

Sentiment Analysis on Twitter Social Media towards Shopee E-Commerce through *Support Vector Machine* (SVM) Method

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1. Introduction

1.1 Background of the Study

The development of technology in this modern era certainly has a great influence on daily life, especially in the business field and the world of competition for the market [1]. Nowadays, promotion and marketing can be done through advertisements on television and banners installed on the streets and digital promotions. Consumers can only view, choose, and buy the needs they want through smartphones, laptops, and computers without traveling in person.

Merchant	Monthly Web Visits	AppStore Rank	PlayStore Rank	Twitter	Instagram	Facebook	Number of Employees
1 Tokopedia	157.443.300	#2	#4	1.090.900	4.876.410	8.523.340	6.109
2 Shopee	138.776.700	#1	#1	719.000	6.348.130	24.173.400	6.193
3 Lazada	88.173.300	#3	#2	455.700	3.085.550	31.934.320	5.543
4 Bukalapak	25.790.000	#6	#7	212.300	1.776.710	2.516.190	2.503
5 Orami	16.683.300	n/a	n/a	5.720	11.770	350.940	215
6 Blibli	15.686.700	#8	#5	509.400	2.018.600	18.56.810	2.230
7 Rafali	5.923.300	#22	n/a	3.950	53.770	91.000	187
8 Zalora	3.310.000	#4	#8	6.440	743.730	8.008.550	625
9 JD.ID	3.026.700	#7	#6	54.000	641.740	999.050	1.330
10 Sociolla	1.913.300	#5	#3	6.850	1.028.730	18.050	658

Figure 1. E-Commerce Rating

Based on Figure 1, it can be seen that Shopee is ranked number one in the application on smartphones. Social media is considered to have an opportunity as a competitor to mass media because it can be a source of information that can also be a medium for socializing and interaction between users. Therefore, sentiment analysis is required to determine the sentiment on social media of Twitter regarding Shopee's e-commerce.

Tweets that were collected and then analyzed are referred to as sentiment analysis. Therefore, sentiment analysis is computational research of sentiment opinions expressed textually [2]. This analysis has the ability to extract public opinion on specific positive and negative values topics. Through sentiment analysis, companies such as Shopee can efficiently get core input from the users or consumers. The information can be used to create a better product or service and also relevant to customer needs. In sentiment analysis, there is a feature extraction stage, one of which is TF-IDF which is a calculation of the weight of a frequently used word [3].

Furthermore, there is also a feature expansion stage to discover the meaning of the sentiment on social media by converting words into numerical forms. One feature expansion aims to use *word2vec* to present words in vector form [3]. Furthermore, a classification process had been carried out there where several methods, namely Naïve

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Bayes, KNN, and SVM. Among the three ways, SVM has the advantage superior performance because it is able to classify based on the right class [4]. SVM is a learning system using hypothetical spaces in the form of linear functions in a feature with high dimensions based on optimization theory [5].

1.2 Topics and Limitations

The topic discussed in this study is sentiment analysis using the classification method of *support vector machine* and *word2Vec* for *word embedding* on people's tweets on Twitter social media which discussed about Shopee *e-commerce*. The limitation in this study used data sets sourced from Twitter social media and only used "Shopee" category. The data set retrieved only used Indonesian language with *.csv* data format.

1.3 Objective

The purpose of this study is to conduct a sentiment analysis on Twitter social media that discussed Shopee using the *support vector machine* classification and *the word2vec word embedding* methods to determine the performance of model obtained from the SVM and *word2vec* methods by determining the best combination of *word2vec* parameter values and to find out the public sentiment situation regarding Shopee e-commerce.

1.4 Writing Organization

Part of the TA report is as follows. Chapter 2 discusses the study of the literature associated with this study. Then, in Chapter 3 discusses the system built into this study. Chapter 4 discusses the results and analysis of the research, and Chapter 5 discusses the conclusions of the research that has been carried out.