

```
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 nltk.sentiment.vader import SentimentIntensityAnalyzer
```

```
In [2]: modi_df = pd.read_csv('./modi_reviews.csv')
```

```
In [3]: modi_df.shape
```

```
Out[3]: (25688, 3)
```

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

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 25688 entries, 0 to 25687
Data columns (total 3 columns):
#   Column      Non-Null Count  Dtype
---  ---
0   Unnamed: 0   25688 non-null  int64
1   User         25683 non-null  object
2   Tweet        25683 non-null  object
dtypes: int64(1), object(2)
memory usage: 602.2+ KB
```

```
In [5]: modi_df.head()
```

```
Out[5]:
```

	Unnamed: 0	User	Tweet
0	0	advosushildixit	@anjanaomkashyap I am seeing you as future #bj...
1	1	jiaeur	#LokSabhaElections2019 \n23rd May 2019 will re...
2	2	PVenkatGandhi	#LokSabhaElections2019 \n23rd May 2019 will re...
3	3	TheNirbhay1	PM Modi creates a new record of being the only...
4	4	ShakeChilli	@abhijitmajumder Appointment of Successor! \n\...

```
In [6]: modi_df['Tweet'] = modi_df['Tweet'].astype(str)
modi_df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 25688 entries, 0 to 25687
Data columns (total 3 columns):
#   Column      Non-Null Count  Dtype
---  -
0   Unnamed: 0    25688 non-null   int64
1   User          25683 non-null   object
2   Tweet         25688 non-null   object
dtypes: int64(1), object(2)
memory usage: 602.2+ KB
```

```
In [7]: modi_df['Tweet'] = modi_df['Tweet'].str.lower()
modi_df.head()
```

Out[7]:

	Unnamed: 0	User	Tweet
0	0	advosushildixit	@anjanaomkashyap i am seeing you as future #bj...
1	1	jiaeur	#loksabhaelections2019 \n23rd may 2019 will re...
2	2	PVenkatGandhi	#loksabhaelections2019 \n23rd may 2019 will re...
3	3	TheNirbhay1	pm modi creates a new record of being the only...
4	4	ShakeChilli	@abhijitmajumder appointment of successor! \n\...

```
In [8]: import string
print(string.punctuation)
```

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

```
In [9]: # cleaned the string with punctons (Three Parameter)
# str1 = specifies the list of charcater that needed to be reaplaced
# str2 = specifies the list of charcater with which the character needed to b
# str1 = specifies the list of charcater that needed to be deleted

modi_df['Tweet'] = modi_df['Tweet'].apply(lambda x: x.translate(str.maketrans(
modi_df.head()
```

Out[9]:

	Unnamed: 0	User	Tweet
0	0	advosushildixit	anjanaomkashyap i am seeing you as future bjp ...
1	1	jiaeur	loksabhaelections2019 \n23rd may 2019 will rev...
2	2	PVenkatGandhi	loksabhaelections2019 \n23rd may 2019 will rev...
3	3	TheNirbhay1	pm modi creates a new record of being the only...
4	4	ShakeChilli	abhijitmajumder appointment of successor \n\ng...

## tokenising Text

```
In [10]: def textToToken(text):
          return nltk.word_tokenize(text)

modi_df['Tweet_Tokens'] = modi_df['Tweet'].apply(textToToken)
modi_df.head()
```

Out[10]:

	Unnamed: 0	User	Tweet	Tweet_Tokens
0	0	advosushildixit	anjanaomkashyap i am seeing you as future bjp ...	[anjanaomkashyap, i, am, seeing, you, as, futu...
1	1	jjaeur	loksabhaelections2019 \n23rd may 2019 will rev...	[loksabhaelections2019, 23rd, may, 2019, will,...
2	2	PVenkatGandhi	loksabhaelections2019 \n23rd may 2019 will rev...	[loksabhaelections2019, 23rd, may, 2019, will,...
3	3	TheNirbhay1	pm modi creates a new record of being the only...	[pm, modi, creates, a, new, record, of, being,...
4	4	ShakeChilli	abhijitmajumder appointment of successor \n\ng...	[abhijitmajumder, appointment, of, successor, ...

```
In [11]: 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

modi_df['Tweet_Tokens'] = modi_df['Tweet_Tokens'].apply(stopToWords)
modi_df.head()
```

Out[11]:

	Unnamed: 0	User	Tweet	Tweet_Tokens
0	0	advosushildixit	anjanaomkashyap i am seeing you as future bjp ...	[anjanaomkashyap, seeing, future, bjp, spokesp...
1	1	jjaeur	loksabhaelections2019 \n23rd may 2019 will rev...	[loksabhaelections2019, 23rd, may, 2019, revea...
2	2	PVenkatGandhi	loksabhaelections2019 \n23rd may 2019 will rev...	[loksabhaelections2019, 23rd, may, 2019, revea...
3	3	TheNirbhay1	pm modi creates a new record of being the only...	[pm, modi, creates, new, record, pm, democrati...
4	4	ShakeChilli	abhijitmajumder appointment of successor \n\ng...	[abhijitmajumder, appointment, successor, god,...

