```
'''from selenium import webdriver
from webdriver_manager.chrome import ChromeDriverManager
from bs4 import BeautifulSoup
import time

def scrape_comments(url):
    Options = webdriver.ChromeOptions()
    Options.add_argument('--headless')
    driver = webdriver.Chrome(ChromeDriverManager().install(), options=Options)
    driver.get(url)
    time.sleep(5)
    prev_h = 0
    while True:
        height = driver.execute_script("""
                function getActualHeight() {
                    return Math.max(
                        Math.max(document.body.scrollHeight, document.documentElement.scro
                        Math.max(document.body.offsetHeight, document.documentElement.offs
                        Math.max(document.body.clientHeight, document.documentElement.clie
                    );
                }
                return getActualHeight();
            """)
        driver.execute_script(f"window.scrollTo({prev_h},{prev_h + 200})")
        # fix the time sleep value according to your network connection
        time.sleep(5)
        prev_h +=200
        if prev_h >= height:
            break
    html = driver.page_source
    soup = BeautifulSoup(html, 'html.parser')
    driver.quit()
    title = soup.select_one('#container h1')
    print(title.text)
    comment_div = soup.select('#content content-text')
    comment_list = [x.text for x in comment_div]
    print(title, comment_list)

if __name__ == "__main__":

    urls = [
        "https://www.youtube.com/watch?v=gIwgSpEg6ZY",
    ]
    scrape_comments(urls[0])'''
```

```
'from selenium import webdriver\nfrom webdriver_manager.chrome import ChromeDriverMar
ifulSoup\nimport time\n\ndef scrape_comments(url):\n    Options = webdriver.ChromeOpt
ument(\'--headless\')\n    driver = webdriver.Chrome(ChromeDriverManager().install(),
er.get(url)\n    time.sleep(5)\n    prev_h = 0\n    while True:\n        height = dri
function getActualHeight() {\n                    return Math.max(\n
dy.scrollHeight, document.documentElement.scrollHeight),\n                        Mat
eight, document.documentElement.offsetHeight),\n                        Math.max(docu
```

```
!pip install nltk
```

```
Looking in indexes: https://pypi.org/simple, https://us-python.pkg.dev/colab-wheels/p
Requirement already satisfied: nltk in /usr/local/lib/python3.7/dist-packages (3.7)
Requirement already satisfied: tqdm in /usr/local/lib/python3.7/dist-packages (from r
Requirement already satisfied: click in /usr/local/lib/python3.7/dist-packages (from
Requirement already satisfied: joblib in /usr/local/lib/python3.7/dist-packages (from
Requirement already satisfied: regex>=2021.8.3 in /usr/local/lib/python3.7/dist-packa
```

```
!pip install unidecode
```

```
Looking in indexes: https://pypi.org/simple, https://us-python.pkg.dev/colab-wheels/p
Requirement already satisfied: unidecode in /usr/local/lib/python3.7/dist-packages (1
```

```
!pip install autocorrect
```

```
Looking in indexes: https://pypi.org/simple, https://us-python.pkg.dev/colab-wheels/p
Requirement already satisfied: autocorrect in /usr/local/lib/python3.7/dist-packages
```

Text Cleaning

```
import pandas as pd
import re
from nltk import corpus
from nltk.corpus import stopwords
import nltk
nltk.download('stopwords')
nltk.download('punkt')
nltk.download('wordnet')
from nltk.tokenize import word_tokenize
from nltk.stem import WordNetLemmatizer
from autocorrect import Speller
from nltk import word_tokenize
#import unidecode
import string
```

```
[nltk_data] Downloading package stopwords to /root/nltk_data...
[nltk_data]   Package stopwords is already up-to-date!
[nltk_data] Downloading package punkt to /root/nltk_data...
[nltk_data]   Package punkt is already up-to-date!
[nltk_data] Downloading package wordnet to /root/nltk_data...
[nltk_data]   Package wordnet is already up-to-date!
```

```
dfs = pd.read_csv('/content/drive/MyDrive/Scrapped_Data/c_scraped.csv')
dfs.head()
#dfs.drop(['Unnamed: 0'], axis=1)
```

