

```
In [1]: import nltk
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
from collections import Counter
from nltk.tokenize import word_tokenize
from nltk.corpus import stopwords
from tqdm.notebook import tqdm
from nltk.sentiment.vader import SentimentIntensityAnalyzer
```

```
In [2]: df =pd.read_csv('./LokSabha_Election_2024_Tweets.csv')
```

In [3]: df

Out[3]:

	link	text	date	No_of_likes	No_of_comments
0	https://twitter.com/Politics_2022_/status/1739...	South India 2024 Loksabha Opinion Poll 132 sea...	Dec 25, 2023 · 12:05 PM UTC	324	27
1	https://twitter.com/LokmatTimes_ngp/status/173...	Veteran actor Nana Patekar says, "There is no ...	Dec 25, 2023 · 1:00 PM UTC	0	0
2	https://twitter.com/Politics_2022_/status/1739...	South India BJP 2019 Loksabha Karnataka 25 Tel...	Dec 25, 2023 · 12:21 PM UTC	142	18
3	https://twitter.com/rohanayak/status/173926994...	Issh baar 357 seats in Loksabha election.	Dec 25, 2023 · 1:00 PM UTC	0	0
4	https://twitter.com/BellamSwathi/status/173919...	Total number of times MMS won his own lok sabh...	Dec 25, 2023 · 8:19 AM UTC	589	80
...
995	https://twitter.com/navaneethreddym/status/173...	He will make sure Congress puts a dummy candid...	Dec 25, 2023 · 3:03 AM UTC	4	1
996	https://twitter.com/amitdubey1236/status/17391...	This ll reverse, because TMC is facing huge an...	Dec 25, 2023 · 3:03 AM UTC	1	0
997	https://twitter.com/hm5566859611444/status/173...	Sabseh kathin yatra I.N.D.I. ALLIANCE meh Akhi...	Dec 25, 2023 · 3:01 AM UTC	0	0
998	https://twitter.com/imvivekmahaR/status/173911...	Bhai tumhari inhi harkato ki vjh se Pilot saab...	Dec 25, 2023 · 3:00 AM UTC	0	0
999	https://twitter.com/letsspeak4india/status/173...	Very well said, when a leader couldnt win an e...	Dec 25, 2023 · 2:59 AM UTC	1	0

1000 rows × 5 columns

```
In [4]: df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 1000 entries, 0 to 999
Data columns (total 5 columns):
 #   Column              Non-Null Count  Dtype  
---  -
 0   link                1000 non-null   object 
 1   text                995 non-null    object 
 2   date                1000 non-null   object 
 3   No_of_likes         1000 non-null   int64  
 4   No_of_comments      1000 non-null   int64  
dtypes: int64(2), object(3)
memory usage: 39.2+ KB
```

```
In [5]: df.shape
```

```
Out[5]: (1000, 5)
```

```
In [6]: null_df = df[df['text'].isnull()]
remove_null_df = df['text'].isin(null_df['text'])
df.drop(df[remove_null_df].index,inplace=True)
print(null_df.shape)
print(df.shape)
```

```
(5, 5)
(995, 5)
```

```
In [7]: df = df.reset_index().rename(columns={'index': 'index'})
```

In [8]:

```
df
```

Out[8]:

	index	link	text	date	No_of_likes	No_of_comments
0	0	https://twitter.com/Politics_2022_/status/1739...	South India 2024 Loksabha Opinion Poll 132 sea...	Dec 25, 2023 . 12:05 PM UTC	324	27
1	1	https://twitter.com/LokmatTimes_ngp/status/173...	Veteran actor Nana Patekar says, "There is no ...	Dec 25, 2023 . 1:00 PM UTC	0	0
2	2	https://twitter.com/Politics_2022_/status/1739...	South India BJP 2019 Loksabha Karnataka 25 Tel...	Dec 25, 2023 . 12:21 PM UTC	142	18
3	3	https://twitter.com/rohanayak/status/173926994...	Issh baar 357 seats in Loksabha election.	Dec 25, 2023 . 1:00 PM UTC	0	0
4	4	https://twitter.com/BellamSwathi/status/173919...	Total number of times MMS won his own lok sabh...	Dec 25, 2023 . 8:19 AM UTC	589	80
...
990	995	https://twitter.com/navaneethreddym/status/173...	He will make sure Congress puts a dummy candid...	Dec 25, 2023 . 3:03 AM UTC	4	1
991	996	https://twitter.com/amitdubey1236/status/17391...	This ll reverse, because TMC is facing huge an...	Dec 25, 2023 . 3:03 AM UTC	1	0
992	997	https://twitter.com/hm5566859611444/status/173...	Sabseh kathin yatra I.N.D.I. ALLIANCE meh Akhi...	Dec 25, 2023 . 3:01 AM UTC	0	0
993	998	https://twitter.com/imvivekmahaR/status/173911...	Bhai tumhari inhi harkato ki vjh se Pilot saab...	Dec 25, 2023 . 3:00 AM UTC	0	0

	index	link	text	date	No_of_likes	No_of_comments
994	999	https://twitter.com/letsspeak4india/status/173...	Very well said, when a leader couldnt win an e...	Dec 25, 2023 2:59 AM UTC	1	0

995 rows × 6 columns

Polarity Of Elections 2024

VADER

```
In [9]: sia = SentimentIntensityAnalyzer()
```

```
In [10]: sia.polarity_scores('I am so happy!')
```

```
Out[10]: {'neg': 0.0, 'neu': 0.318, 'pos': 0.682, 'compound': 0.6468}
```

```
In [11]: sia.polarity_scores('This is the worst thing ever.')
```

```
Out[11]: {'neg': 0.451, 'neu': 0.549, 'pos': 0.0, 'compound': -0.6249}
```

Run the polarity score on the entire modi dataset

```
In [12]: res = {}
for i, row in tqdm(df.iterrows(), total=len(df)):
    text = row['text']
    myid = row['index']
    res[myid] = sia.polarity_scores(text)
```

100%

995/995 [00:00<00:00, 2730.46it/s]

