



SENTIMENT ANALYSIST

OF SOCIAL MEDIA REACTION TO INDONESIA'S
FREE MEAL PROGRAM



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FREE MEAL PROGRAM FOCUSES
ON PROVIDING PROPER
NUTRITION TO CHILDREN TO
IMPROVE THEIR LEARNING
ABILITIES AND CONCENTRATION
AT SCHOOL

PRABOWO - GIBRAN (PRESIDENT INDONESIA)



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BACKGROUND STUDY



The Indonesian government introduced the Free Meal Program as a way to improve the nutritional status of the poor and help communities cope with the economic crisis, but its success has been largely based on the acceptance of the Indonesian public. Although complex and unstructured, social media offers a wealth of information about public reactions in real-time. To overcome this difficulty and understand how the public perceives the Prabowo-Gibran administration's free meal program, a proper data analysis method is needed, which involves applying sentiment analysis to Twitter data. This knowledge is essential for policymakers to make an informed assessment of the program.

PROBLEM STATEMENT



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PUBLIC REACTION ON SOCIAL MEDIA

Public Reaction on Social Media regarding the Free Meal Program received various responses on social media (positive, negative, neutral)

CHALLENGES IN SENTIMENT ANALYSIS

Challenges in Processing Unique Indonesian Language and Noisy Data in Sentiment Analysis

LACK OF RESEARCH

Lack of research related to public policy evaluation in Indonesia using sentiment analysis

URGENCY OF DATA- BASED SOLUTIONS

Urgency of Data-Based Solutions Needed effective machine learning models to analyze public reactions.

RESEARCH QUESTIONS & OBJECTIVES

RESEARCH QUESTIONS

- What is the general sentiment of the public on Social Media towards the free meal program launched by the Prabowo-Gibran government?
- Is there a certain pattern in sentiment based on time or discussion theme?
- What factors influence positive and negative sentiment regarding this program?

ABOUT US
BENEFITS OF MEAL PREP
COMMON PREPS TOOLS
AND EQUIPMENT
PLANNING MEALS
CHOOSING RECIPES
BALANCED MEALS

RESEARCH OBJECTIVES

- To Gather Twitter information on the Free Meal program using Crawling methods.
- To Implement sentiment analysis to the gathered data in order to determine the public's perspective (positive, negative, or neutral).
- To Categorize the sentiment-related primary subjects of public discourse.
- To Present research to help policymakers and the government improve the caliber of social welfare initiatives.

SCOPE OF STUDY



01

Data Collection: The Prabowo-Gibran government's free meal program is the source of data used, which was collected via Twitter using certain keywords and hashtags

02

Sentiment Analysis Method: Naive Bayes Classifier, SVM, and KNN machine learning techniques were used in the analysis process.

03

Topic Modelling: To find important themes in the data, unsupervised learning techniques will be applied.

04

Time Frame: To understand the immediate response of the public, data analysis is limited to a specific time frame around the launch of the program. The data used is relevant to this program and comes from 2023 until 2025.

SENTIMENT ANALYSIS

Research that uses sentiment analysis to evaluate public policies and their impact on society.

MACHINE LEARNING TECHNIQUES

Research exploring novel machine learning methods and models for sentiment analysis.

MULTICULTURAL AND LOCAL

A study highlighting cultural and local aspects of Indonesia in sentiment analysis.

LITERATURE REVIEW



LITERATURE REVIEW



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Author	Research Title	Year	Research Focus	Machine Learning Methods
M. Monselise et al.	Topics and sentiments of public concerns regarding COVID-19 vaccines: Social media trend analysis	2021	Analysis of social media trends related to public sentiment towards vaccination	NLP, Klasifikasi Sentimen
A. Adak et al.	Sentiment analysis of customer reviews of food delivery services using deep learning and explainable AI	2022	Food delivery service customer review analysis using explainable AI	Deep Learning
S. Ainin et al.	Sentiment analysis of multilingual tweets on halal tourism	2020	Sentiment on halal tourism through multilingual tweet analysis	Random Forest, Naive Bayes
T.T. Nguyen et al.	Pride, love, and twitter rants: Combining machine learning and qualitative techniques	2019	Combination of machine learning and qualitative techniques for social media sentiment analysis	Sentiment Analysis with qualitative features