	Unnamed: 0	0
0	0	When enterpreneurs become celebrities , India ...
1	1	I need such 'Clarity of thoughts' in my life....
2	2	It takes a lot of courage to say 'NO'. Complet...

```
#rename data frame column
dfs.columns = ['Index','comment']
dfs.head()
```

	Index	comment
0	0	When enterpreneurs become celebrities , India ...
1	1	I need such 'Clarity of thoughts' in my life....
2	2	It takes a lot of courage to say 'NO'. Complet...
3	3	My respect for Mr Grover increased two folds a...
4	4	I do not think that any Shark rather than Ashn...

```
dfs['comment'] = dfs['comment'].replace("’", "'", regex=True)
```

```
dfs["comment"].iloc[618]
```

```
'Raj to Narendra Modi: Sir there is one thing that connects the two of us. I also dor
re Chai pe Charcha'
```

```
#different counts
stop = stopwords.words('english')

#word_Count
dfs['word_Count'] = dfs['comment'].apply(lambda x: len(str(x).split()))

#digit_Count
dfs['Digit_Count'] = dfs['comment'].apply(lambda x: len([t for t in str(x).split() if t.is
#unique_Word_count
dfs['unique_word_Count'] = dfs['comment'].apply(lambda x:len(set(str(x).split())))

#stopwords_Count
dfs['count_stop_words']=dfs['comment'].apply(lambda x: len([w for w in str(x).lower().spli

# char_count
dfs['char_count'] = dfs['comment'].apply(lambda x: len(str(x)))

# hashtag_count
dfs['hashtag_count'] = dfs['comment'].apply(lambda x: len([c for c in str(x) if c == '#'])

# mention_count
dfs['mention_count'] = dfs['comment'].apply(lambda x: len([c for c in str(x) if c == '@'])
```

```
# punctuation_count
```

```
dfs.sample(5)
```

	Index	comment	word_Count	Digit_Count	unique_word_Count	count_stop_word
67	67	Very few podcast would top this. Thank you for...	21	0	20	
2238	2238	No phar. Maaa is harmed here	6	0	6	
1310	1310	Fastest 90 Min of my	8	1	8	

Lower casing ✅

Punctuation free text ✅

Stop word removal ✅

Removing numerical data from the text ✅

Removing multiple whitespaces from the text ✅

Removing duplicate characters from the word ✅

Tokenization ✅

Lemmatization ✅

Stemming ✅

Parts Of speech

contractions ✅

spell -check

```
def cleaning(df_col):
  """ lower case , remove Special character except , . and remove \n \t \\"""
  df_col = df_col.str.lower()
  df_col = df_col.replace(r"[^a-zA-Z:,%$']+", ' ', regex=True)
  df_col = df_col.replace(r'\n\\n\t\\', ' ', regex=True)
  df_col = df_col.replace("(.)\\1{2,}", "\\1", regex=True)
  # (.) match and capture any single character
  # \1{2,} then match the same character two or more times
  # \1 represents the first capture group

  return df_col

dfs['comment'] = cleaning(dfs['comment'])
```

```
dfs.sample(5)
```