In [13]: `print(res)`

```
s': 0.0, 'compound': -0.4767}, 434: {'neg': 0.164, 'neu': 0.713, 'pos': 0.123, 'compound': -0.3094}, 435: {'neg': 0.0, 'neu': 0.711, 'pos': 0.289, 'compound': 0.7579}, 436: {'neg': 0.0, 'neu': 0.942, 'pos': 0.058, 'compound': 0.0772}, 437: {'neg': 0.0, 'neu': 1.0, 'pos': 0.0, 'compound': 0.0}, 438: {'neg': 0.141, 'neu': 0.728, 'pos': 0.131, 'compound': -0.1523}, 439: {'neg': 0.0, 'neu': 1.0, 'pos': 0.0, 'compound': 0.0}, 440: {'neg': 0.0, 'neu': 0.795, 'pos': 0.205, 'compound': 0.7579}, 441: {'neg': 0.0, 'neu': 0.932, 'pos': 0.068, 'compound': 0.4019}, 442: {'neg': 0.0, 'neu': 1.0, 'pos': 0.0, 'compound': 0.0}, 443: {'neg': 0.0, 'neu': 1.0, 'pos': 0.0, 'compound': 0.0}, 444: {'neg': 0.047, 'neu': 0.797, 'pos': 0.155, 'compound': 0.6124}, 445: {'neg': 0.149, 'neu': 0.659, 'pos': 0.192, 'compound': 0.2303}, 446: {'neg': 0.0, 'neu': 1.0, 'pos': 0.0, 'compound': 0.0}, 447: {'neg': 0.0, 'neu': 1.0, 'pos': 0.0, 'compound': 0.0}, 448: {'neg': 0.0, 'neu': 1.0, 'pos': 0.0, 'compound': 0.0}, 449: {'neg': 0.0, 'neu': 0.784, 'pos': 0.216, 'compound': 0.9905}, 450: {'neg': 0.106, 'neu': 0.894, 'pos': 0.0, 'compound': -0.631}, 451: {'neg': 0.0, 'neu': 1.0, 'pos': 0.0, 'compound': 0.0}, 452: {'neg': 0.422, 'neu': 0.578, 'pos': 0.0, 'compound': -0.8074}, 453: {'neg': 0.0, 'neu': 0.735, 'pos': 0.265, 'compound': 0.8807}, 454: {'neg': 0.0, 'neu': 1.0, 'pos': 0.0, 'compound': 0.0}, 455: {'neg': 0.0, 'neu': 1.0, 'pos': 0.0, 'compound': 0.0}, 456: {'neg': 0.0, 'neu': 1.0, 'pos': 0.0, 'compound': 0.0}, 457: {'neg': 0.047, 'neu': 0.797, 'pos': 0.155, 'compound': 0.6124}, 458: {'neg': 0.0, 'neu': 0.841, 'pos': 0.159, 'compound': 0.6808}, 459: {'neg': 0.0, 'neu': 1.0, 'p
```

In [14]: `df_vader = pd.DataFrame(res).T
df_vader = df_vader.reset_index().rename(columns={'index': 'index'})
df_vader = df_vader.merge(df, how='left')`

```
In [15]: df_vader.head()
```

```
Out[15]:
```

	index	neg	neu	pos	compound	link	text	date	No_
0	0	0.000	0.934	0.066	0.5859	https://twitter.com/Politics_2022_/status/1739...	South India 2024 Loksabha Opinion Poll 132 sea...	Dec 25, 2023 12:05 PM UTC	.
1	1	0.060	0.765	0.175	0.6369	https://twitter.com/LokmatTimes_ngp/status/173...	Veteran actor Nana Patekar says, "There is no ...	Dec 25, 2023 1:00 PM UTC	.
2	2	0.028	0.884	0.087	0.6007	https://twitter.com/Politics_2022_/status/1739...	South India BJP 2019 Loksabha Karnataka 25 Tel...	Dec 25, 2023 12:21 PM UTC	.
3	3	0.000	1.000	0.000	0.0000	https://twitter.com/rohanayak/status/173926994...	Issh baar 357 seats in Loksabha election.	Dec 25, 2023 1:00 PM UTC	.
4	4	0.000	0.732	0.268	0.9429	https://twitter.com/BellamSwathi/status/173919...	Total number of times MMS won his own lok sabh...	Dec 25, 2023 8:19 AM UTC	.

People with natural Sentiment on Election

```
In [16]: # People with natural Sentiment in modi
df_vader['Label'] = np.where(df_vader['compound'] > 0, 'positive', 'negative')
df_vader['Label'][df_vader['compound'] == 0] = 'Neutral'
```

C:\Users\arnav\AppData\Local\Temp\ipykernel_23324\3275844561.py:3: SettingWithCopyWarning:

A value is trying to be set on a copy of a slice from a DataFrame

See the caveats in the documentation: https://pandas.pydata.org/pandas-docs/stable/user_guide/indexing.html#returning-a-view-versus-a-copy (https://pandas.pydata.org/pandas-docs/stable/user_guide/indexing.html#returning-a-view-versus-a-copy)

```
df_vader['Label'][df_vader['compound'] == 0] = 'Neutral'
```


In [17]: df_vader

Out[17]:

	index	neg	neu	pos	compound	link	text	date
0	0	0.000	0.934	0.066	0.5859	https://twitter.com/Politics_2022_/status/1739...	South India 2024 Loksabha Opinion Poll 132 sea...	Dec 25, 2023 . 12:05 PM UTC
1	1	0.060	0.765	0.175	0.6369	https://twitter.com/LokmatTimes_ngp/status/173...	Veteran actor Nana Patekar says, "There is no ...	Dec 25, 2023 . 1:00 PM UTC
2	2	0.028	0.884	0.087	0.6007	https://twitter.com/Politics_2022_/status/1739...	South India BJP 2019 Loksabha Karnataka 25 Tel...	Dec 25, 2023 . 12:21 PM UTC
3	3	0.000	1.000	0.000	0.0000	https://twitter.com/rohanayak/status/173926994...	Issh baar 357 seats in Loksabha election.	Dec 25, 2023 . 1:00 PM UTC
4	4	0.000	0.732	0.268	0.9429	https://twitter.com/BellamSwathi/status/173919...	Total number of times MMS won his own lok sabh...	Dec 25, 2023 . 8:19 AM UTC
...
990	995	0.000	0.850	0.150	0.3182	https://twitter.com/navaneethreddym/status/173...	He will make sure Congress puts a dummy candid...	Dec 25, 2023 . 3:03 AM UTC
991	996	0.000	0.868	0.132	0.7269	https://twitter.com/amitdubey1236/status/17391...	This ll reverse, because TMC is facing huge an...	Dec 25, 2023 . 3:03 AM UTC
992	997	0.039	0.961	0.000	-0.0772	https://twitter.com/hm5566859611444/status/173...	Sabseh kathin yatra I.N.D.I. ALLIANCE meh Akhi...	Dec 25, 2023 . 3:01 AM UTC