LITERATURE REVIEW



Author	Research Title	Year	Research Focus	Machine Learning Methods
Y. Tao et al.	Social media data-based sentiment analysis of tourists' air quality perceptions	2019	Sentiment analysis of air quality perception by tourists	Neural Networks
W. Wei et al.	Using tweets to support disaster planning, warning and response	2016	Tweet analysis to support disaster planning	Logistic Regression, Support Vector Machine
T. Kim et al.	Robots, AI, and service automation (RAISA) in hospitality: Sentiment analysis of YouTube streaming data	2022	Sentiment analysis of YouTube streaming data about RAISA	BERT, Contextual Analysis
Z. Rozaki	Sentiment analysis of multilingual tweets in halal tourism	2020	Multilingual tweet sentiment analysis to support halal tourism	NLP, Multilingual Sentiment Classifiers

LITERATURE REVIEW

RESEARCH GAP

- Lack of Sentiment Studies on Public Policy Programs in Indonesia
- Lack of Utilization of Social Media as a Source of Policy Evaluation Data
- Constraints of Indonesian Language Analysis in Sentiment Analysis
- Limitations of Machine Learning Models in Capturing Local Context

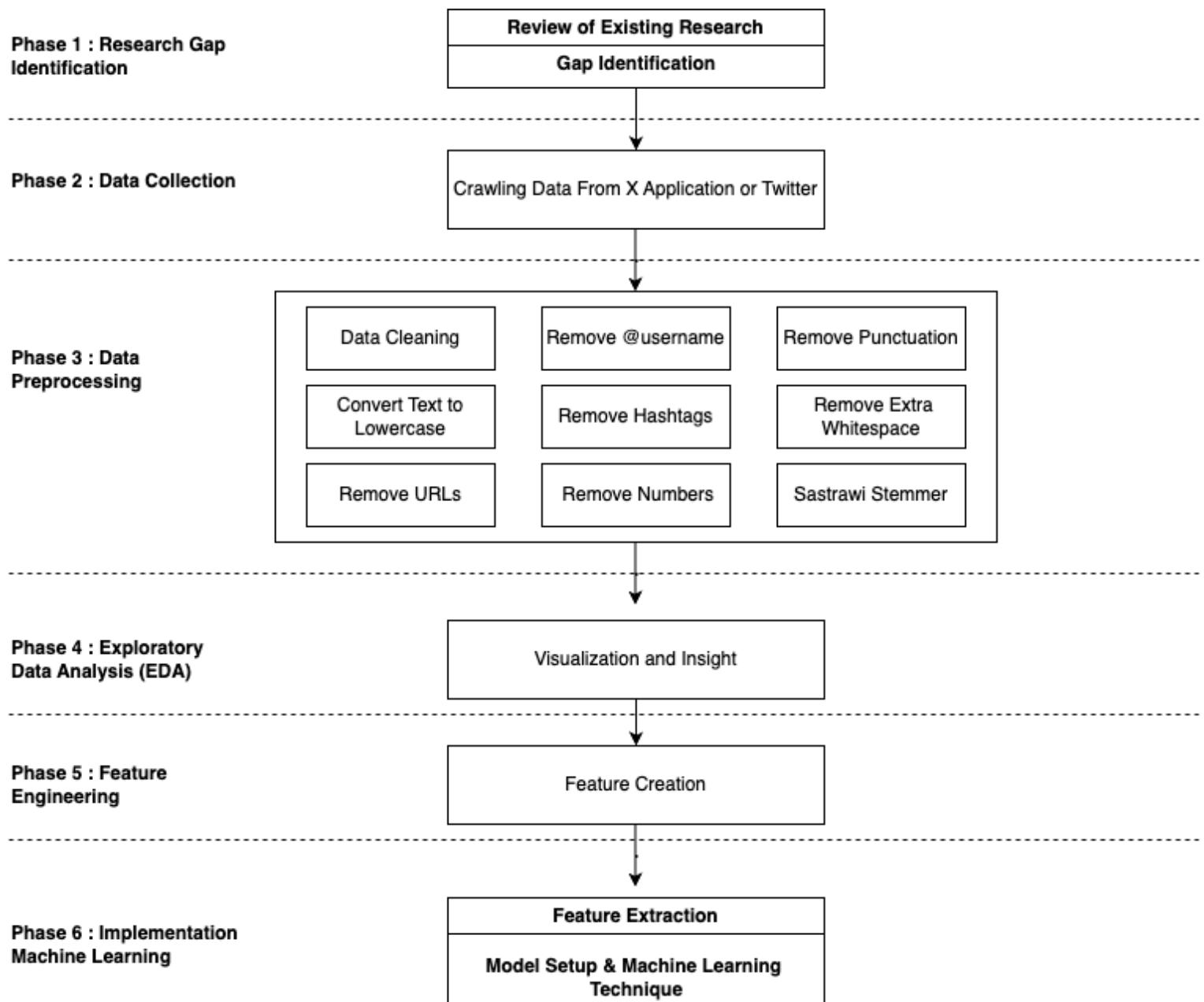
SOLUTIONS

- Developing a Specific Dataset on Free Meal Program in Indonesia that is Relevant and Up-to-Date from Social Media
- Implementation of Multidimensional Sentiment
- Implementation of Cleaning Techniques and Advanced Data Preprocessing
- Comparison of Machine Learning Methods for Sentiment Analysis
- Utilization of Data Visualization for Communication of Findings

RESEARCH METHODOLOGY



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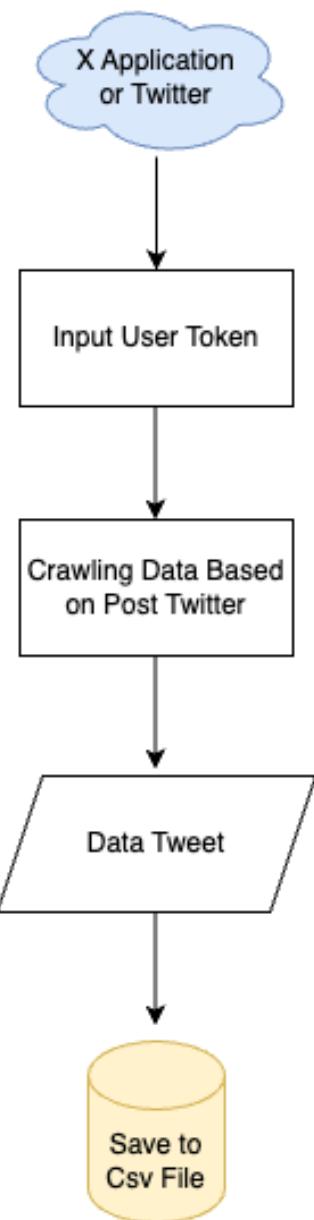
This research framework includes the following steps:

1. Problem Definition and Literature Review
2. Data Collection: Retrieve data from Twitter using specific keywords.
3. Data Pre-processing: Cleaning and preparing data for further analysis.
4. Feature Extraction: Applying stemming and vectorization techniques.
5. Sentiment Classification: Using machine learning models (KNN, Naive Bayes, and SVM).
6. Model Evaluation: Compares model performance using evaluation matrices.