	Index	comment	word_Count	Digit_Count	unique_word_Count	count_stop_words
2253	2253	just coz of 'ashneer grover' this video is goi... : his brutal	15	0	14	7

```
dfs['comment'].iloc[618]
```

```
'raj to narendra modi: sir there is one thing that connects the two of us i also don
ne charcha'
```

```
contractions = {
"ain't": "am not / are not / is not / has not / have not",
"aren't": "are not / am not",
"can't": "cannot",
"can't've": "cannot have",
"'cause": "because",
"could've": "could have",
"couldn't": "could not",
"couldn't've": "could not have",
"didn't": "did not",
"doesn't": "does not",
"don't": "do not",
"hadn't": "had not",
"hadn't've": "had not have",
"hasn't": "has not",
"haven't": "have not",
"he'd": "he had / he would",
"he'd've": "he would have",
"he'll": "he shall / he will",
"he'll've": "he shall have / he will have",
"he's": "he has / he is",
"how'd": "how did",
"how'd'y": "how do you",
"how'll": "how will",
"how's": "how has / how is / how does",
"I'd": "I had / I would",
"I'd've": "I would have",
"I'll": "I shall / I will",
"I'll've": "I shall have / I will have",
"I'm": "I am",
"I've": "I have",
"isn't": "is not",
"it'd": "it had / it would",
"it'd've": "it would have",
"it'll": "it shall / it will",
"it'll've": "it shall have / it will have",
"it's": "it has / it is",
"let's": "let us",
```

```
"ma'am": "madam",
"mayn't": "may not",
"might've": "might have",
"mightn't": "might not",
"mightn't've": "might not have",
"must've": "must have",
"mustn't": "must not",
"mustn't've": "must not have",
"needn't": "need not",
"needn't've": "need not have",
"o'clock": "of the clock",
"oughtn't": "ought not",
"oughtn't've": "ought not have",
"shan't": "shall not",
"sha'n't": "shall not",
"shan't've": "shall not have",
"she'd": "she had / she would",
"she'd've": "she would have",
"she'll": "she shall / she will",
"she'll've": "she shall have / she will have",
"she's": "she has / she is",
"should've": "should have",
"shouldn't": "should not",
"shouldn't've": "should not have",
"so've": "so have",
"so's": "so as / so is",
"that'd": "that would / that had",
"that'd've": "that would have",
"that's": "that has / that is",
"there'd": "there had / there would",
"there'd've": "there would have",
"there's": "there has / there is",
"they'd": "they had / they would",
"they'd've": "they would have",
"they'll": "they shall / they will",
"they'll've": "they shall have / they will have",
"they're": "they are",
"they've": "they have",
"to've": "to have",
"wasn't": "was not",
"we'd": "we had / we would",
"we'd've": "we would have",
"we'll": "we will",
"we'll've": "we will have",
"we're": "we are",
"we've": "we have",
"weren't": "were not",
"what'll": "what shall / what will",
"what'll've": "what shall have / what will have",
"what're": "what are",
"what's": "what has / what is",
"what've": "what have",
"when's": "when has / when is",
"when've": "when have",
"where'd": "where did",
```

```
"where's": "where has / where is",
"where've": "where have",
"who'll": "who shall / who will",
"who'll've": "who shall have / who will have",
"who's": "who has / who is",
"who've": "who have",
"why's": "why has / why is",
"why've": "why have",
"will've": "will have",
"won't": "will not",
"won't've": "will not have",
"would've": "would have",
"wouldn't": "would not",
"wouldn't've": "would not have",
"y'all": "you all",
"y'all'd": "you all would",
"y'all'd've": "you all would have",
"y'all're": "you all are",
"y'all've": "you all have",
"you'd": "you had / you would",
"you'd've": "you would have",
"you'll": "you shall / you will",
"you'll've": "you shall have / you will have",
"you're": "you are",
"you've": "you have"
}
```

```
x= "i don't like life"
def cont_to_exp(x):
  if type(x) is str:
    for key in contractions:
      value = contractions[key]
      x = x.replace(key, value)
    return x
  else:
    return x
```

```
cont_to_exp(x)
```

```
'i do not like life'
```

```
%%timeit
dfs["comment"] = dfs["comment"].apply(lambda x: cont_to_exp(x))
```

```
96 ms ± 29 ms per loop (mean ± std. dev. of 7 runs, 10 loops each)
```

```
dfs['comment'].iloc[618]
```

```
'raj to narendra modi: sir there is one thing that connects the two of us i also do r
i pe charcha'
```

```
st = 'i am jronman'
```

```
def spelling(st):
    spell = Speller(lang='en')
    Corrected_text = spell(st)
    return Corrected_text


spelling(st)
#dfs["comment"] = dfs["comment"].apply(lambda st: spelling(st))
```

```
     'i am ironman'
```

Remove Stop Words

```
#filling the null values so that program will not give us a error
dfs['comment'] = dfs['comment'].fillna("")
stop = stopwords.words('english')
dfs['comment_wt_stopwords'] = dfs['comment'].apply(lambda x:' '.join([t for t in x.split()
```

```
dfs
```

	Index	comment	word_Count	Digit_Count	unique_word_Count	count_stop_wor
0	0	when enterpreneurs become celebrities , india ...	11	0	11	
1	1	i need such 'clarity of thoughts' in my life n...	14	0	14	
2	2	[illegible]	18	0	16	

