DAFTAR PUSTAKA

Alvianda, dkk. (2019). *Analisis Sentimen Konten Radikal Di Media Sosial Twitter Menggunakan Metode Support Vector Machine (SVM).*

Berry, M.W & Kogan, J. (2010). *Text Mining Aplication and Theory.* Wiley : United Kingdom.

Bhavitha, B.K., Rodrigues, A.P., & Chiplunkar, N. N. (2017). *Comparative Study of Machine learning Techniques in Sentimental Analysis.* In 2017 International Conference on Inventive Communication and Computational Technologies (ICICCT) (pp. 216-221). IEEE.

Chandani, dkk. (2015). *Komparasi Algoritma Klasifikasi Machine learning dan Feature Selection Pada Analisis Sentimen Review Film.* Journal of Inteligent System, 1(1), 55-60.

Dehhaf. (2010). *Sentiment Analysis, Hard But Worth It.* Available at: *http://customerthink.com/sentiment_ analysis_hard_but_worth_it/*

Feldman, R & Sanger.J. (2007). *The Text Mining Handbook : Advanced Approaches in Analyzing Unstructured Data.* Cambridge University Press : New York.

Fitriyah, dkk. (2020). *Analisis Sentimen Gojek Pada Media Sosial Twitter Dengan Klasifikasi Support Vector Machine (SVM).*

Han, J & Kamber, M. (2006). *Data Mining: Concepts and Techniques Second Edition*. Morgan Kaufmann publisher: San Fransisco

Huang, L & Bhayani, R. (2009). *Twitter Sentiment Analysis.* Final Project Report, Standford University, Department of Computer Science.

Kalaivani, P., & Shunmuganathan, K.L. (2013). *Sentiment Classification Of Movie Reviews by Supervised Machine learning Approaches.* Indian Journal of Computer Science and Engineering, 4(4), 285-292.

Liu. (2012). *Socialcube: A Text Cube Framework For Analyzing Social Media Data. in 2012 International Conference on Social Informatics, IEEE, Lausanne Switzerland.*

Nugroho, dkk. 2003. *Teori dan Aplikasinya dalam Bioinformatika.* Penerbit IlmuKomputer.Com

Pang, B., & Lee. (2004). *A Sentimental Education: Sentiment Analysis Using Subjectivity Summarization Based on Minimum Cuts.* In Proceedings of the 42nd annual meeting on Association for Computational Linguistics (p.271). Association for Computational Linguistics.

Rahutomo, dkk. (2018). *Implementasi Twitter Sentimen Analysis Untuk Review Film Menggunakan Algoritma Support Vector Machine.*

Rana, S., & Singh, A. (2016). *Comparative Analysis of Sentiment Orientation Using SVM and Naive Bayes Techniques.* In 2016 2nd International Conference on Next Generation Computing Technologies (NGCT) (pp.106-111). IEEE

Shivaprasad, T. K., & Shetty, J. (2017). *Sentiment Analysis of Product Reviews: A Review.* In 2017 International Conference on Inventive Communication and Computational Technologies (ICICCT) (pp-298-301). IEEE

Susanti. (2016). *Uji Perbandingan Akurasi Analisis Sentimen Pariwisata Menggunakan Algoritma Support Vector Machine dan Naive Bayes*.

Suyanto. (2017). *Data Mining Untuk Klasifikasi dan Klasterisasi Data*. Bandung: Informatika Bandung

Twitter. (2013). Penggunaan *Twitter*/ Fakta Perusahaan. *https://about.twitter.com/company*

https://id.wikipedia.org/wiki/Pandemi_COVID-19 (Diakses 31 Agustus 2020)