DATA COLLECTION METHOD



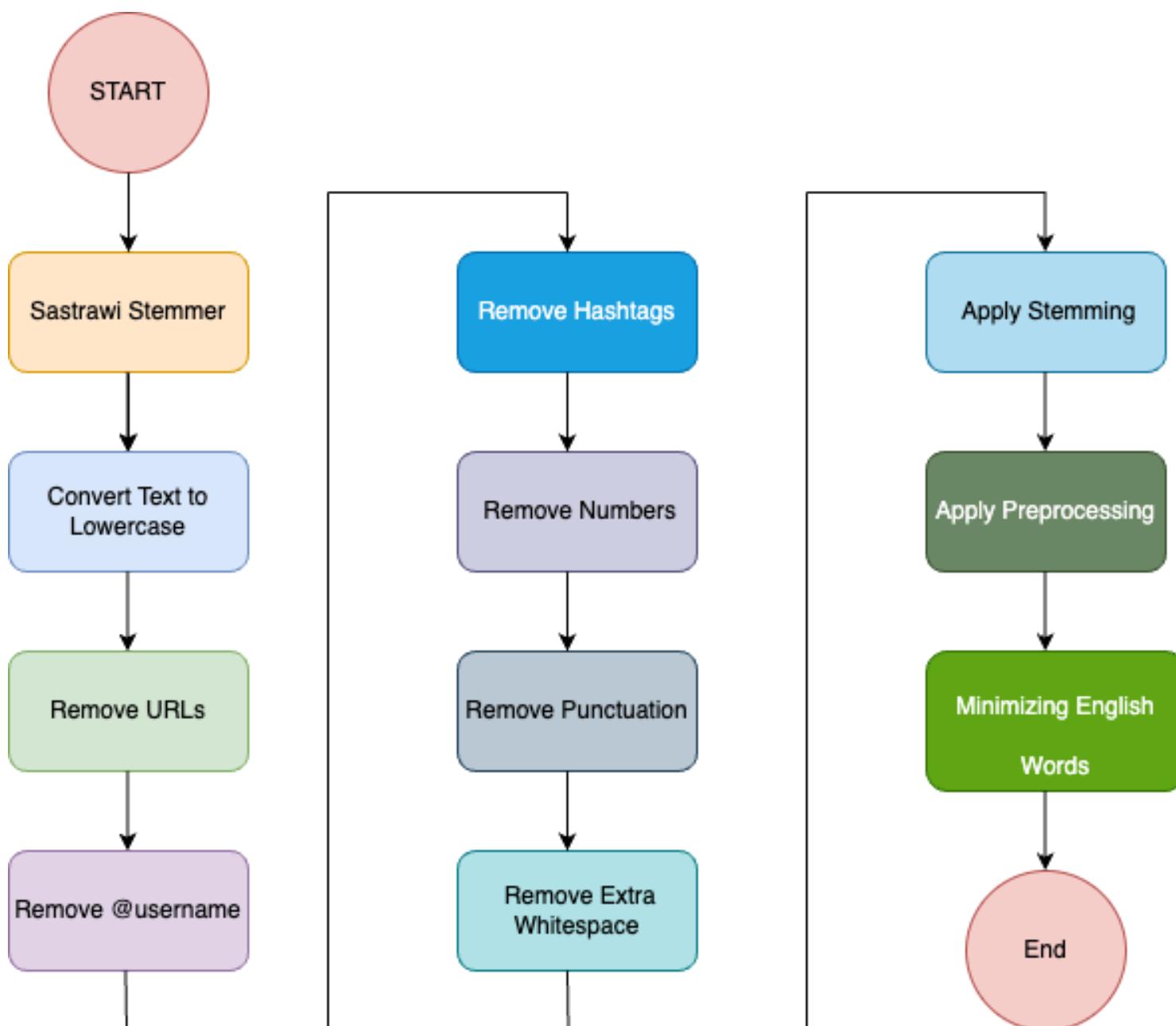
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The data collection process was carried out using the crawling method with the Python programming language to retrieve data from the social media application X (formerly known as Twitter). The data that was successfully obtained included various tweets related to the Free Meal Program which was the focus of the study

CRAWLING DATA PROCESS

DATA CLEANING PROCESS



Data cleaning is an important process in sentiment analysis, especially to ensure that the data used is clean, relevant, and can be processed well by the model

