

Sentiment Analysis Of Indonesian State Army Police Neutrality Sentiment Towards The 2024 Election On X Using The Support Vector Machine Algorithm

Muhammad Yudha Pratama^{1)*}, Rakhmat Kurniawan R²⁾

^{1,2)}Faculty of Saints And Techonology, Department of Computer Sciece,
North Sumatra State Islamic University, Medan, Indonesia

¹⁾yudhapratamma780@gmail.com, ²⁾rakhmat.kr@uinsu.ac.id

Submitted : Jul 8, 2024 | **Accepted** : Jul 18, 2024 | **Published** : Jul 24, 2024

Abstract: The accompanying goals are created: One method for figuring out the order of feeling examination in the balance of military police towards the 2024 political decision depends on popular assessment in SVM technique in arranging opinion investigation in the balance of military police towards the 2024 races in light of 2024 general assessment in X. In a leading examination, the stages utilized are the exploration system. This was finished to coordinate the exploration stages. The technique of this examination is quantitative. An exploration area is where a specialist completes research, particularly in catching peculiarities or examination that really happens at the exploration area to get precise and genuine examination information. The consequences of the testing did were to decide the capacity of the framework that had been made to complete feeling investigation on opinion towards the lack of bias of the TNI and Polri during the political race Research begins with compiling, specifically determining the points to be discussed. The subject of this research is the execution of message mining in testing the balance of military police feelings towards the 2024 political decisions in X using the Help vector machine1 algorithm. Tweet Information Collection, In this review, scientists utilized 800 tweet information.. The consequences of the opinion examination did will be introduced as a disarray framework, where through the disarray network and characterization report the degree of exactness of the exploration that has been completed can be determined. It is trusted that the aftereffects of this assessment can give a thorough image of the public's discernment on Twitter with respect to the lack of bias of the TNI and Polri in sorting out races.

Keywords: *Indonesian State army, Election, Machine algorithm, Support Vector*

INTRODUCTION

Indonesia is one of the countries in the world that is blessed with a pluralistic society and has ethnic heterogeneity. This diversity is horizontally characterized by the fact that there are social units based on differences in ethnicity, religion, customs and primordialism. With such a complex social structure, Indonesia is faced with potential threats of ethnic conflict, social inequality and challenges to the integrity of the Republic of Indonesia. In order to maintain the territorial integrity of the Republic of

*name of corresponding author



This is an Creative Commons License This work is licensed under a Creative Commons Attribution-NonCommercial 4.0 International License.

Indonesia as a sovereign nation and state, the Indonesian National Army (TNI) as the main component of the State Defense System together with the people has implemented several state defense efforts.. (Aprilianto Nugroho, 2024).

In the past, people expressed their opinions, criticism and suggestions through print media where not everyone had the ability to write and the opportunity to publish their writing. However, the current development of communication technology has changed people's habits in conveying their opinions and opinions. Social media has become a means of sharing information for people throughout the world. These users write about various opinions on many topics and discuss current issues. One of the social media that is widely used by the public to convey their opinions is X. Currently, social media users, especially 64 years old reaches a level of 63.6% corresponding to being eligible to become a voter in the general selection . Due to the large number of opinions expressed from Indonesian netizens, especially on social media, X will produce a variety of reactions. To find out and determine the tendency of X users to post tweets, it is necessary to carry out sentiment analysis.

In the context of social media, sentiment analysis is how to analyze people who express their opinions on topics on social media. Sentiment analysis has been carried out a lot, such as knowing consumer opinion responses to a product, including political preferences. Based on the above, this sentiment analysis was created to find out tweets posted on X's timeline that contain positive and negative words towards the Indonesian State army and Police respectively. (Br Sinulingga, 2024).

In this research, the method used to classify the 2024 Indonesian State army and Police is Support Vector Machine (SVM). The SVM method is a method that is widely used for data classification, especially text data. One of the advantages is that it can be implemented relatively easily, because the process of determining the support vector can be formulated in a QP problem. Sentiment analysis and opinion mining are fields of study that analyze someone's opinions, someone's sentiments, someone's evaluation, someone's attitudes and someone's emotions into written language.

Issue Formulation, Based on the foundation over, the creator can plan an issue detailing as follows: How to order the sorts of opinion from individuals' tweets on X utilizing the SVM strategy? what's more, how to complete the SVM information testing process utilizing the tweepy library.

The accompanying targets are created: One method for figuring out the grouping of feeling examination in the balance of military police towards the 2024 political decision depends on general assessment in X and Executing the SVM strategy in characterizing feeling examination in the balance of military police towards the 2024 races in light of 2024 popular assessment in X.