	index	neg	neu	pos	compound	link	text	date
993	998	0.000	1.000	0.000	0.0000	https://twitter.com/imvivekmahaR/status/173911...	Bhai tumhari inhi harkato ki vjh se Pilot saab...	Dec 25, 2023 . 3:00 AM UTC
994	999	0.104	0.807	0.089	-0.1727	https://twitter.com/letsspeak4india/status/173...	Very well said, when a leader couldnt win an e...	Dec 25, 2023 . 2:59 AM UTC

995 rows × 11 columns

```
In [18]: # neutral_df = df_vader[df_vader['compound']==0.0000]
# remove_neutral_df = df_vader['compound'].isin(neutral_df['compound'])
# df_vader.drop(df_vader[remove_neutral_df].index,inplace=True)
# print(neutral_df.shape)
# print(df_vader.shape)
```

Lower Case the Tweet

```
In [19]: df_vader['text'] = df['text'].str.lower()  
df_vader
```

Out[19]:

	index	neg	neu	pos	compound	link	text	date	N
0	0	0.000	0.934	0.066	0.5859	https://twitter.com/Politics_2022_/status/1739...	south india 2024 loksabha opinion poll 132 sea...	Dec 25, 2023 . 12:05 PM UTC	
1	1	0.060	0.765	0.175	0.6369	https://twitter.com/LokmatTimes_ngp/status/173...	veteran actor nana patekar says, "there is no ...	Dec 25, 2023 . 1:00 PM UTC	
2	2	0.028	0.884	0.087	0.6007	https://twitter.com/Politics_2022_/status/1739...	south india bjp 2019 loksabha karnataka 25 tel...	Dec 25, 2023 . 12:21 PM UTC	
3	3	0.000	1.000	0.000	0.0000	https://twitter.com/rohanayak/status/173926994...	issh baar 357 seats in loksabha election.	Dec 25, 2023 . 1:00 PM UTC	
4	4	0.000	0.732	0.268	0.9429	https://twitter.com/BellamSwathi/status/173919...	total number of times mms won his own lok sabh...	Dec 25, 2023 . 8:19 AM UTC	
...	
990	995	0.000	0.850	0.150	0.3182	https://twitter.com/navaneethreddym/status/173...	he will make sure congress puts a dummy candid...	Dec 25, 2023 . 3:03 AM UTC	
991	996	0.000	0.868	0.132	0.7269	https://twitter.com/amitdubey1236/status/17391...	this ll reverse, because tmc is facing huge an...	Dec 25, 2023 . 3:03 AM UTC	
992	997	0.039	0.961	0.000	-0.0772	https://twitter.com/hm5566859611444/status/173...	sabseh kathin yatra i.n.d.i. alliance meh akhi...	Dec 25, 2023 . 3:01 AM UTC	

	index	neg	neu	pos	compound	link	text	date	N
993	998	0.000	1.000	0.000	0.0000	https://twitter.com/imvivekmahaR/status/173911...	bhai tumhari inhi harkato ki vjh se pilot saab...	Dec 25, 2023 . 3:00 AM UTC	
994	999	0.104	0.807	0.089	-0.1727	https://twitter.com/letsspeak4india/status/173...	very well said, when a leader couldnt win an e...	Dec 25, 2023 . 2:59 AM UTC	

995 rows × 11 columns

Rmove Punctions

```
In [20]: import string
print(string.punctuation)

!"#$%&'()*+,-./:;<=>?@[\\]^_`{|}~
```

```
In [21]: df_vader['text'] = df_vader['text'].apply(lambda x: x.translate(str.maketrans('','',stri
df_vader.head()
```

Out[21]:

	index	neg	neu	pos	compound	link	text	date	No_
0	0	0.000	0.934	0.066	0.5859	https://twitter.com/Politics_2022_/status/1739...	south india 2024 loksabha opinion poll 132 sea...	Dec 25, 2023 12:05 PM UTC	.
1	1	0.060	0.765	0.175	0.6369	https://twitter.com/LokmatTimes_ngp/status/173...	veteran actor nana patekar says there is no al...	Dec 25, 2023 1:00 PM UTC	.
2	2	0.028	0.884	0.087	0.6007	https://twitter.com/Politics_2022_/status/1739...	south india bjp 2019 loksabha karnataka 25 tel...	Dec 25, 2023 12:21 PM UTC	.
3	3	0.000	1.000	0.000	0.0000	https://twitter.com/rohanayak/status/173926994...	issh baar 357 seats in loksabha election	Dec 25, 2023 1:00 PM UTC	.
4	4	0.000	0.732	0.268	0.9429	https://twitter.com/BellamSwathi/status/173919...	total number of times mms won his own lok sabh...	Dec 25, 2023 8:19 AM UTC	.

tokenising Tweet

```
In [22]: def textToToken(text):  
         return nltk.word_tokenize(text);  
  
df_vader['text_Tokens'] = df_vader['text'].apply(textToToken)  
df_vader.head()
```

Out[22]:

	index	neg	neu	pos	compound	link	text	date	No_
0	0	0.000	0.934	0.066	0.5859	https://twitter.com/Politics_2022_/status/1739...	south india 2024 loksabha opinion poll 132 sea...	Dec 25, 2023 . 12:05 PM UTC	
1	1	0.060	0.765	0.175	0.6369	https://twitter.com/LokmatTimes_ngp/status/173...	veteran actor nana patekar says there is no al...	Dec 25, 2023 . 1:00 PM UTC	
2	2	0.028	0.884	0.087	0.6007	https://twitter.com/Politics_2022_/status/1739...	south india bjp 2019 loksabha karnataka 25 tel...	Dec 25, 2023 . 12:21 PM UTC	
3	3	0.000	1.000	0.000	0.0000	https://twitter.com/rohanayak/status/173926994...	issh baar 357 seats in loksabha election	Dec 25, 2023 . 1:00 PM UTC	
4	4	0.000	0.732	0.268	0.9429	https://twitter.com/BellamSwathi/status/173919...	total number of times mms won his own lok sabh...	Dec 25, 2023 . 8:19 AM UTC	