LAMPIRAN 1

HASIL PENGUJIAN

No	Tweet	Hasil Uji
1	habis bapaknya bahas tunjangan nakes bidan rumah sakit pemerintah daerah gajinya dikurangi akibat covid anggaran dialihkan apd apd dibatasi rumah sakit	Sentiment Positif
2	bergantian sentimen positif negatif menyambangi bursa negeri global tekanan covid fluktuasinya harga komoditas stimulus pemerintah katalis jaga indeks rentang 4 minggu sideways	Sentiment Positif
3	jujur beliau perihal covid 19 nih sekeluarga teman teman kesal pasalnya kebijakan menghambat penularan diprotes presiden gubernur daerah khusus kota dilanggar giliran kena pemerintah disalahkan	Sentiment Positif
4	berita sonora presiden joko widodo segan segan mengeluarkan peraturan pemerintah pengganti undang undang peraturan pemerintah pengganti undang undang mempermudah kinerja menteri merealisasikan program krisis akibat pandemi covid 19 via tribunnews	Sentiment Positif
5	pakai duit duit pemerintah mbak biayain pemerintah kema covid	Sentiment Positif
6	presiden joko widodo jokowi segan segan mengeluarkan peraturan pemerintah pengganti undang undang peraturan pemerintah pengganti undang undang mempermudah kinerja menteri merealisasikan program krisis akibat pandemi covid 19	Sentiment Positif
7	kompetisi liga 1 liga 2 liga 3 oktober 2020 memperhatikan ketentuan protokol kesehatan covid 19 ditetapkan pemerintah	Sentiment Positif

8	untungnya bilang kadrun ajak demo pakai baju putih duduk pojokan bawa nasi bungkus drun skill kadrun musim covid pemutusan hubungan kerja eksis dipecat kadrun kayak km iya job sepi demo dilarang pemerintah	Sentiment Negatif
9	lambene sok sarjana internet bebas bro orang berbicara apapun forum diskusi ilmiah jurusan teknik mesin iya karep2ku bro penanganan covid 19 pemerintah buruk logika mas	Sentiment Negatif
10	logika nya 1 kejadian wuhan pemerintah bergerak lambat menjemput warga negara indonesia wuhan 2 dunia menutup bandara menghambat penyebaran covid indonesia membayar buzzer pariwisata	Sentiment Negatif
11	presiden jokowi bertambahnya pasien covid 19 indikasi daerah keuntungan finansial ditetapkan pasien penyakit pasien covid 19 dana pemerintah mengucur deras kspgoid	Sentiment Positif
12	kolega hcm hanoi point utamanya pemerintah menganggap covid 19 serius diawal2 wuhan keseriusan ditularkan masyarakat kedai kopi buka dikirim fotonya	Sentiment Positif