DATA CLEANING PROCESS

DESCRIPTIVE ANALYSIS



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Dataset Description, there are extreme values (outliers) in favorite_count, quote_count, reply_count, and retweet_count indicating that some tweets are very viral, which may be caused by content factors or accounts with many followers.

```
data.describe()
```

	conversation_id_str	favorite_count	id_str	quote_count	reply_count	retweet_count	user_id_str
count	2.916000e+03	2916.000000	2.916000e+03	2916.000000	2916.000000	2916.000000	2.916000e+03
mean	1.839460e+18	13.176269	1.839570e+18	1.172154	2.895405	3.250000	1.219714e+18
std	3.919510e+16	210.665196	3.919693e+16	30.272856	43.586168	61.184726	6.873334e+17
min	1.740213e+18	0.000000	1.740399e+18	0.000000	0.000000	0.000000	1.538445e+07
25%	1.843504e+18	0.000000	1.843553e+18	0.000000	0.000000	0.000000	8.646796e+17
50%	1.848229e+18	0.000000	1.848231e+18	0.000000	0.000000	0.000000	1.598136e+18
75%	1.862699e+18	0.000000	1.862782e+18	0.000000	0.000000	0.000000	1.696032e+18
max	1.877502e+18	8417.000000	1.877504e+18	1353.000000	1708.000000	2966.000000	1.865041e+18