```
In [15]: 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

modi_df["EmotionWords"] = modi_df["Tweet_Tokens"].apply(emotionAndWords)
modi_df.head()
```

Out[15]:

	Unnamed: 0	User	Tweet	Tweet_Tokens	EmotionWords
0	0	advosushildixit	anjanaomkashyap i am seeing you as future bjp ...	[anjanaomkashyap, seeing, future, bjp, spokesp...	[]
1	1	jiaeur	loksabhaelections2019 \n23rd may 2019 will rev...	[loksabhaelections2019, 23rd, may, 2019, revea...	[]
2	2	PVenkatGandhi	loksabhaelections2019 \n23rd may 2019 will rev...	[loksabhaelections2019, 23rd, may, 2019, revea...	[]
3	3	TheNirbhay1	pm modi creates a new record of being the only...	[pm, modi, creates, new, record, pm, democrati...	[]
4	4	ShakeChilli	abhijitmajumder appointment of successor \n\ng...	[abhijitmajumder, appointment, successor, god,...	[ sad, sad]

```
In [16]: emotions_list = modi_df['EmotionWords'].tolist()
print(emotions_list)
```

```
[[], [' average', ' happy'], [], [' happy'], [], [' happy'], [' angry'],
[], [], [], [], [], [], [], [], [' happy'], [], [' average'], [' avera
ge'], [], [], [], [], [], [], [], [], [], [], [], [' attracted'], [],
[], [], [], [], [], [' independent'], [], [], [], [' happy'], [' attracte
d'], [' sad'], [], [' cheated'], [], [], [], [], [], [], [' sad', ' sad'],
[], [], [], [], [' free', ' happy'], [], [], [], [], [], [' cheated'], [],
[' free'], [], [], [], [], [], [], [' sad', ' sad'], [' fearful'], [], [],
[], [' free'], [], [' powerless', ' esteemed'], [], [' happy'], [], [], ['
sad'], [], [], [], [], [], [], [], [' happy'], [], [], [], [], [], [],
[], [], [], [], [], [], [], [], [' angry'], [], [], [], [], [' lost'], [],
[], [], [], [], [], [], [], [' average'], [], [], [], [], [' happy'],
[], [], [' happy', ' happy'], [], [], [], [], [], [' esteemed'], [], [' es
teemed'], [' esteemed'], [], [], [], [], [], [], [], [], [' independen
t'], [], [], [], [], [], [' independent'], [], [' happy'], [], [], [], [],
[], [' happy'], [], [], [], [], [], [], [], [], [], [], [], [], [], [],
[], [' esteemed'], [' happy'], [], [' powerless'], [], [], [' happy'], [],
[' happy'], [], [' independent'], [' fearful'], [], [' lost'], [], [], [],
[], [' average'], [], [], [' free'], [], [], [], [], [' happy'], [], [],
[], [], [' happy'], [], [], [], [' angry'], [' lost'], [], [], [' happy'],
[], [], [], [], [], [], [], [], [], [], [], [], [], [], [], [' lost'], [], [], [], [], [' este
```

```
In [24]: emotion_list_new = [];
for i in range(len(modi_df['EmotionWords'])):
    emotion_list_new = emotion_list_for + modi_df['EmotionWords'][i]