Tokenization

```
#dfs['tokenized_sents'] = dfs["comment"].apply(nltk.word_tokenize)
dfs['tokenized_sents'] = dfs.apply(lambda row: nltk.word_tokenize(row['comment']), axis=1)
```

for mr grover

```
dfs.sample(5)
```

	Index	comment	word_Count	Digit_Count	unique_word_Count	count_stop_words
2300	2300	ashneer pe fida hogaye	4	0	4	0
2292	2292	could not have guessed he is such a fraud was ...	13	0	12	8
1851	1851	pls make a video with aman gupta	7	0	7	2
551	551	i m from bangladesh thank you for such an exce...	23	0	23	11
1676	1676	founder and ceo of doglapan pvt ltd just kidding	9	0	9	3

```
nltk.download('omw-1.4')

lmtzr = nltk.stem.WordNetLemmatizer()

#def lemmatize_text(text):
#    return [lemmatizer.lemmatize(w) for w in w_tokenizer.tokenize(text)]
```

```
#dfs['text_lemmatized'] = dfs['comment'].text.apply(lemmatize_text)

dfs['lemmatize'] = dfs['tokenized_sents'].apply(lambda lst:[lmtzr.lemmatize(word) for word
```

```
[nltk_data] Downloading package omw-1.4 to /root/nltk_data...
[nltk_data]   Package omw-1.4 is already up-to-date!
```

```
dfs.sample(5)
```

	Index	comment	word_Count	Digit_Count	unique_word_Count	count_stop_words
1888	1888	brutally honest genius	3	0	3	0
266	266	everyone is thanking ashneer sir let us also t...	52	0	52	15
1818	1818	who came here after watch of shark tank	8	0	8	4
1845	1845	this is showing different face of ashneer much...	21	0	21	7
1053	1053	true , i really love visiting market every eve...	112	0	79	55

```
from nltk.stem import PorterStemmer
stemmer=PorterStemmer()
#dfs['lemmatize_comment'] = dfs['tokenized_sents'].apply(lambda lst:[lmtzr.lemmatize(word)

dfs['stemmed_comment'] = dfs['tokenized_sents'].apply(lambda x: [stemmer.stem(y) for y in
```

```
dfs.sample(5)
```

	Index	comment	word_Count	Digit_Count	unique_word_Count	count_stop_wo
12	12	i can listen to ashneer whole day he is so foc...	18	0	18	
939	939	a great podcast i have heard	6	0	6	
447	447	entrepreneurs, soldiers, industrialists, etc s...	10	0	10	
428	428	clear honest thoughts	5	0	5	
2144	2144	: : paritosh and boyz devil laugh's in backgr...	9	0	9	

Sentiment Analysis

```
#Visualization packages
import matplotlib.pyplot as plt
import seaborn as sns
#NLP packages
from textblob import TextBlob


from textblob import TextBlob
import statistics

positive = 0
wpositive = 0
spositive = 0
negative = 0
wnegative = 0
snegative = 0
neutral = 0
track = []
for comment1 in dfs.comment_wt_stopwords.values:
  analysis = TextBlob(comment1)
  i = analysis.sentiment.polarity
  if (i == 0):
        neutral += 1
  elif (i > 0 and i <= 0.3):
      wpositive += 1
  elif (i > 0.3 and i <= 0.6):
      positive += 1
  elif (i > 0.6 and i <= 1):
      spositive += 1
  elif (i > -0.3 and i <= 0):
      wnegative += 1
```

```
  elif (i > -0.6 and i <= -0.3):
      negative += 1
  elif (i > -1 and i <= -0.6):
      snegative += 1
  track.append(i)


dfs['track'] = track
NoOfTerms = len(dfs['comment_wt_stopwords'])


positive = format(100 * float(positive) / float(NoOfTerms), '0.2f')
wpositive = format(100 * float(wpositive) / float(NoOfTerms), '0.2f')
spositive = format(100 * float(spositive) / float(NoOfTerms), '0.2f')
negative = format(100 * float(negative) / float(NoOfTerms), '0.2f')
wnegative = format(100 * float(wnegative) / float(NoOfTerms), '0.2f')
snegative = format(100 * float(snegative) / float(NoOfTerms), '0.2f')
neutral = format(100 * float(neutral) / float(NoOfTerms), '0.2f')


Final_score = statistics.mean(track)

if Final_score>0:
    print("Using TextBlob Sentiment Analyzer: ")
    print("Overall Reviews are Positive with Score "+ str(format(100 * Final_score , '0.2f
elif Final_score<0:
    print("Using TextBlob Sentiment Analyzer: \n")
    print("Overall Reviews are Negative with Score "+ str(format(100 * Final_score , '0.2f
else :
    print("Using TextBlob Sentiment Analyzer: \n")
    print("Overall Reviews are Moderate with Score "+ str(format(100 * Final_score , '0.2f


print()
print("Detailed Report: ")
print(str(positive) + "% people thought it was positive")
print(str(wpositive) + "% people thought it was weakly positive")
print(str(spositive) + "% people thought it was strongly positive")
print(str(negative) + "% people thought it was negative")
print(str(wnegative) + "% people thought it was weakly negative")
print(str(snegative) + "% people thought it was strongly negative")
print(str(neutral) + "% people thought it was neutral")
```

```
Using TextBlob Sentiment Analyzer:
Overall Reviews are Positive with Score 21.91%


Detailed Report:
17.30% people thought it was positive
19.09% people thought it was weakly positive
14.99% people thought it was strongly positive
2.05% people thought it was negative
4.66% people thought it was weakly negative
0.60% people thought it was strongly negative
41.22% people thought it was neutral
```

```
dfs.sample(5)
```