In light of the exploration completed, the scientists got commitments from the examination did as follows: It is trusted that this exploration will get an opinion model that can pre-process unstructured tweet information so it can introduce a feeling to decide the reaction or perspectives on people in general, to figure out the general picture with respect to the public's evaluation of the Issue Formulation, Based on the foundation over, the creator can plan an issue detailing as follows: How to order the sorts of opinion from individuals' tweets on X utilizing the SVM strategy? what's more, how to complete the SVM information testing process utilizing the tweepy library in the 2024 political race. The scientist trusts that this examination can give a commitment to perusers as a suggestion to take a gander at the balance of the Indonesian State army and Police in view of tweets that have been grouped by the specialist utilizing the SVM technique.

LITERATURE REVIEW

In this section the creator will make sense of the writing audit and examine the essential hypotheses, as well as talk about the depiction of the exploration idea as per the writer's title. The essential hypotheses that will be examined are as per the following:

X

X is an online entertainment microblogging website that permits clients to post 140-character tweets called tweets. X is developing quickly and acquiring prominence all through the world as of January 2013. There are in excess of 500 million enlisted clients, of which 200 million are dynamic clients.

Data Mining

Information Mining is an interaction that utilizes at least one PC learning methods (AI) to dissect and extricate information (information) consequently. Information mining is an iterative and intelligent cycle to introduce new examples or models that are great, valuable and justifiable in an extremely huge data set (enormous data set). Information digging comprises of looking for wanted leases or examples in huge data sets to assist with pursuing choices later on. These examples are perceived by specific apparatuses which can give valuable and adroit information examination which can then be concentrated on more completely, potentially utilizing other choice help instruments (Syakuro, 2017).

Text Mining

Message mining is the most common way of mining information as message where the information source is normally gotten from records and the point is to search for words that can address the items in the archive so examination can be completed in association between the reports (Syakuro, 2017). The primary objective of text mining is to get helpful data from the handled information. The issues looked by text mining are a lot of information, high aspects, changing information and clamor, yet what separates text mining and information mining is information where information mining utilizes organized information, while text mining utilizes unstructured or semi-organized information so it is a test in dealing with text mining in light of the fact that the text structure isn't perplexing and off base.

Support vector machine

Support vector machine (SVM) was presented by Vapnik in 1992 as a proficient grouping procedure for nonlinear issues. SVM is otherwise called the most exceptional AI strategy after the past AI known as Brain Organization (NN). SVM is a technique for making expectations, both on account of order and relapse. SVM has the fundamental rule of a straight classifier, in particular order cases that can be directly isolated, however SVM has been grown so it can take care of on non-straight issues by consolidating the idea of portions in high-layered work areas. The piece capability is utilized to plan the underlying aspect (lower aspect) of an informational collection to another aspect (generally higher aspect) (Amaliyyah, 2021).

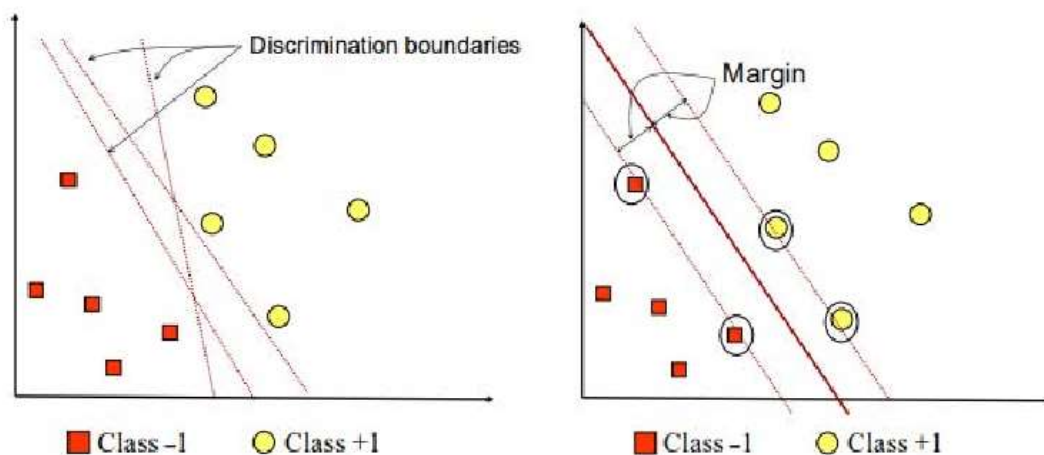


Fig. 1 SVM process in finding hyperline

Source: 2018 International Conference on Information and Communications Technology (ICOIACT)