Removing Stop Words in the modi and rahul dataframe in Tweet_Tokens column

```
In [23]: def stopToWords(tokenized_words):
          final_words = []
          for word in tokenized_words:
              if word not in stopwords.words('english'):
                  final_words.append(word)
          return final_words

df_vader['text_Tokens'] = df_vader['text_Tokens'].apply(stopToWords)
df_vader.head()
```

Out[23]:

	index	neg	neu	pos	compound	link	text	date	No_
0	0	0.000	0.934	0.066	0.5859	https://twitter.com/Politics_2022_/status/1739...	south india 2024 loksabha opinion poll 132 sea...	Dec 25, 2023 . 12:05 PM UTC	
1	1	0.060	0.765	0.175	0.6369	https://twitter.com/LokmatTimes_ngp/status/173...	veteran actor nana patekar says there is no al...	Dec 25, 2023 . 1:00 PM UTC	
2	2	0.028	0.884	0.087	0.6007	https://twitter.com/Politics_2022_/status/1739...	south india bjp 2019 loksabha karnataka 25 tel...	Dec 25, 2023 . 12:21 PM UTC	
3	3	0.000	1.000	0.000	0.0000	https://twitter.com/rohanayak/status/173926994...	issh baar 357 seats in loksabha election	Dec 25, 2023 . 1:00 PM UTC	
4	4	0.000	0.732	0.268	0.9429	https://twitter.com/BellamSwathi/status/173919...	total number of times mms won his own lok sabh...	Dec 25, 2023 . 8:19 AM UTC	

```
In [24]: def categorize_by_keywords(text):
        if 'bjp' in text or 'modi' in text or 'amit shah' in text or 'rajnath singh' in text:
            return 'bjp'
        elif 'congress' in text or 'rahul' in text or 'jairam ramesh' in text or 'priyanka g
            return 'congress'
        else:
            return 'other'

# Apply categorization function to create a new column
df_vader['category'] = df_vader['text'].apply(categorize_by_keywords)
df_vader
```

Out[24]:

	index	neg	neu	pos	compound	link	text	date	N
0	0	0.000	0.934	0.066	0.5859	https://twitter.com/Politics_2022_/status/1739...	south india 2024 loksabha opinion poll 132 sea...	Dec 25, 2023 . 12:05 PM UTC	
1	1	0.060	0.765	0.175	0.6369	https://twitter.com/LokmatTimes_ngp/status/173...	veteran actor nana patekar says there is no al...	Dec 25, 2023 . 1:00 PM UTC	
2	2	0.028	0.884	0.087	0.6007	https://twitter.com/Politics_2022_/status/1739...	south india bjp 2019 loksabha karnataka 25 tel...	Dec 25, 2023 . 12:21 PM UTC	
3	3	0.000	1.000	0.000	0.0000	https://twitter.com/rohanayak/status/173926994...	issh baar 357 seats in loksabha election	Dec 25, 2023 . 1:00 PM UTC	
4	4	0.000	0.732	0.268	0.9429	https://twitter.com/BellamSwathi/status/173919...	total number of times mms won his own lok sabh...	Dec 25, 2023 . 8:19 AM UTC	
...	
990	995	0.000	0.850	0.150	0.3182	https://twitter.com/navaneethreddym/status/173...	he will make sure congress puts a dummy candid...	Dec 25, 2023 . 3:03 AM UTC	
991	996	0.000	0.868	0.132	0.7269	https://twitter.com/amitdubey1236/status/17391...	this ll reverse because tmc is facing huge ant...	Dec 25, 2023 . 3:03 AM UTC	
992	997	0.039	0.961	0.000	-0.0772	https://twitter.com/hm5566859611444/status/173...	sabseh kathin yatra indi alliance meh akhilesh...	Dec 25, 2023 . 3:01 AM UTC	

	index	neg	neu	pos	compound	link	text	date	N
							bhai tumhari inhi harkato ki vjh se pilot saab...	Dec 25, 2023 . 3:00 AM UTC	
993	998	0.000	1.000	0.000	0.0000	https://twitter.com/imvivekmahaR/status/173911...			
							very well said when a leader couldnt win an el...	Dec 25, 2023 . 2:59 AM UTC	
994	999	0.104	0.807	0.089	-0.1727	https://twitter.com/letsspeak4india/status/173...			

995 rows × 13 columns

```
In [25]: print(df_vader[df_vader['category']=='other'].shape,
df_vader[df_vader['category']=='bjp'].shape,
df_vader[df_vader['category']=='congress'].shape)
```

(473, 13) (427, 13) (95, 13)

```
In [26]: df_vader_other = df_vader[df_vader['category']=='other']
df_vader_bjp = df_vader[df_vader['category']=='bjp']
df_vader_congress = df_vader[df_vader['category']=='congress']
```

In [27]: df_vader_other

Out[27]:

	index	neg	neu	pos	compound	link	text	date
3	3	0.000	1.000	0.000	0.0000	https://twitter.com/rohanayak/status/173926994...	issh baar 357 seats in loksabha election	Dec 25 2023 1:00 PM UTC
11	11	0.000	0.886	0.114	0.8111	https://twitter.com/Paul_Koshy/status/17391955...	thank you very much dear rajeevgowda sir for v...	Dec 25 2023 8:05 AM UTC
12	12	0.000	0.957	0.043	0.4019	https://twitter.com/PTI_News/status/1739173901...	video "when a speaker of the lok sabha is ele...	Dec 25 2023 6:39 AM UTC
13	13	0.085	0.813	0.102	-0.0258	https://twitter.com/PTI_News/status/1739181802...	video "if you don't want opposition at all th...	Dec 25 2023 7:10 AM UTC
14	14	0.192	0.808	0.000	-0.4753	https://twitter.com/MeghUpdates/status/1739146...	when your effort to make upcoming lok sabha el...	Dec 25 2023 4:48 AM UTC
...
970	975	0.000	1.000	0.000	0.0000	https://twitter.com/loksabhaspeaker/status/173...	बिहार से राज्य सभा सांसद डा फैयाज अहमद जी को ज...	Dec 25 2023 3:18 AM UTC
975	980	0.136	0.864	0.000	-0.4588	https://twitter.com/amitdubey1236/status/17391...	bsp ll give more tickets to muslim candidatesb...	Dec 25 2023 3:15 AM UTC
978	983	0.000	1.000	0.000	0.0000	https://twitter.com/PranaavSharma/status/17391...	are you still a lok sabha mp	Dec 25 2023 3:14 AM UTC