	Index	comment	word_Count	Digit_Count	unique_word_Count	count_stop_words
2328	2328	next podcast anupam mittal ka lena	6	0	6	0
985	985	bahut hi gripping podcast tha yee :	7	0	7	0
1665	1665	: :	1	0	1	0
1481	1481	thank you ashneer sir to give us your valuable...	14	0	14	3
2275	2275	i love ashneer becoz he never sugercoat anything	8	0	8	2

```
#Converting the polarity values from continuous to categorical
dfs['track'][dfs.track==0]= 0
dfs['track'][dfs.track > 0]= 1
dfs['track'][dfs.track < 0]= -1
```

```
/usr/local/lib/python3.7/dist-packages/ipykernel_launcher.py:2: SettingWithCopyWarnir
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/us

/usr/local/lib/python3.7/dist-packages/ipykernel_launcher.py:3: SettingWithCopyWarnir
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/us
  This is separate from the ipykernel package so we can avoid doing imports until
/usr/local/lib/python3.7/dist-packages/ipykernel_launcher.py:4: SettingWithCopyWarnir
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/us
  after removing the cwd from sys.path.
```

```
dfs.sample(3)
```

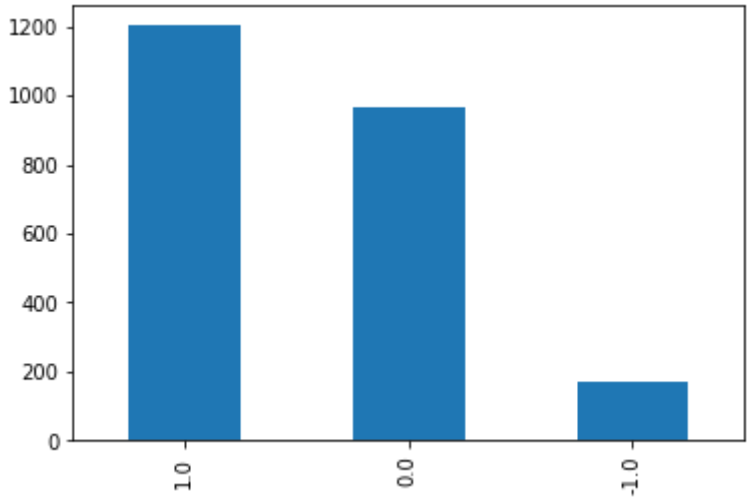
	Index	comment	word_Count	Digit_Count	unique_word_Count	count_stop_word
1957	1957	still better than sugarcoating	4	0	4	
1315	1315	i like doglapan of ashneer	5	0	5	
1084	1084	pure hearted and diligent guy	5	0	5	

```
dfs.track.value_counts()
```

```
 1.0    1203
 0.0     965
-1.0     173
Name: track, dtype: int64
```

```
dfs.track.value_counts().plot.bar()
```

```
<matplotlib.axes._subplots.AxesSubplot at 0x7fb33e209e50>
```



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