The accessible information is meant by $x \in R^d$, while the related name is signified by $y_i \in \{-1 + 1\}$ for $i = 1, 2, \dots, l$, where l is how much information. It is expected that the two classes - 1 and +1 can be totally isolated by a hyperplane of indicated aspect d . It is expected that the two classes -1 and +1 can be totally isolated by a d -layered hyperline, which is characterized:

$$w \cdot x + b = 0 \dots \dots \dots (1)$$

Design x_i has class - 1 (negative example) and can be planned as an example that fulfills the imbalance:

*name of corresponding author



This is anCreative Commons License This work is licensed under a Creative Commons Attribution-NonCommercial 4.0 International License.

$$w \cdot x + b = -1 \dots\dots\dots(2)$$

In the mean time, the examples remembered for class +1 (positive examples):

$$w \cdot x + b = +1 \dots\dots\dots(3)$$

The biggest edge can be found by boosting the distance esteem between the hyperline and the closest point, specifically $1/\|w\|$. This can be formulated as a quadratic programming problem (QP), namely finding the minimum point of equality with the equality constraints:

$$\min \tau(w) \frac{1}{2} \|w\|^2 \dots\dots\dots(4)$$

$$y_i(x_i \cdot w + b) - 1 \geq 0 \dots\dots\dots(5)$$

This problem can be solved with various computing techniques, including the Langrange Multiplier.

Classification

The model is utilized to present/group/anticipate different information objects to realize which class the information object has a place with in the model that has been put away. At this stage, the information is tried to decide the degree of exactness of the subsequent model. In the event that the degree of exactness acquired relates to the predetermined worth, the model can be utilized to characterize new information records that have never been tried. A characterization calculation will fabricate a grouping model by investigating preparing information. The learning stage can likewise be viewed as the capability development or planning stage = $f(x)$, where y is the class of forecast results and x is the record whose class you need to anticipate.

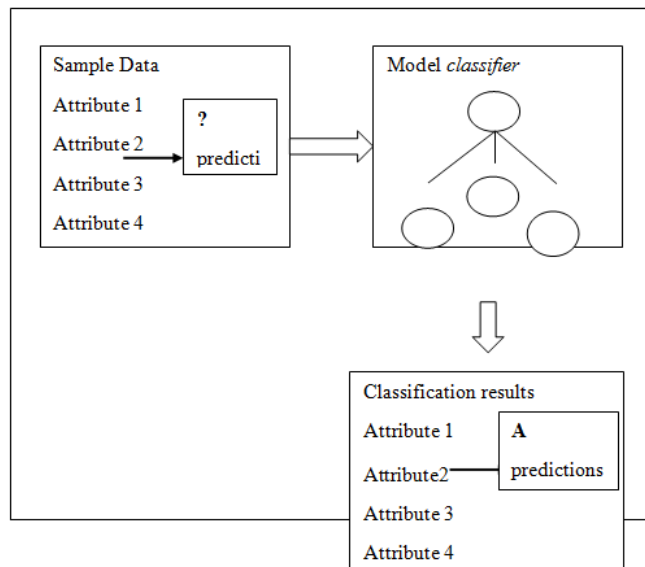


Fig. 2 Classification Process
Source: Dataedo Blog

Evaluation

This assessment capabilities to gauge exactness values utilizing K-overlap cross approval Wong and Yeh 2020 in (Hasibuan and Serdano, 2022). The assessment interaction utilizes a disarray framework. This assessment interaction capabilities to see the exhibition of the grouping model that has been handled and decide its precision.

Table 1. Confusion Matrix

		Prediction		amount
		(negative)	(positive)	
Example	(negative)	P	Q	p+q
	(positive)	U	V	u+v
	Tal	p+u	q+v	M

*name of corresponding author



This is anCreative Commons License This work is licensed under a Creative Commons Attribution-NonCommercial 4.0 International License.

p is the quantity of right expectations that the case is negative (tn).
q is the quantity of mistaken forecasts that the occasion is positive (fn).
u is the quantity of mistaken forecasts that the occasion is negative (fp).
v is the quantity of right expectations that the case is positive (tp).

Google Collab

Collaboratory, or "Colab" is a result of Google Exploration (Soen et al., 2022). Colab allows anybody to compose and execute inconsistent Python code through a program, and is ideally suited for AI, information investigation, and schooling. All the more in fact, Colab is a facilitated Jupyter scratch pad administration that can be utilized without arrangement, and gives free admittance to processing assets including GPU.