	index	neg	neu	pos	compound	link	text	date
							tactical retreats for strategic gains ... sanjay...	Dec 24 2023 8:24 AM UTC
986	991	0.000	0.802	0.198	0.6369	https://twitter.com/dehal_ranvir/status/173883...		
							this is india's lok sabha now mother of democr...	Dec 22 2023 10:49 AM UTC
987	992	0.000	1.000	0.000	0.0000	https://twitter.com/DearthOfSid/status/1738149...		

473 rows × 13 columns

In [28]: df_vader_bjp

Out[28]:

	index	neg	neu	pos	compound	link	text	date
0	0	0.000	0.934	0.066	0.5859	https://twitter.com/Politics_2022_/status/1739...	south india 2024 loksabha opinion poll 132 sea...	Dec 25, 2023 . 12:05 PM UTC
1	1	0.060	0.765	0.175	0.6369	https://twitter.com/LokmatTimes_ngp/status/173...	veteran actor nana patekar says there is no al...	Dec 25, 2023 . 1:00 PM UTC
2	2	0.028	0.884	0.087	0.6007	https://twitter.com/Politics_2022_/status/1739...	south india bjp 2019 loksabha karnataka 25 tel...	Dec 25, 2023 . 12:21 PM UTC
4	4	0.000	0.732	0.268	0.9429	https://twitter.com/BellamSwathi/status/173919...	total number of times mms won his own lok sabh...	Dec 25, 2023 . 8:19 AM UTC
5	5	0.000	0.744	0.256	0.7845	https://twitter.com/sreeramjvc/status/17392244...	let's deliver tenkasi lok sabha seat to streng...	Dec 25, 2023 . 10:00 AM UTC
...
984	989	0.091	0.742	0.167	0.6705	https://twitter.com/amitdubey1236/status/17391...	this is again a wrong prediction nda is set to...	Dec 25, 2023 . 3:09 AM UTC
985	990	0.146	0.854	0.000	-0.3400	https://twitter.com/NMukherjee6/status/1738765...	baune duryodhan lok sabha mp ramesh bidhuri ra...	Dec 24, 2023 . 3:36 AM UTC
989	994	0.000	0.789	0.211	0.6839	https://twitter.com/M0NUSu007/status/173714274...	🚩 no 🚩 who loves indian army IN never pass witho...	Dec 19, 2023 . 4:07 PM UTC

	index	neg	neu	pos	compound	link	text	date
							this ll reverse because tmc is facing huge ant...	Dec 25, 2023 . 3:03 AM UTC
991	996	0.000	0.868	0.132	0.7269	https://twitter.com/amitdubey1236/status/17391...		
							bhai tumhari inhi harkato ki vjh se pilot saab...	Dec 25, 2023 . 3:00 AM UTC
993	998	0.000	1.000	0.000	0.0000	https://twitter.com/imvivekmahaR/status/173911...		

427 rows × 13 columns

In [29]: df_vader_congress

Out[29]:

	index	neg	neu	pos	compound	link	text	date	l
40	40	0.000	0.870	0.130	0.4019	https://twitter.com/kannadiga_bs/status/173926...	yatnal had talks with kharge will be joining ...	Dec 25, 2023 . 12:51 PM UTC	
45	45	0.105	0.895	0.000	-0.5859	https://twitter.com/PTI_News/status/1739185521...	video "recently in a meeting i said that the ...	Dec 25, 2023 . 7:25 AM UTC	
47	47	0.000	0.785	0.215	0.9442	https://twitter.com/ANI/status/173921027459772...	watch congress general secretary incharge com...	Dec 25, 2023 . 9:03 AM UTC	
53	53	0.136	0.789	0.074	-0.3971	https://twitter.com/MirYanaSY/status/173787632...	congress is impossible to deal with they have ...	Dec 21, 2023 . 4:42 PM UTC	
56	56	0.132	0.626	0.242	0.6348	https://twitter.com/AshishSinghKiJi/status/173...	please dont alliance with aap party in punjab ...	Dec 24, 2023 . 1:25 PM UTC	
...	
973	978	0.085	0.852	0.063	-0.2023	https://twitter.com/goswamikeshav/status/17389...	abp news in kitty of ruling partythat is why h...	Dec 24, 2023 . 4:24 PM UTC	
988	993	0.157	0.773	0.070	-0.5267	https://twitter.com/SobhanaNair/status/1739097...	kharge has adopted a lameduck approach towards...	Dec 25, 2023 . 1:35 AM UTC	
990	995	0.000	0.850	0.150	0.3182	https://twitter.com/navaneethreddym/status/173...	he will make sure congress puts a dummy candid...	Dec 25, 2023 . 3:03 AM UTC	

	index	neg	neu	pos	compound	link	text	date	I
992	997	0.039	0.961	0.000	-0.0772	https://twitter.com/hm5566859611444/status/173...	sabseh kathin yatra indi alliance meh akhilesh...	Dec 25, 2023 . 3:01 AM UTC	
994	999	0.104	0.807	0.089	-0.1727	https://twitter.com/letsspeak4india/status/173...	very well said when a leader couldnt win an el...	Dec 25, 2023 . 2:59 AM UTC	

95 rows × 13 columns

Adding EmotionWords Column Showing the Different Types of Emotions

```
In [30]: def emotionAndWords(text):
word_list = []
emotion_list = []
with open('./emotion', 'r') as file:
    for line in file:
        clear_line = line.replace(',', '')\
            .replace('\n', '')\
            .replace('"', '')\
            .strip()
        word, emotion = clear_line.split(':')
#         print("Words : "+word+" Emotion:"+emotion)

        if word in text:
            word_list.append(word)
            emotion_list.append(emotion)
return emotion_list
```

```
In [31]: df_vader_bjp["EmotionWords"] = df_vader_bjp['text_Tokens'].apply(emotionAndWords)
df_vader_bjp.head()
```

C:\Users\arnav\AppData\Local\Temp\ipykernel_23324\2397450416.py:1: SettingWithCopyWarning:

A value is trying to be set on a copy of a slice from a DataFrame.

