multiclass Support Vector Machine OvO and OvR. KFold Cross Validation is used to divide training data and test data while validating the model with a total of 5 folds. The results obtained by the SVM OvO and OvR algorithms with unigram and bigram terms can classify health service sentiment data into 6 classes, namely: Neutral, Service, Facilities and Infrastructure, Human Resources, Administration and Management, and Equipment. The classification comparison results show that the unigram term approach has better performance when compared to the bigram term in both the OvO and OvR approaches. A comparison of the OvO and OvR approaches in the same term has relatively the same performance.

Keywords: classification, SVM, OvO, OvR, TF-IDF