INITIAL FINDING & RESULT



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Positive Reviews



Neutral Reviews

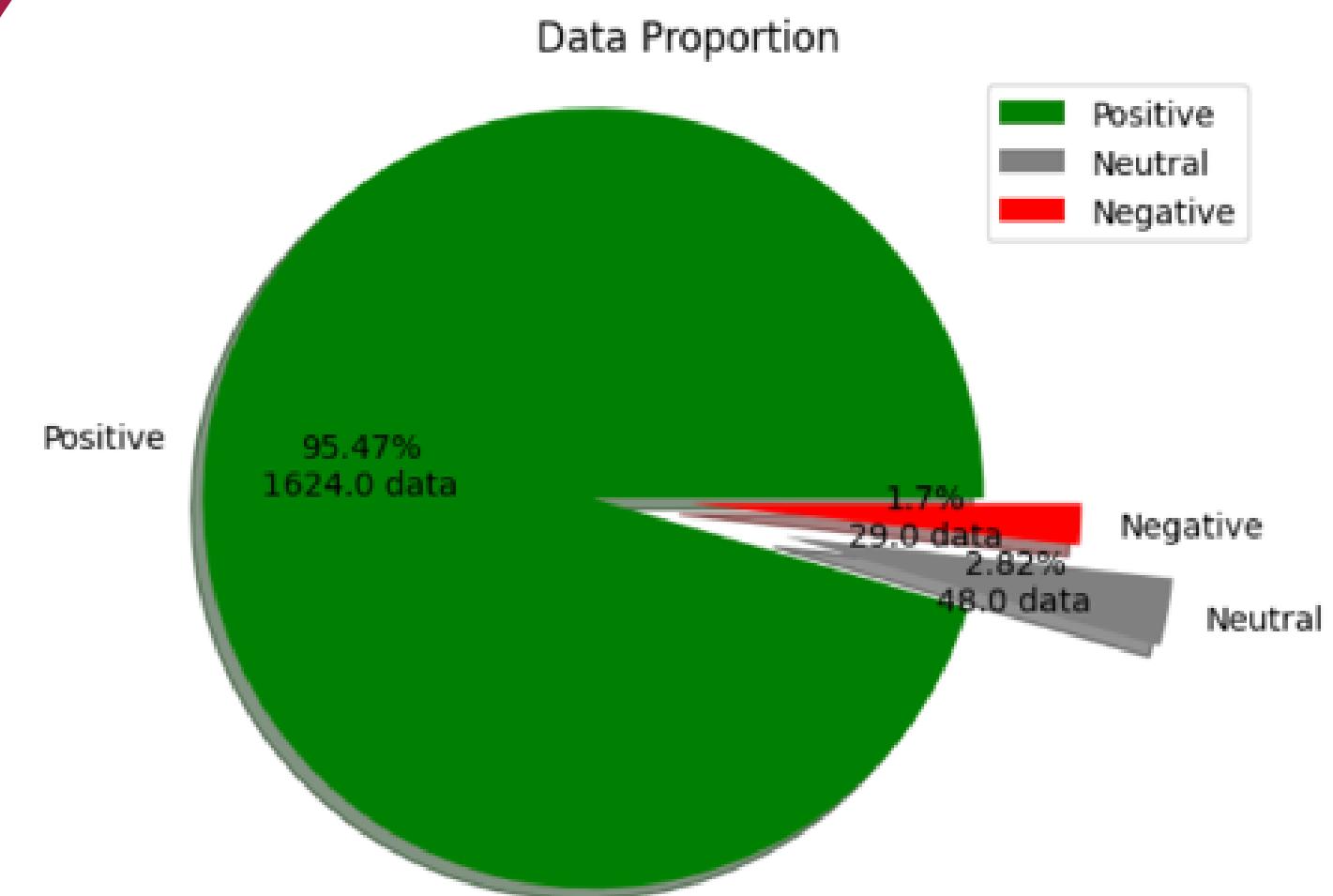


Negative Reviews



INITIAL FINDING & RESULT

With a total of 95.57% data or 1624 data. Then the neutral data is 2.82% and the least is data with negative sentiment which is only 1.7%. Thus, we can conclude that the results of the sentiment analysis related to the free meal program are positive and can be interpreted as meaning that the public agrees to the free meal program.



FEATURE EXTRACTION RESULT

```

import pandas as pd
from sklearn.feature_extraction.text import TfidfVectorizer
from sklearn.preprocessing import LabelEncoder

# Step 1: Take equal amounts of positive, negative and neutral data.
def balance_classes(data, text_col, label_col):
    min_class_count = data[label_col].value_counts().min() # Find the minimum number of each class
    balanced_df = data.groupby(label_col).apply(lambda x: x.sample(n=min_class_count, random_state=42)).reset_index(drop=True)
    return balanced_df

df_balanced = balance_classes(data, 'full_text', 'sentiment')
print("Balanced Data Size:", df_balanced['sentiment'].value_counts())

# Step 2: TF-IDF Feature Extraction
tfidf = TfidfVectorizer(max_features=5000) # Menggunakan maksimal 5000 fitur
X = tfidf.fit_transform(df_balanced['full_text']).toarray()

# Step 3: Encode Sentiment Labels
le = LabelEncoder()
y = le.fit_transform(df_balanced['sentiment'])

# Display hasil
print("TF-IDF Shape (Features):", X.shape)
print("Encoded Sentiments:", le.classes_)

Balanced Data Size: sentiment
negative    91
neutral     91
positive    91
Name: count, dtype: int64
TF-IDF Shape (Features): (273, 1736)
Encoded Sentiments: ['negative' 'neutral' 'positive']