Try using .loc[row_indexer,col_indexer] = value instead

See the caveats in the documentation: https://pandas.pydata.org/pandas-docs/stable/user_guide/indexing.html#returning-a-view-versus-a-copy (https://pandas.pydata.org/pandas-docs/stable/user_guide/indexing.html#returning-a-view-versus-a-copy)

```
df_vader_bjp["EmotionWords"] = df_vader_bjp['text_Tokens'].apply(emotionAndWords)
```

Out[31]:

	index	neg	neu	pos	compound	link	text	date	No_
0	0	0.000	0.934	0.066	0.5859	https://twitter.com/Politics_2022_/status/1739...	south india 2024 loksabha opinion poll 132 PM sea...	Dec 25, 2023 12:05 PM UTC	.
1	1	0.060	0.765	0.175	0.6369	https://twitter.com/LokmatTimes_ngp/status/173...	veteran actor nana patekar says there is no al...	Dec 25, 2023 1:00 PM UTC	.
2	2	0.028	0.884	0.087	0.6007	https://twitter.com/Politics_2022_/status/1739...	south india bjp 2019 loksabha karnataka 25 tel...	Dec 25, 2023 12:21 PM UTC	.
4	4	0.000	0.732	0.268	0.9429	https://twitter.com/BellamSwathi/status/173919...	total number of times mms won his own lok sabh...	Dec 25, 2023 8:19 AM UTC	.
5	5	0.000	0.744	0.256	0.7845	https://twitter.com/sreeramjvc/status/17392244...	let's deliver tenkasi lok sabha seat to streng...	Dec 25, 2023 10:00 AM UTC	.

```
In [32]: df_vader_congress["EmotionWords"] = df_vader_congress['text_Tokens'].apply(emotionAndWords)
df_vader_congress.head()
```

C:\Users\arnav\AppData\Local\Temp\ipykernel_23324\876050990.py:1: SettingWithCopyWarning:

A value is trying to be set on a copy of a slice from a DataFrame.

Try using .loc[row_indexer,col_indexer] = value instead

See the caveats in the documentation: https://pandas.pydata.org/pandas-docs/stable/user_guide/indexing.html#returning-a-view-versus-a-copy (https://pandas.pydata.org/pandas-docs/stable/user_guide/indexing.html#returning-a-view-versus-a-copy)

```
df_vader_congress["EmotionWords"] = df_vader_congress['text_Tokens'].apply(emotionAndWords)
```

Out[32]:

	index	neg	neu	pos	compound	link	text	date	N
40	40	0.000	0.870	0.130	0.4019	https://twitter.com/kannadiga_bs/status/173926...	yatnal had talks with kharge will be joining ...	Dec 25, 2023 . 12:51 PM UTC	
45	45	0.105	0.895	0.000	-0.5859	https://twitter.com/PTI_News/status/1739185521...	video "recently in a meeting i said that the ...	Dec 25, 2023 . 7:25 AM UTC	
47	47	0.000	0.785	0.215	0.9442	https://twitter.com/ANI/status/173921027459772...	watch congress general secretary incharge com...	Dec 25, 2023 . 9:03 AM UTC	
53	53	0.136	0.789	0.074	-0.3971	https://twitter.com/MirYanaSY/status/173787632...	congress is impossible to deal with they have ...	Dec 21, 2023 . 4:42 PM UTC	
56	56	0.132	0.626	0.242	0.6348	https://twitter.com/AshishSinghKiJi/status/173...	please dont alliance with aap party in punjab ...	Dec 24, 2023 . 1:25 PM UTC	

```
In [33]: df_vader_other["EmotionWords"] = df_vader_other['text_Tokens'].apply(emotionAndWords)
df_vader_other.head()
```

C:\Users\arnav\AppData\Local\Temp\ipykernel_23324\638965669.py:1: SettingWithCopyWarning:

A value is trying to be set on a copy of a slice from a DataFrame.

Try using .loc[row_indexer,col_indexer] = value instead

See the caveats in the documentation: https://pandas.pydata.org/pandas-docs/stable/user_guide/indexing.html#returning-a-view-versus-a-copy (https://pandas.pydata.org/pandas-docs/stable/user_guide/indexing.html#returning-a-view-versus-a-copy)

```
df_vader_other["EmotionWords"] = df_vader_other['text_Tokens'].apply(emotionAndWords)
```

Out[33]:

	index	neg	neu	pos	compound	link	text	date	
3	3	0.000	1.000	0.000	0.0000	https://twitter.com/rohanayak/status/173926994...	issh baar 357 seats in loksabha election	Dec 25, 2023 . 1:00 PM UTC	
11	11	0.000	0.886	0.114	0.8111	https://twitter.com/Paul_Koshy/status/17391955...	thank you very much dear rajeevgowda sir for v...	Dec 25, 2023 . 8:05 AM UTC	
12	12	0.000	0.957	0.043	0.4019	https://twitter.com/PTI_News/status/1739173901...	video "when a speaker of the lok sabha is ele...	Dec 25, 2023 . 6:39 AM UTC	
13	13	0.085	0.813	0.102	-0.0258	https://twitter.com/PTI_News/status/1739181802...	video "if you don't want opposition at all th...	Dec 25, 2023 . 7:10 AM UTC	
14	14	0.192	0.808	0.000	-0.4753	https://twitter.com/MeghUpdates/status/1739146...	when your effort to make upcoming lok sabha el...	Dec 25, 2023 . 4:48 AM UTC	