LAMPIRAN 2

LISTING PROGRAM

```
# Downloading some useful nltk libraries

import nltk
nltk.download('punkt')
nltk.download('stopwords') # to tokenize words and remo
ve words <3


# Importing Libraries

import pandas as pd
import numpy  as np
import matplotlib.pyplot as plt
from matplotlib import style
style.use('ggplot')
import seaborn as sns
import re
from textblob import TextBlob
from wordcloud import WordCloud
from nltk.tokenize import word_tokenize
from nltk.stem import PorterStemmer
from nltk.corpus import stopwords
stop_words = set(stopwords.words('english'))
from sklearn.feature_extraction.text import CountVector
izer
from sklearn.model_selection import train_test_split
from sklearn.linear_model import LogisticRegression
from sklearn.metrics import accuracy_score,classificati
on_report,confusion_matrix,ConfusionMatrixDisplay
import warnings
warnings.filterwarnings('ignore')



dataset = pd.read_excel('datacovid.xlsx')
dataset.head()


dataset.info()   # getting info about the dataset
```

```
newdataset = dataset.drop(['date','time','username'],ax
is=1)
newdataset.head()



def textprocessing(text):
  text = text.lower()

  text = re.sub(r"https\S+|www\S+https\S+"," ",text,fla
gs=re.MULTILINE
  text = re.sub(r'\@w+|\#'," ",text)

ext = re.sub(r'[^\w\s]'," ",text)

 text_tokens = word_tokenize(text
  filtered_text = [w for w in text_tokens if not w in s
top_words]
  return " ".join(filtered_text)
```



```
newdataset.text = dataset['tweet'].apply(textprocessing
)

newdataset = newdataset.drop_duplicates('tweet')



stemmer = PorterStemmer()
def stemming(data):
  text = [stemmer.stem(word) for word in data]
  return data


newdataset['tweet'] = newdataset['tweet'].apply(lambda
x : stemming(x))

# getting polarity of the text

def polarity(text):
  return TextBlob(text).sentiment.polarity

# getting subjectivity of the text
```

```
def subjectivity(text):
  return TextBlob(text).sentiment.subjectivity

# creating a polarity column for the text
# creating a subjectivity column for the text

newdataset['polarity'] = newdataset['tweet'].apply(pola
rity)
newdataset['subjectivity'] = newdataset['tweet'].apply(
subjectivity)


# viewing updated dataset

newdataset.head()


# caluclating sentiment of the data using polarity valu
es

def sentiment(label):
  if label < 0 :
    return "Negative"
  elif label == 0 :
    return "Neutral"
  else :
    return "Positive"


newdataset['Sentiment'] = newdataset['polarity'].apply(
sentiment)     # applying Sentiment column to newdatase
t which analizes polarity values of the text


# viewing the dataset

newdataset.head()


# plotting the Sentiments in a bargraph

pic = plt.figure(figsize=(5,5))
sns.countplot(x='Sentiment',data=newdataset)


# plotting polarity and subjectivity
```

```
'''plt.figure(figsize=(5,5))

for i in range(0,newdataset.shape[0]):
  plt.scatter(newdataset['polarity'][i],newdataset['sub
jectivity'][i],color = 'blue')

plt.tile("Sentiment Analysis")
plt.xlabel("Polarity")
plt.ylabel("Subjectivity")
plt.show()'''


# viewing positive tweets

positive_tweets = newdataset[newdataset.Sentiment == "P
ositive"]
positive_tweets = positive_tweets.sort_values(['polarit
y'],ascending=False)
positive_tweets.head()


# viewing positive tweets in a wordcloud

Content = " ".join([word for word in positive_tweets['t
weet']])
plt.figure(figsize=(20,20),facecolor="None")
wordcloud = WordCloud(max_words=500,width=1500,height=1
000).generate(Content)
plt.imshow(wordcloud,interpolation="bilinear")
plt.axis("off")
plt.title("Frequent words in Positive Tweets")
plt.show()



# viewing negative tweets

negative_tweets = newdataset[newdataset.Sentiment == "N
egative"]
negative_tweets = negative_tweets.sort_values(['polarit
y'],ascending=False)
negative_tweets.head()


# viewing negative tweets in a wordcloud
```

```
Content = " ".join([word for word in negative_tweets['t
weet']])
plt.figure(figsize=(20,20),facecolor="None")
wordcloud = WordCloud(max_words=500,width=1500,height=1
000).generate(Content)
plt.imshow(wordcloud,interpolation="bilinear")
plt.axis("off")
plt.title("Frequent words in Negative Tweets")
plt.show()


# viewing neutral tweets

neutral_tweets = newdataset[newdataset.Sentiment == "Ne
utral"]
neutral_tweets = neutral_tweets.sort_values(['polarity'
],ascending=False)
neutral_tweets.head()


# viewing neutral tweets in a wordcloud

Content = " ".join([word for word in neutral_tweets['tw
eet']])
plt.figure(figsize=(20,20),facecolor="None")
wordcloud = WordCloud(max_words=500,width=1500,height=1
000).generate(Content)
plt.imshow(wordcloud,interpolation="bilinear")
plt.axis("off")
plt.title("Frequent words in Neutral Tweets")
plt.show()


# creating a  SVM Model

# for features in Support Vector Classification

vect = CountVectorizer(ngram_range=(1,2)).fit(newdatase
t['tweet'])


# creating feature names

feature_names = vect.get_feature_names()
print("Number of features are :",len(feature_names))
```

```
print("First 20 Features are :",feature_names[:20])


X = newdataset['tweet']
Y = newdataset['Sentiment']
X = vect.transform(X)


x_train , x_test , y_train ,y_test = train_test_split(X
,Y,test_size=0.1,random_state=20)

print("Size of x_train :",x_train.shape)
print("Size of y_train :",y_train.shape)
print("Size of x_test :",x_test.shape)
print("Size of y_test :",y_test.shape)


# implementing SupportVectorMachine using define Suppor
tVectorClassification function

from sklearn.svm import SVC
reg = SVC(kernel = 'linear', random_state = 0)
reg.fit(x_train,y_train)
y_pred = reg.predict(x_test)
y_acc  = accuracy_score(y_pred,y_test)
print("Test Accuracy : ",y_acc*100)

# Printing Confusion Matrix

print(confusion_matrix(y_test,y_pred))
print()
print(classification_report(y_test,y_pred))


# Another form of Confusion Matrix

style.use('classic')
cm = confusion_matrix(y_test,y_pred,labels=reg.classes_
)
display = ConfusionMatrixDisplay(confusion_matrix = cm,
display_labels=reg.classes_)
display.plot()
```