METHOD

An exploration area is where a specialist completes research, particularly in catching peculiarities or examination that really happens at the examination area to get precise and genuine examination information. This examination area took information from As per the subject raised by the specialist. In leading exploration, the stages utilized are the examination structure. This was finished to sort out the examination stages. The technique of this examination is quantitative. Research that tests hypothesis by taking a gander at the connection between factors is called quantitative exploration.

Planning

This examination cycle starts with arranging, in particular deciding the points that will be talked about. The subject of this examination is the execution of message mining in the examination of feeling balance of military police towards the 2024 political decision in X utilizing the Help vector machine algorithm1. Tweet Information Collection, In this review, scientists utilized 800 tweet information. Where 400 information comes from the catchphrase TNI, in particular #TNI2024, 400 information comes from POLRI, specifically #POLRI2024.

1 clients in this library get authorization to get to utilizing the accessible Programming interface. This library uses the X Programming interface as search which can look for tweets that match the given catchphrases.

2. Writing Study, This procedure is done to uncover different speculations that are pertinent to the issue being explored as reference material in examining research results. The writing concentrate on exercises are completed by specialists by gathering library information, perusing and taking notes, and handling research materials.

3. Writing Study, The information assortment technique utilizing the library strategy is done by gathering diaries, contents and web destinations as library sources connected with composing material, particularly opinion investigation utilizing the help vector machine technique.

Information analysis, In this examination, information investigation is the accumulation of tweet information as an underlying cycle for information handling. This interaction is utilized to portray client X's tweets about the TNI and POLRI 2024. By showing the information, it will make it simpler to explore and gather the information.

Testing in this exploration was done to see the exactness esteem in deciding opinion towards the balance of the military and police feeling examination towards the 2024 decisions in Until it creates a network as a delegate of the genuine class and the anticipated class. The consequences of the preparation model utilizing new information that has not been prepared previously.

RESULT

Data analysis

This exploration expects to break down the lack of bias of TNI Polri feeling in the races on Twitter utilizing the Help Vector Machine (SVM) technique. Feeling information was gathered from Twitter during the pre-political race and post-political decision times of 2024. The information was handled utilizing the Python programming language and added up to 868 feelings. Where there are 477 opinions in the positive class and 391 feelings in the pessimistic class.

*name of corresponding author



This is an Creative Commons License This work is licensed under a Creative Commons Attribution-NonCommercial 4.0 International License.

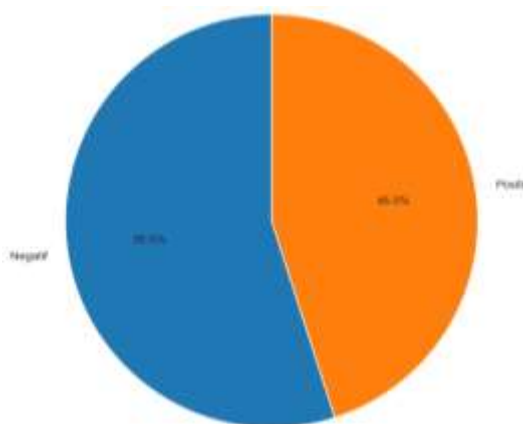


Fig 3 Distribution of sentiment data

Table 4. Example Dataset

No	Tweet
1.	Neutral Greetings @jokowi Precision Greetings @DivHumas_Polri Greetings Protecting @Puspen TNI How is Indonesia at the beginning of this year?
2.	Mr Kasad, when do you think the TNI Commander will order his staff in writing to be neutral in facing the elections?
3.	Neutral, neutral, bro, it's my turn to use the TNI loegeber's ear to use an RX King 97 exhaust, yatensi, 180.
4.	Hey @gibrantweet please teach your father that there are two categories of public officials: 1. Elected through the political process; 2. Appointed by his superiors. Those who are allowed to take political sides and campaign are limited to those who are selected, while those who are appointed: Civil servants, Minister of Police & The TNI must be neutral
5.	03: police 02: military 01: neutral
6.	The commander-in-chief stated that he was not neutral. Can the TNI Commander and National Police Chief not be neutral? Cc Sir @mohmahfudmd @Dennysiregar7 @islah_bahrawi @ferdinand_mpu @SoeTjenMarching
7.	The presidential candidates @aniesbaswedan @prabowo and @ganjarpranowo want to make a statement that together with ASN TNI and Polri they must be neutral. Don't force and direct it towards one presidential candidate. Perfect taste @tomlembong @Fahrihamzah @AdianNapitupull @AdianNapitupull
8.	We ORBA for the sake of Indonesia, in 2004 we supported @SBYudhoyono, in 2014 we supported @jokowi, in 2019 we supported @prabowo and in 2024 we supported @aniesbaswedan because we want the best President for Indonesia and its people. @Puspen TNI and @DivHumas Polri must be neutral and maintain harmony
9.	TNI POLRI is not neutral? I prefer the OKNUM narrative even though there are a lot of people involved and it involves the highest level to the lowest level, but it is a movement that they also understand that it is ILLEGAL or at least some of them understand that it is a SIN act. Then there will be a time when they will realize it.
10.	Apart from the TNI and ASN, it turns out that influencers and artists are also types of work that must be neutral. It seems that only netizens can choose and their choice is the right one.