VADER Analysis

```
In [34]: # Counting Positive and Negative Sentiment
df_vader_bjp_count = df_vader_bjp.groupby('Label').count()
df_vader_congress_count = df_vader_congress.groupby('Label').count()
df_vader_other_count = df_vader_other.groupby('Label').count()
```

```
In [35]: df_vader_bjp_count
```

Out[35]:

	index	neg	neu	pos	compound	link	text	date	No_of_likes	No_of_comments	text_Tokens	cat
Label												
Neutral	168	168	168	168	168	168	168	168	168	168	168	
negative	77	77	77	77	77	77	77	77	77	77	77	
positive	182	182	182	182	182	182	182	182	182	182	182	

```
In [36]: df_vader_congress_count
```

Out[36]:

	index	neg	neu	pos	compound	link	text	date	No_of_likes	No_of_comments	text_Tokens	cat
Label												
Neutral	29	29	29	29	29	29	29	29	29	29	29	
negative	21	21	21	21	21	21	21	21	21	21	21	
positive	45	45	45	45	45	45	45	45	45	45	45	

```
In [37]: df_vader_other_count
```

Out[37]:

	index	neg	neu	pos	compound	link	text	date	No_of_likes	No_of_comments	text_Tokens	cat
Label												
Neutral	262	262	262	262	262	262	262	262	262	262	262	
negative	71	71	71	71	71	71	71	71	71	71	71	
positive	140	140	140	140	140	140	140	140	140	140	140	

```
In [38]: # Calculation negative and Positive Sentiment in df_vader_bjp_count
neg_bjp = ( df_vader_bjp_count['compound'] [0]/1000)*100
pos_bjp = ( df_vader_bjp_count['compound'] [1]/1000)*100
neu_bjp = ( df_vader_bjp_count['compound'] [1]/1000)*100
```

```
In [39]: # Calculation negative and Positive Sentiment in df_vader_congress_count
neg_congress = ( df_vader_congress_count['compound'] [0]/1000)*100
pos_congress = ( df_vader_congress_count['compound'] [1]/1000)*100
neu_congress = ( df_vader_congress_count['compound'] [1]/1000)*100
```

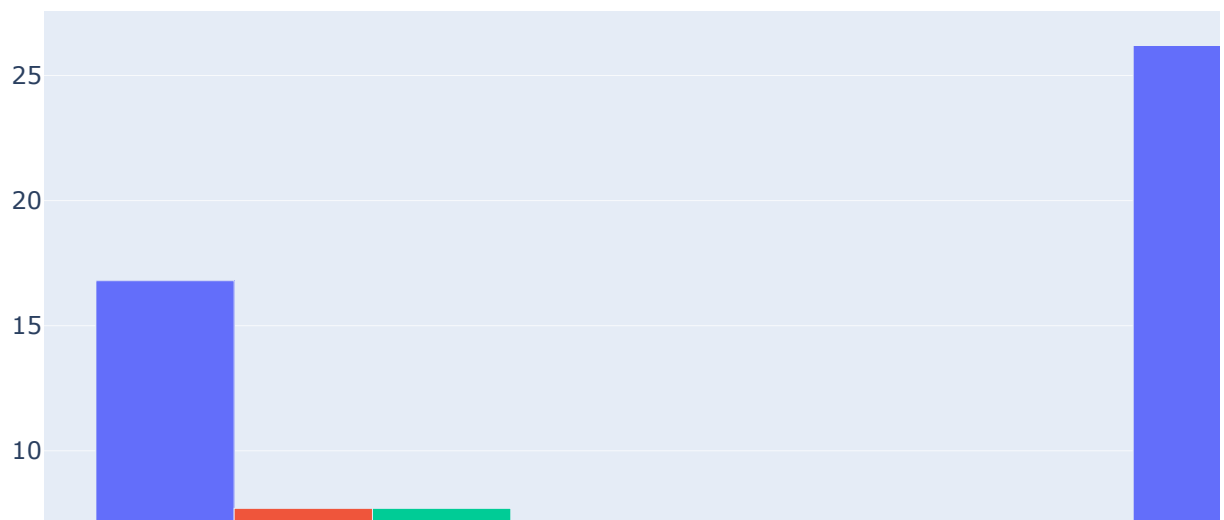
```
In [40]: # Calculation negative and Positive Sentiment in df_vader_other_count
neg_other =( df_vader_other_count['compound'][0]/1000)*100
pos_other =( df_vader_other_count['compound'][1]/1000)*100
neu_other =( df_vader_other_count['compound'][1]/1000)*100
```

```
In [41]: import plotly.graph_objects as go
import plotly.express as xp
```

```
In [42]: politicians = ['BJP','CONGRESS','OTHER']

neg_list = [neg_bjp,neg_congress,neg_other]
pos_list = [pos_bjp,pos_congress,pos_other]
neu_list = [neu_bjp,neu_congress,neu_other]

fig = go.Figure(
data = [
    go.Bar(name='Negative',x=politicians,y=neg_list),
    go.Bar(name='Positive',x=politicians,y=pos_list),
    go.Bar(name='Neutral',x=politicians,y=neu_list)
]
)
fig.update_layout(barmode='group')
fig.show()
```