print(emotion_list_new)
```

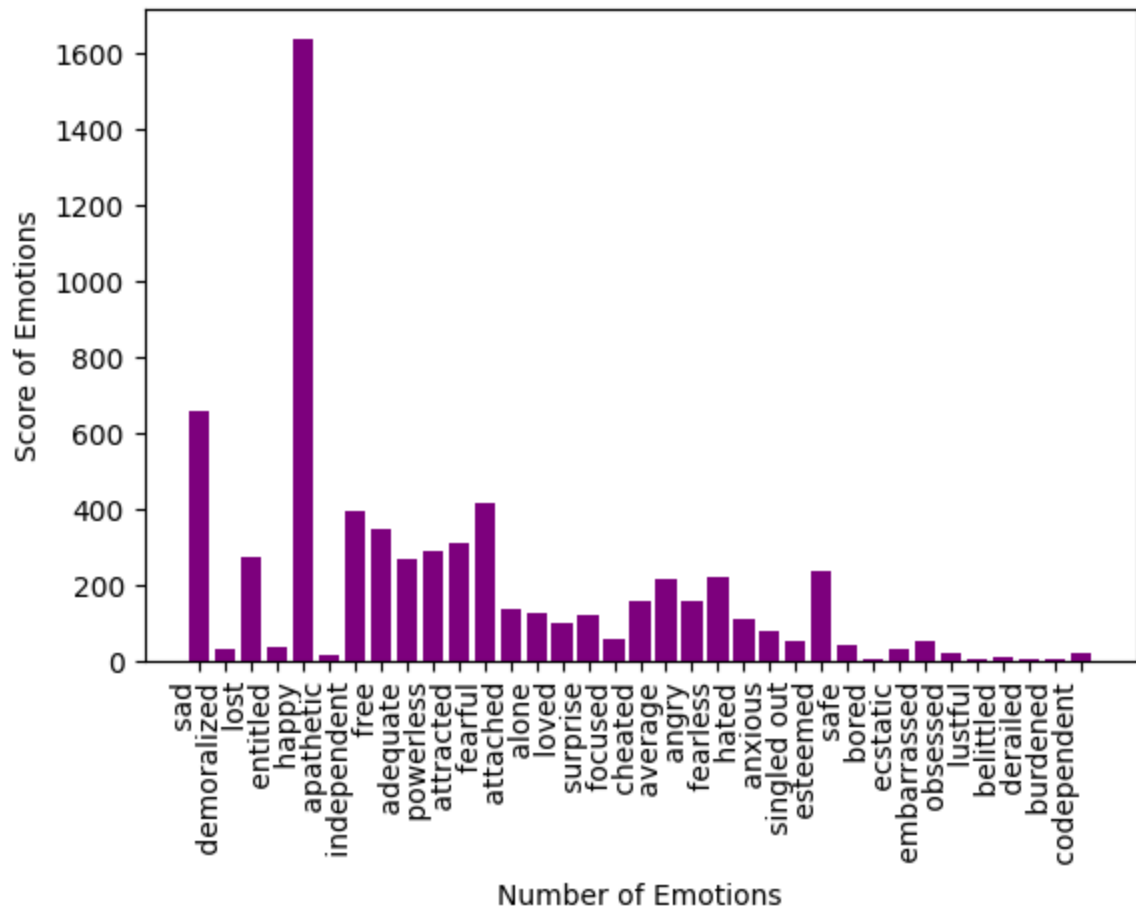
```
average', ' fearful', ' fearful', ' fearful', ' powerless', ' hated', ' happ
y', ' attracted', ' powerless', ' independent', ' free', ' powerless', ' p
owerless', ' independent', ' obsessed', ' powerless', ' happy', ' adequat
e', ' lost', ' attracted', ' esteemed', ' happy', ' demoralized', ' angr
y', ' happy', ' powerless', ' attached', ' surprise', ' powerless', ' aver
age', ' happy', ' entitled', ' singled out', ' singled out', ' independen
t', ' happy', ' singled out', ' powerless', ' esteemed', ' attracted', ' f
earful', ' happy', ' codependent', ' happy', ' entitled', ' fearless', ' h
appy', ' happy', ' independent', ' happy', ' independent', ' surprise', '
happy', ' powerless', ' happy', ' fearful', ' attracted', ' independent',
' independent', ' powerless', ' happy', ' happy', ' surprise', ' happy', '
adequate', ' adequate', ' fearful', ' powerless', ' independent', ' happ
y', ' adequate', ' independent', ' happy', ' entitled', ' demoralized', '
average', ' anxious', ' obsessed', ' embarrassed', ' angry', ' happy', ' a
ttracted', ' average', ' average', ' powerless', ' lost', ' sad', ' sad',
' independent', ' cheated', ' adequate', ' happy', ' adequate', ' singled
out', ' singled out', ' attracted', ' focused', ' free', ' happy', ' attra
cted', ' attached', ' powerless', ' esteemed', ' attracted', ' lost', ' sa
d', ' attracted', ' angry', ' happy', ' happy', ' attracted', ' cheated',
' sad', ' powerless', ' embarrassed', ' embarrassed', ' sad', ' fearful',
' fearful', ' fearful', ' fearful', ' fearful', ' powerless', ' hated', ' happ
```

```
In [25]: emotion_list_counter = Counter(emotion_list_new)
print(emotion_list_counter)
```