*name of corresponding author



This is anCreative Commons License This work is licensed under a Creative Commons Attribution-NonCommercial 4.0 International License.

TF-IDF weighting

In the following stage, TF-IDF weighting. This method doles out a worth to each word, showing how significant it is in addressing the importance of the record. By understanding TF-IDF, we can distinguish fundamental watchwords and dive into the most profound importance of every text. Coming up next is an example estimation of TF values and DF values from 5 preparation information and 2 test dataTable 5 Case collapsing process test.

Table 5 Training Data Sample

TRAIN SENTIMENT	CLASS
['direct', 'police', 'free', 'safe', 'tni', 'police', 'priority']	Negative
['can', 'chaos', 'location', 'apparatus', 'belonging', 'sign']	Negative
['come', 'supervisor']	Positive
['check', 'bring', 'supervisor', 'disturb', 'police']	Positive
['go', 'tni', 'region']	Positive

After the TF (term recurrence) esteem is gotten, the subsequent stage is to track down the worth of the IDF. The following is an equation to decide the IDF worth of each word.:

$$IDF = \ln \left(\frac{D + 1}{df + 1} \right) + 1$$

With,

IDF: Opposite Record Recurrence

D : recurrence of words in D

df : many reports containing the inquiry term

Coming up next is an instance of applying the equation to the primary information

Then, the TF-IDF esteem is standardized to adjust the time frame information, the condition used to standardize the information is as per the following:

$$TF_{norm}(t, d) = \frac{TF(t, d)}{\sqrt{\sum_i (TF(t, d))^2}}$$

With,

d : d-th archive

t : the t-th expression of the watchword

TF: number of words in the archive being looked

Instances of applying this equation incorporate:

$$TF_{norm}(t, d) = \frac{TF(t,d)}{\sqrt{\sum_i (TF(t,d))^2}} = \frac{2.099}{\sqrt{(2.099)^2 + (1.693)^2 \dots + (2.099)^2}} = \frac{2.099}{\sqrt{103.98}} = 0.206$$

The following are the results of the data normalization calculations carried out.

*name of corresponding author



Table 6 Data Normalization

No.	D1	D2	D3	D4	D5
1	0.206	0	0	0	0
2	0.412	0	0	0	0
3	0.206	0	0	0	0
4	0.206	0	0	0	0
5	0.206	0	0	0	0
6	0	0.206	0	0	0
7	0	0.206	0	0	0
8	0	0.206	0	0	0
9	0	0.206	0	0	0
10	0	0.206	0	0	0
11	0	0.206	0	0	0
12	0	0	0.206	0	0
13	0	0	0	0.206	0
14	0	0	0	0.206	0
15	0	0	0.166	0.166	0
16	0	0	0	0.206	0
17	0	0	0	0.206	0
18	0	0	0	0	0.206
19	0.166	0	0	0	0.166
20	0	0	0	0	0.206

Classification of Support Vector Machines

After the sentiment data is cleaned and structured, we move forward to the classification stage. In this stage, the Support Vector Machine (SVM) algorithm is like a teacher who will be trained to differentiate positive and negative sentiments in text.

Computing Kernels

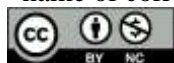
In the classification carried out, the type of kernel used is a linear kernel because the data entered is linear data. The following is the equation used to calculate the linear kernel value.

$$K(x,y) = x \cdot y$$

Table 7 Sample Representation

	x1	x2	x3	x4	x5
y1	K(x1,y1)	K(x2,y1)	K(x3,y1)	K(x4,y1)	K(x5,y1)

*name of corresponding author



This is an Creative Commons License This work is licensed under a Creative Commons Attribution-NonCommercial 4.0 International License.

y2	K(x1,y2)	K(x2,y2)	K(x3,y2)	K(x4,y2)	K(x5,y2)
y3	K(x1,y3)	K(x2,y3)	K(x3,y3)	K(x4,y3)	K(x5,y3)
y4	K(x1,y4)	K(x2,y4)	K(x3,y4)	K(x4,y4)	K(x5,y4)
y5	K(x1,y5)	K(x2,y5)	K(x3,y5)	K(x4,y5)	K(x5,y5)