Joining the EmotionWords list of Lists into a Single List

or

Flatten the EmotionWords List of Lists

```
In [43]: emotion_list_bjp = df_vader_bjp['EmotionWords'].tolist()
print(emotion_list_bjp)
```

```
[[], [], [], ['lost'], [], [], ['fearful', 'sad'], [], [], [], [], [], [], [], [],
[], [], ['lost'], [], [], [], ['lost'], [], [], [], ['surprise'], ['attracted'],
['sad'], [], ['sad'], [], [], [], [], [], [], ['fearless'], [], [], [], [], [],
[], [], [], [], [], [], ['focused'], [], [], [], [], [], ['free', 'lost', 'attracted'],
[], [], [], [], [], [], [], [], [], [], ['angry', 'esteemed', 'independent', 'fearfu
l', 'esteemed'], [], [], [], [], ['obsessed'], [], [], [], [], [], [], [], [], [],
[], [], [], [], ['sad'], [], [], [], [], [], [], [], [], [], ['lost'], [], [], ['al
one', 'happy'], [], [], [], [], [], [], [], [], ['sad'], [], [], [], [], [], [], [],
[], [], [], [], [], [], [], [], [], [], ['happy'], [], [], [], [], ['attached'], [], [], [], [],
[], [], ['sad'], [], [], ['lost'], [], [], ['powerless'], [], [], [], [], [], [], [],
[], [], [], [], [], [], ['angry'], ['free', 'sad'], [], [], [], [], [], [], [], [], [],
[], [], [], [], [], [], [], [], [], [], [], [], [], [], [], ['ecstatic'], [], [], [], [], [], [],
[], [], [], [], [], [], [], [], [], [], [], [], [], [], ['surprise'], [], [], [], [], [], [],
[], [], [], [], [], [], [], [], [], [], [], [], [], [], [], [], [], ['alone'], [], ['hap
py'], [], [], [], [], [], [], [], [], [], [], [], [], [], [], ['lost'], [], [], [], [],
[], [], [], [], [], [], [], [], ['happy'], [], [], [], [], ['fearless', 'free', 'estee
med'], [], [], ['independent', 'happy'], [], [], [], [], [], [], [], [], [], [], [],
[], [], [], [], [], [], [], [], [], [], [], [], [], [], [], [], [], [], [], [],
[], [], [], [], [], [], [], [], [], [], [], [], [], [], [], [], [], ['powerless'], [], [], [], [], [],
attracted'], [], [], [], [], [], [], [], [], [], [], [], [], [], [], ['angry'], [], [], ['in
dependent'], [], [], ['independent'], [], [], [], [], [], [], [], [], [], ['independ
ent'], [], [], [], [], [], [], ['fearless'], [], [], [], [], [], [], [], [], [], ['happ
y'], [], ['anxious'], [], [], [], [], [], [], ['angry'], [], [], [], [], [], [], [],
[], [], [], [], [], [], [], [], [], [], [], [], [], ['sad'], [], [], [], ['average', 'fearful'],
[], ['alone'], [], [], ['independent'], [], [], [], [], [], [], [], [], [], [], [],
[], [], [], [], [], [], [], [], [], [], [], [], [], ['lost'], [], [], [], [], ['f
earless'], [], [], [], [], ['fearless'], [], [], [], [], [], ['happy', 'hated', 'i
ndependent', 'embarrassed'], [], [], [], [], [], []]
```

```
In [44]: final_emotion_list_bjp = []
for llist in emotion_list_bjp:
    final_emotion_list_bjp = final_emotion_list_bjp + llist

print(final_emotion_list_bjp)
```

```
['lost', 'fearful', 'sad', 'lost', 'lost', 'surprise', 'attracted', 'sad', 's
ad', 'fearless', 'focused', 'free', 'lost', 'attracted', 'angry', 'esteemed', '
independent', 'fearful', 'esteemed', 'obsessed', 'sad', 'lost', 'alone', 'happ
y', 'sad', 'happy', 'attached', 'sad', 'lost', 'powerless', 'angry', 'free', '
sad', 'ecstatic', 'surprise', 'alone', 'happy', 'lost', 'happy', 'fearless', '
free', 'esteemed', 'independent', 'happy', 'powerless', 'attracted', 'angry', '
independent', 'independent', 'independent', 'fearless', 'happy', 'anxious', 'ang
ry', 'sad', 'average', 'fearful', 'alone', 'independent', 'adequate', 'lost', '
fearless', 'fearless', 'happy', 'hated', 'independent', 'embarrassed']
```



```
In [50]: final_emotion_list_other = []
for llist in emotion_list_other:
    final_emotion_list_other = final_emotion_list_other + llist

print(final_emotion_list_other)
```

```
['attracted', 'esteemed', 'fearful', 'singled out', 'attracted', 'happy', 'happy', 'happy', 'sad', 'free', 'happy', 'happy', 'fearful', 'fearless', 'fearful', 'happy', 'happy', 'focused', 'hated', 'happy', 'happy', 'happy', 'free', 'lost', 'happy', 'esteemed', 'happy', 'happy', 'fearful', 'fearful', 'sad', 'angry', 'happy', 'sad', 'surprise', 'sad', 'embarrassed', 'focused', 'happy', 'happy', 'cheated', 'adequate']
```

Counting Emotion Using Counter

```
In [51]: counter_bjp = Counter(final_emotion_list_bjp)
print(counter_bjp)
```

```
Counter({'lost': 8, 'sad': 8, 'independent': 7, 'happy': 7, 'fearless': 5, 'angry': 4, 'fearful': 3, 'attracted': 3, 'free': 3, 'esteemed': 3, 'alone': 3, 'surprise': 2, 'powerless': 2, 'focused': 1, 'obsessed': 1, 'attached': 1, 'ecstatic': 1, 'anxious': 1, 'average': 1, 'adequate': 1, 'hated': 1, 'embarrassed': 1})
```

```
In [52]: counter_congress = Counter(final_emotion_list_congress)
print(counter_congress)
```

```
Counter({'independent': 3, 'angry': 2, 'fearful': 1, 'adequate': 1, 'fearless': 1, 'esteemed': 1, 'attracted': 1, 'focused': 1, 'happy': 1, 'alone': 1, 'cheated': 1, 'loved': 1})
```

```
In [53]: counter_other = Counter(final_emotion_list_other)
print(counter_other)
```

```
Counter({'happy': 16, 'fearful': 5, 'sad': 4, 'attracted': 2, 'esteemed': 2, 'free': 2, 'focused': 2, 'singled out': 1, 'fearless': 1, 'hated': 1, 'lost': 1, 'angry': 1, 'surprise': 1, 'embarrassed': 1, 'cheated': 1, 'adequate': 1})
```

Plotting Graph

```
In [54]: # plt.bar(emotion_counter.keys() , emotion_counter.values() ,color="purple")

fig ,ax1 = plt.subplots()
ax1.bar(counter_bjp.keys() , counter_bjp.values() ,color="orange" , label = "BJP")
ax1.bar(counter_congress.keys() , counter_congress.values() ,color="purple" ,label="CONG")
ax1.bar(counter_other.keys() , counter_other.values() ,color="green" ,label="OTHERS")
fig.autofmt_xdate()
plt.xticks(rotation=90)
plt.xlabel("Number of Emotions")
plt.ylabel("Score of Emotions")
plt.legend()
plt.show()
```