```
Counter({'happy': 1637, 'sad': 658, 'fearful': 419, 'independent': 395, 'free': 349, 'attracted': 311, 'powerless': 292, 'lost': 273, 'adequate': 269, 'esteemed': 240, 'fearless': 221, 'average': 219, 'cheated': 159, 'angry': 157, 'attached': 140, 'alone': 129, 'surprise': 121, 'hated': 109, 'loved': 102, 'anxious': 77, 'focused': 57, 'embarrassed': 52, 'singled out': 51, 'safe': 42, 'entitled': 35, 'ecstatic': 32, 'demoralized': 30, 'codependent': 24, 'obsessed': 20, 'apathetic': 15, 'belittled': 13, 'bored': 7, 'lustful': 6, 'derailed': 5, 'burdened': 4})
```

```
In [27]: # plt.bar(emotion_counter.keys() , emotion_counter.values() ,color="purple")

fig ,ax1 = plt.subplots()
ax1.bar(emotion_list_counter.keys() , emotion_list_counter.values() ,color="purple")
fig.autofmt_xdate()
plt.xticks(rotation=90)
plt.xlabel("Number of Emotions")
plt.ylabel("Score of Emotions")
plt.show()
```



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

fig ,ax1 = plt.subplots()
for i in range(len(modi_df['Tweet'])):
    ax1.bar(modi_df['Emotion_count'][i].keys() , modi_df['Emotion_count'][i].v

fig.autofmt_xdate()
plt.xticks(rotation=90)
plt.xlabel("Number of Emotions")
plt.ylabel("Score of Emotions")
plt.show()
```

```
In [17]: def countEmotion(text):  
          emotion_counter = Counter(text)  
          return emotion_counter  
  
modi_df['Emotion_count'] = modi_df['EmotionWords'].apply(countEmotion)  
modi_df.head(20)
```



Out[17]:

	Unnamed: 0	User	Tweet	Tweet_Tokens	Emo
0	0	advosushildixit	anjanaomkashyap i am seeing you as future bjp ...	[anjanaomkashyap, seeing, future, bjp, spokesp...	
1	1	jiaeur	loksabhaelections2019 \n23rd may 2019 will rev...	[loksabhaelections2019, 23rd, may, 2019, revea...	
2	2	PVenkatGandhi	loksabhaelections2019 \n23rd may 2019 will rev...	[loksabhaelections2019, 23rd, may, 2019, revea...	
3	3	TheNirbhay1	pm modi creates a new record of being the only...	[pm, modi, creates, new, record, pm, democrati...	
4	4	ShakeChilli	abhijitmajumder appointment of successor \n\ng...	[abhijitmajumder, appointment, successor, god,...	
5	5	UttarrPradesh	which of the following should be top priority ...	[following, top, priority, modi, government, l...	
6	6	Mdsr20351488	after 5yrs of modi 🤔\n\nc vs sc\nec vs ec\nme...	[5yrs, modi, 🤔, sc, vs, sc, ec, vs, ec, media,...	
7	7	ShaileshWrites	renukajain6\ni still remember your video massa...	[renukajain6, still, remember, video, message,...	[ de
8	8	iamljp	bjp bjp4india incindia inckarnataka how much y...	[bjp, bjp4india, incindia, inckarnataka, much,...	
9	9	TheShobhitAzad	azadprediction\nloksabhaelections2019 \n\nbjp ...	[azadprediction, loksabhaelections2019, bjp, 2...	
10	10	sheikh541	bjp was renamed as safroon party then again it...	[bjp, renamed, safroon, party, named, modi, pa...	
11	11	Mdsr20351488	all pakistanis had serious doubts on concept o...	[pakistanis, serious, doubts, concept, twonati...	
12	12	JosephPravinP	ajaymaken rahulgandhi and as a final touch mod...	[ajaymaken, rahulgandhi, final, touch, modi, j...	
13	13	TheSaptarshiRay	i think before casting the vote for last phas...	[think, casting, vote, last, phase, today, peo...	
14	14	AshokeRattan	trying to forge opposition will be a futile ex...	[trying, forge, opposition, futile, exercise, ...	
15	15	VandanaMegastar	loksabhaelections2019 anyone not having mass b...	[loksabhaelections2019, anyone, mass, backing,...	
16	16	Iqbal_Hussains	electioncommission loksabhaelections2019 pms m...	[electioncommission, loksabhaelections2019, pm...	
17	17	RGspeak	incindia should release a video of rahulgandhi...	[incindia, release, video, rahulgandhi, visiti...	

Unnamed: 0		User	Tweet	Tweet_Tokens	Emo
18	18	nirajkushwa	kajalchauhan dashingassu our pm modi ji will ...	[kajalchauhan, dashingassu, pm, modi, ji, take...	
19	19	bhagat_9495	howmany seats will bjp win \n\nloksabhaelectio...	[howmany, seats, bjp, win, loksabhaelections20...	