Table 8 Linear Kernel Calculation

No.	1	2	3	..	18	19	20
1	0.042	0.085	0.042	..	0	0.034	0
2	0.085	0.169	0.085	..	0	0.068	0
3	0.042	0.085	0.042	..	0	0.034	0
4	0.042	0.085	0.042	..	0	0.034	0
5	0.042	0.085	0.042	..	0	0.034	0

Sequential Training SVM

The next step after calculating the Hessian matrix values is to carry out sequential training calculations using following equation.

$$E_i \sum_{j=1}^n \alpha_j D_{ij}$$

Information :

E = error value

α_j = jth alpha

D_{ij} = Hessian matrix

After the calculation process described previously, calculations are carried out to find the support vector for each document. From the latest α value. The largest value is taken from each class. The next step is to calculate the kernel function for each class using the highest α value in each class. Manual calculations for $K(x_i, x^+)$ are obtained based on the largest α value of the positive class, namely 0.259225, while the value of $K(x_i, x^-)$ is obtained based on the largest α value, namely 0.343225. Based on these values, it can be seen from the 11th and 10th columns of the Hessian matrix. So the kernel values for each class will be obtained as follows.

$$\begin{aligned} K(x_i, x^+) &= \sum \alpha_i y_i D_i \\ &= (0.2579 * 1 * 0.25) + (0.2555 * 1 * 0.25) + (0.2579 * 1 * 0.25) + (0.25695 * 1 * 0.25) + \\ &\quad (0.25695 * 1 * 0.25) + (0.25669 * 1 * 0.25) + (0.25695 * 1 * 0.25) + (0.25695 * 1 * 0.25) \\ &\quad + (0.25837 * 1 * 0.25) + (0.34323 * -1 * -0.292) + (0.25923 * 1 * 0.292) + (0.25923 * 1 \\ &\quad * 0.292) + (0.25923 * 1 * 0.292) + (0.34323 * -1 * -0.292) + (0.34323 * -1 * -0.292) + \\ &\quad (0.25599 * 1 * 0.25) + (0.25599 * 1 * 0.25) + (0.25599 * 1 * 0.25) + (0.25274 * 1 * 0.25) \\ &\quad + (0.25599 * 1 * 0.25) \\ &= 1.425463 \end{aligned}$$

$$\begin{aligned} K(x_i, x^-) &= \sum \alpha_i y_i D_i \\ &= (0.2579 * 1 * -0.25) + (0.2555 * 1 * -0.25) + (0.2579 * 1 * -0.25) + (0.25695 * 1 * -0.25) + \\ &\quad (0.25695 * 1 * -0.25) + (0.25669 * 1 * -0.25) + (0.25695 * 1 * -0.25) + (0.25695 * 1 * - \\ &\quad 0.25) + (0.25837 * 1 * -0.25) + (0.34323 * -1 * 0.292) + (0.25923 * 1 * -0.292) + (0.25923 \\ &\quad * 1 * -0.292) + (0.25923 * 1 * -0.292) + (0.34323 * -1 * 0.292) + (0.34323 * -1 * 0.292) \\ &\quad + (0.25599 * 1 * -0.25) + (0.25599 * 1 * -0.25) + (0.25599 * 1 * -0.25) + (0.25274 * 1 * - \end{aligned}$$

*name of corresponding author



This is an Creative Commons License This work is licensed under a Creative Commons Attribution-NonCommercial 4.0 International License.

$$0.25) + (0.25599 * 1 * -0.25) \\ = -1.42546$$

Table 9 Valuesix-andx+

x^+	x^-
1.425463	1.42546

Next, kernel calculations are carried out from each test data with the previous training data. Following are the results of kernel calculations for training data on test data.