```

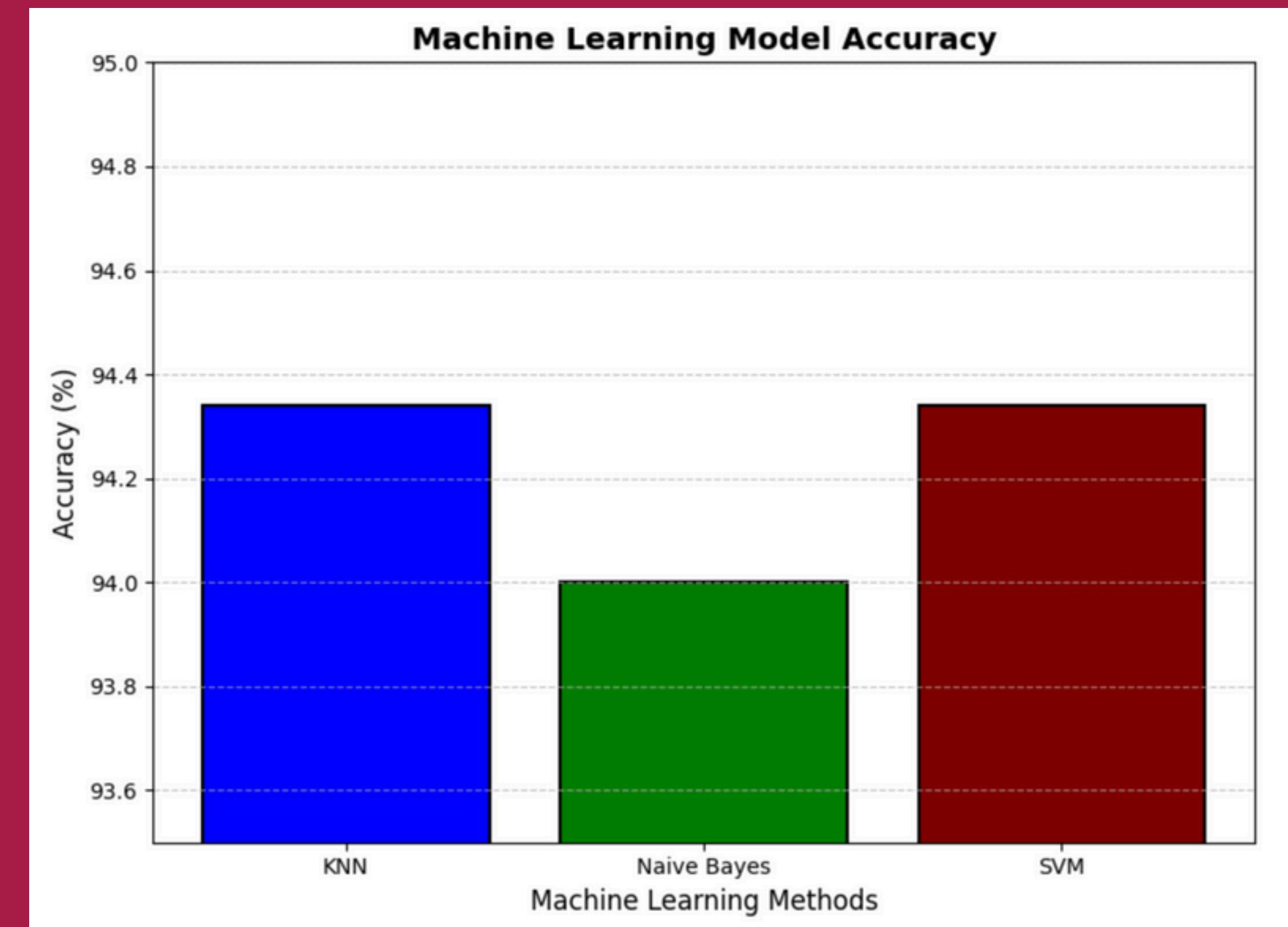
91 **Sample Positive**

91 **Sample Negative**

91 **Sample Neutral**

MACHINE LEARNING MODEL ACCURACY

After conducting several processes for sentiment analysis, model evaluation, and data testing with machine learning techniques, it was found that the sentiment obtained was positive with a total of 95.47% or 1624 data. And for the accuracy of the machine learning technique, KNN and SVM have the same high accuracy (94.35%) and are better than Naïve Bayes (94.00%) in predicting sentiment.





SUMMARY

01

DATA QUALITY IS CRUCIAL

Good data cleaning will play a big role in achieving better results after analysis.

02

APPROPRIATE MODEL SELECTION

KNN and SVM performed very well, so they are the primary choices for this case.

03

DOMINANTLY POSITIVE SENTIMENT

The Free Meal Program has received strong positive support from the public.

FUTURE WORK



Larger Data Volume

In the current project, the dataset used consists of only a few tweets from Twitter. This data can also be taken from other social media platforms such as Facebook, Instagram, or TikTok for a broader analysis to provide a broader view of public sentiment.



Using Deep Learning-Based Model

Traditional models were used in this work, but deep learning-based models using LSTM or Transformer—for example, BERT—will provide better accuracy by capturing complex contextual information from text in future approaches.



Clarity in Models

In data-driven decision making, interpretable models must be developed. Further research could be conducted to understand why the model makes certain predictions, making the results of the analysis more understandable to policy makers.



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- THANK YOU -