LAMPIRAN 3

DAFTAR RIWAYAT HIDUP

(*CURRICULUM VITAE*)

1. DATA PRIBADI

Nama	: Rafizah Aini
Nim	: 0701162014
Tempat, Tanggal Lahir	: Medan, 23 Juni 1998
Alamat	: Jl. Cirebon No.1 LK XXIV
Kel/Desa	: Belawan II
Kecamatan	: Medan Belawan
Kabupaten	: Kota Medan
Agama	: Islam
Status	: Belum Menikah
Nama Orang Tua	
Ayah	: Rahmadsyah Putra
Ibu	: Chadijah

2. DATA PENDIDIKAN

SD	: MIN Belawan
SMP	: SMP Hang Tuah 1 Belawan
SMA	: SMA Hang Tuah Belawan
Perguruan Tinggi	: Universitas Islam Negeri Sumatera Utara

LAMPIRAN 4

KARTU BIMBINGAN SKRIPSI

KARTU BIMBINGAN SKRIPSI

Semester Gasal/Genap Tahun Akademik ...../.....

Nama	: Rapizah Aini	Pembimbing I	: Dr. Mhd. Furqan, S.Si, M.Comp.Sc
NIM	: 0701162014	Pembimbing II	: Muhammad Ikhsan, ST. M.Kom
Prog. Studi	: Ilmu Komputer	SK Pembimbing	:
Judul Skripsi	: Analisis Sentimen Opini Masyarakat Indonesia Terhadap Pandemi Virus Corona (Covid-19) Di Media Sosial Twitter Menggunakan Metode Support Vector Machine		

PERT	PEMBIMBING I			PEMBIMBING II		
	Tgl.	Materi Bimbingan	Tanda Tangan	Tgl.	Materi Bimbingan	Tanda Tangan
I	23 Nov 2020	Bimbingan Bab I, II dan III		23 Nov 2020	Bimbingan BaB I, II, III	
II	7 Juni 2022	Revisi Bab II		2 Juni 2022	Revisi Penulisan	
III	13 Juni 2022	Revisi Bab III		14 Juni 2022	Revisi BaB II dan III	
IV	23 Juni 2022	Acc Seminar Proposal		23 Juni 2022	Acc Seminar Proposal	
V	12 Des 2022	Revisi Bab IV, dan V		19 Des 202.	Revisi Bab IV, dan V	

VI	16 Jan 2023	Revisi Bab IV		23 Jan 2023	Revisi Bab IV	
VII	30 Jan 2023	Revisi Program		25 Jan 2023	Revisi Program	
VIII	7 Feb 2023	Acc Sidang Munaqasyah		8 Feb 2023	Acc Sidang Munaqasyah	
IX						
X						

Medan, ... 2023
An. Dekan
Ketua Jurusan/Program Studi
Ilmu Komputer

Ilka ZUFRIA, M.Kom
NIP. 198506042015031006

Catatan: *Pada saat bimbingan, kartu ini harus diisi dan ditandatangani oleh pembimbing*