Table 10 Kernel Calculation Results for Training Data on Test Data

Number.	appear	problem	check	come	supervisor	bring	come	dark	global	priority	lost
	0.055	0.055	0.083	0.083	0.067	0.055	0.055	0.055	0.055	0.055	0.055
2	0.089	0.089	0.133	0.133	0.108	0.089	0.089	0.089	0.089	0.089	0.089
3	0.055	0.055	0.083	0.083	0.067	0.055	0.055	0.055	0.055	0.055	0.055
4	0.055	0.055	0.083	0.083	0.067	0.055	0.055	0.055	0.055	0.055	0.055
5	0.055	0.055	0.083	0.083	0.067	0.055	0.055	0.055	0.055	0.055	0.055
6	0.089	0.089	0.133	0.133	0.108	0.089	0.089	0.089	0.089	0.089	0.089
7	0.055	0.055	0.083	0.083	0.067	1	0.055	0.055	0.055	0.055	0.055
8	0.055	0.055	0.083	0.083	0.067	0.055	0.055	0.055	0.055	0.055	0.055
9	0.055	0.055	0.083	0.083	0.067	0.055	0.055	0.055	0.055	0.055	0.055
10	0.055	0.055	0.083	0.083	0.067	0.055	0.055	0.055	0.055	0.055	0.055
11	0.055	0.055	0.083	0.083	0.067	0.055	0.055	0.055	0.055	0.055	0.055
12	0.055	0.055	0.083	0.083	0.067	0.055	0.055	0.055	0.055	0.055	0.055
13	0.055	0.055	0.083	0.083	0.067	0.055	0.055	0.055	0.055	0.055	0.055
14	0.055	0.055	0.083	0.083	0.067	0.055	0.055	0.055	0.055	0.055	0.055
15	0.055	0.055	0.083	0.083	0.067	0.055	0.055	0.055	0.055	0.055	0.055
16	0.055	0.055	0.083	0.083	0.067	0.055	0.055	0.055	0.055	0.055	0.055
17	0.055	0.055	0.083	0.083	0.067	0.055	0.055	0.055	0.055	0.055	0.055
18	0.055	0.055	0.083	0.083	0.067	0.055	0.055	0.055	0.055	0.055	0.055
19	0.11	0.11	0.165	0.165	0.134	0.11	0.11	0.11	0.11	0.11	0.11
20	0.055	0.055	0.083	0.083	0.067	0.055	0.055	0.055	0.055	0.055	0.055

DISCUSSIONS

Implementation of a Sentiment Analysis System

All stages of the analysis will be implemented into a system that aims to carry out sentiment analysis. The sentiment analysis process was carried out using Visual Studio Code and the Python programming language.

*name of corresponding author



This is anCreative Commons License This work is licensed under a Creative Commons Attribution-NonCommercial 4.0 International License.

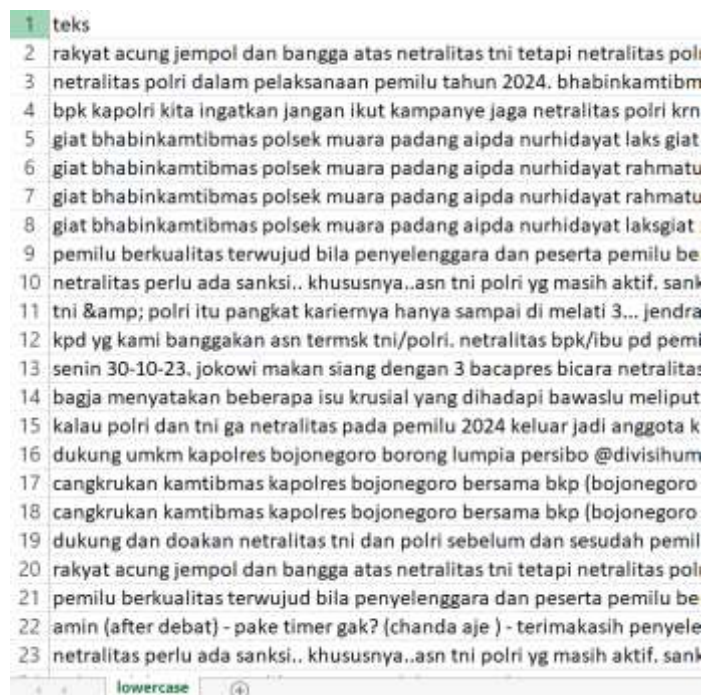


Fig 5 Case folding process

4.2.3 Evaluation of Results

After completing the testing process on the Support Vector Machine algorithm, the results will be obtained. Where the results in question are labels from test data obtained from the model during the training process. The results of the classification of test data in the form of sentiment classes obtained from the program will be compared with the actual class data so that the accuracy, precision, recall and f1-score values of the model used on the dataset will be known. After completing the testing process on the Support Vector Machine algorithm, the results will be obtained. Where the results in question are labels from test data obtained from the model during the training process. The results of the classification of test data in the form of sentiment classes obtained from the program will be compared with the actual class data so that the accuracy, precision, recall and f1-score values of the model used on the dataset will be known. To see the overall accuracy, precision, recall and F1-score values, you can use the confusion matrix.

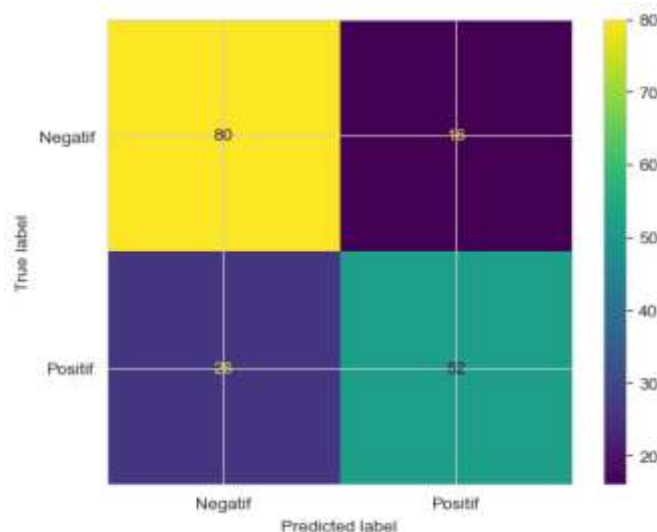


Fig 6 Confusion Matrix

*name of corresponding author



This is an Creative Commons License This work is licensed under a Creative Commons Attribution-NonCommercial 4.0 International License.

This research aims to build a sentiment analysis system that is able to classify public opinion on Twitter regarding the neutrality of the TNI and Polri in the election. The Support Vector Machine (SVM) algorithm was chosen as the sentiment data classification method. It is hoped that the results of this evaluation can provide a comprehensive picture of the public's perception on Twitter regarding the neutrality of the TNI Polri in the implementation of the Election. This information can be a valuable resource for various parties, such as the government, election organizers, civil society organizations and the mass media, in understanding public opinion and formulating appropriate policies regarding the neutrality of the TNI Polri and the smooth implementation of the Election.

CONCLUSION

Based on the final results of problem solving from the research, the author will outline several conclusions. The conclusions referred to include the following. It is known that of the 868 data obtained regarding sentiment, there were 391 reviews that were positive and 477 reviews that were negative. The results of sentiment classification regarding the neutrality of the TNI and Polri in the Election using the Support Vector Machine algorithm which corresponds to the actual data amounting to 132 data from a total of 174 test data. The accuracy value of sentiment classification regarding the neutrality of the TNI and Polri in the Election using the Support Vector Machine (SVM) algorithm obtained was 76%.

ACKNOWLEDGMENTS

Thank you to Dr. Tao Gao and Dr. Jian Wang from the Colleges of Information, Control Engineering, and Science at the China University of Petroleum for their great assistance.

REFERENCES

- Br Sinulingga, J. E., & Sitorus, H. C. K. (2024). Sentiment Analysis of Public Opinion towards Indonesian Horror Films Using SVM and TF-IDF Methods. *Journal of Information Management (JAMIKA)*, 14(1).
- Fahlevvi, M. R. (2022). Sentiment Analysis of Application Reviews Officials Managing Information and Documentation of the Ministry of Home Affairs of the Republic of Indonesia on Google Playstore Using the Support Vector Machine Method. *Journal of Government Technology and Communication*, 4(1), 1-13.
- Faisal, H., Febriandirza, A., & Hasan, F. N. (2024). Related Sentiment Analysis Reviews of the PLN Mobile Application Using the Support Vector Machine Method. 14(1).
- Furqan, M., Sriani, S., & Sari, S. M. (2022). Sentiment Analysis Using K-Nearest Neighbor Against the New Normal During Covid-19 in Indonesia. *Techno.Com*, 21(1),
- Hasibuan, M. S., & Serdano, A. (2022). Sentiment Analysis of Face-to-Face Learning Policies Using Support Vector Machine and Naive Bayes. *JRST (Journal of Science and Technology Research)*, 6(2),
- Karimah, A., & Dwiringan, G. (2024). SENTIMENT ANALYSIS OF ELECTRIC CAR VIDEO COMMENTS ON THE YOUTUBE PLATFORM USING THE NAIVE BAYES METHOD. In *Informatics Engineering Student Journal*. 8(1).
- Luqman, M. (2016). *Software Security in the Node.Js Programming Language for Web-Based Applications*. Bandung Institute of Technology.
- Santoso, G. T. (2021). Sentiment Analysis in Tweets with the hashtag #Bpjsrasarentenir Using the Support Vector Machine (SVM) Method.
- Soen, G. I. E., Marlina, & Renny. (2022). Implementation of Cloud Computing with Google Collaboratory in the Zoom Participants Data Processing Application. *Journal of Informatic Technology and Communication*, 6(1),