EXPERIMENT NO - 03

CODE :

1. Scrape Twitter Data for Union Budget 2023

```
!pip install snscrape import pandas as pd
import snscrape.modules.twitter as sntwitter import numpy as np
import matplotlib.pyplot as plt import seaborn as sns
import nltk nltk.download('stopwords')

from nltk.corpus import stopwords
from nltk.tokenize import word_tokenize from nltk.stem import WordNetLemmatizer from
nltk.stem.porter import PorterStemmer import string
import re import textblob
from textblob import TextBlob import os
from wordcloud import WordCloud, STOPWORDS from wordcloud import ImageColorGenerator
import warnings
%matplotlib inline
os.system("snscrape –jsonl –max-results 5000 –since 2023-01-31 twitter-search 'Budget 2023
until:2023-02-07'>text-query-tweets.json")
tweets_df = pd.read_json("text-query-tweets.json" ,lines=True) tweets_df.head(5)
tweets_df.to_csv()
```

2. Data Loading

```
df1 = tweets_df[[ 'date', 'rawContent' , 'renderedContent' , 'user' , 'replyCount'
,'retweetCount' , 'likeCount' , 'lang' , 'place' , 'hashtags' , 'viewCount']].copy() df1.head()
df1.shape
```

3. Twitter Data Cleaning, Preprocessing and Exploratory Data Analysis

```
df1=df1.drop_duplicates("renderedContent") df1.shape
df1.head df1.info
df1.date.value_counts() plt.figure(figsize=(17, 5))
sns.heatmap(df1.isnull(), cbar=True, yticklabels=False) plt.xlabel("Column_Name", size=14,
weight="bold") plt.title("Places of missing values in column",size=17)

plt.show()
import plotly.graph_objects as go
Top_Location_Of_tweet= df1['place'].value_counts().head (10)
```

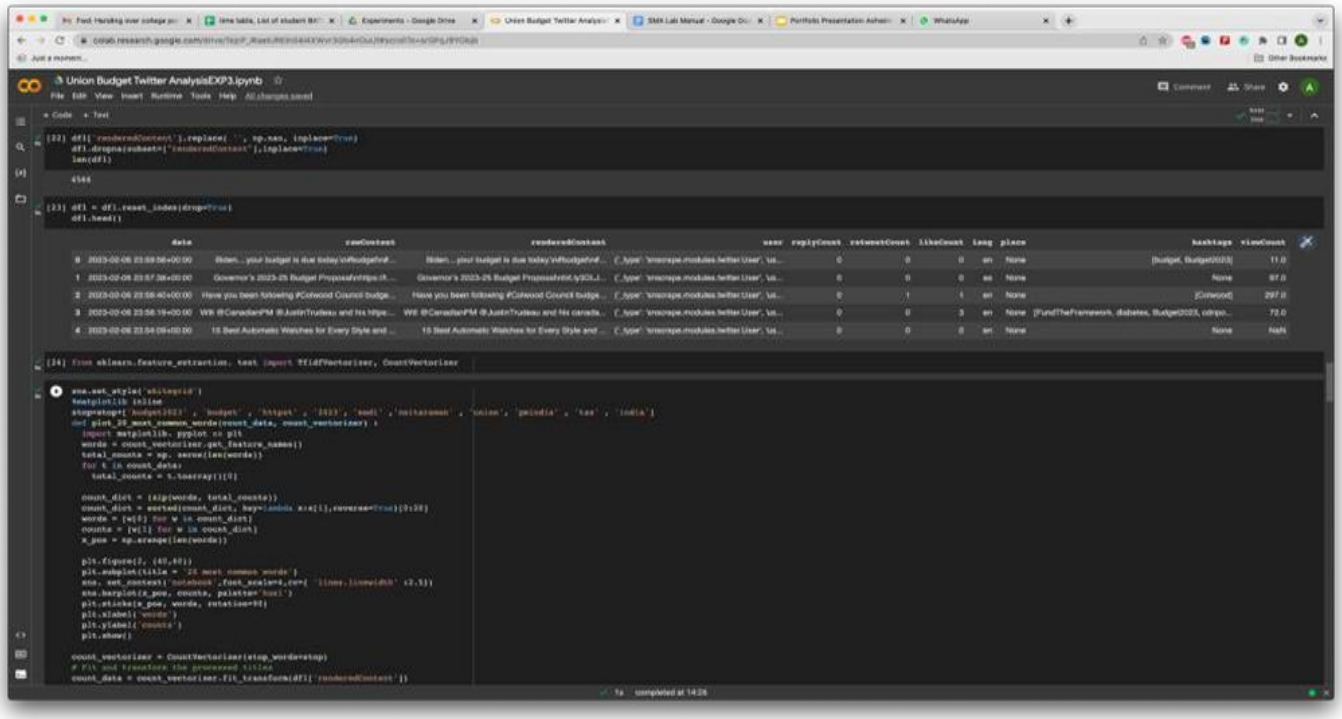
Twitter Data Cleaning and Preprocessing

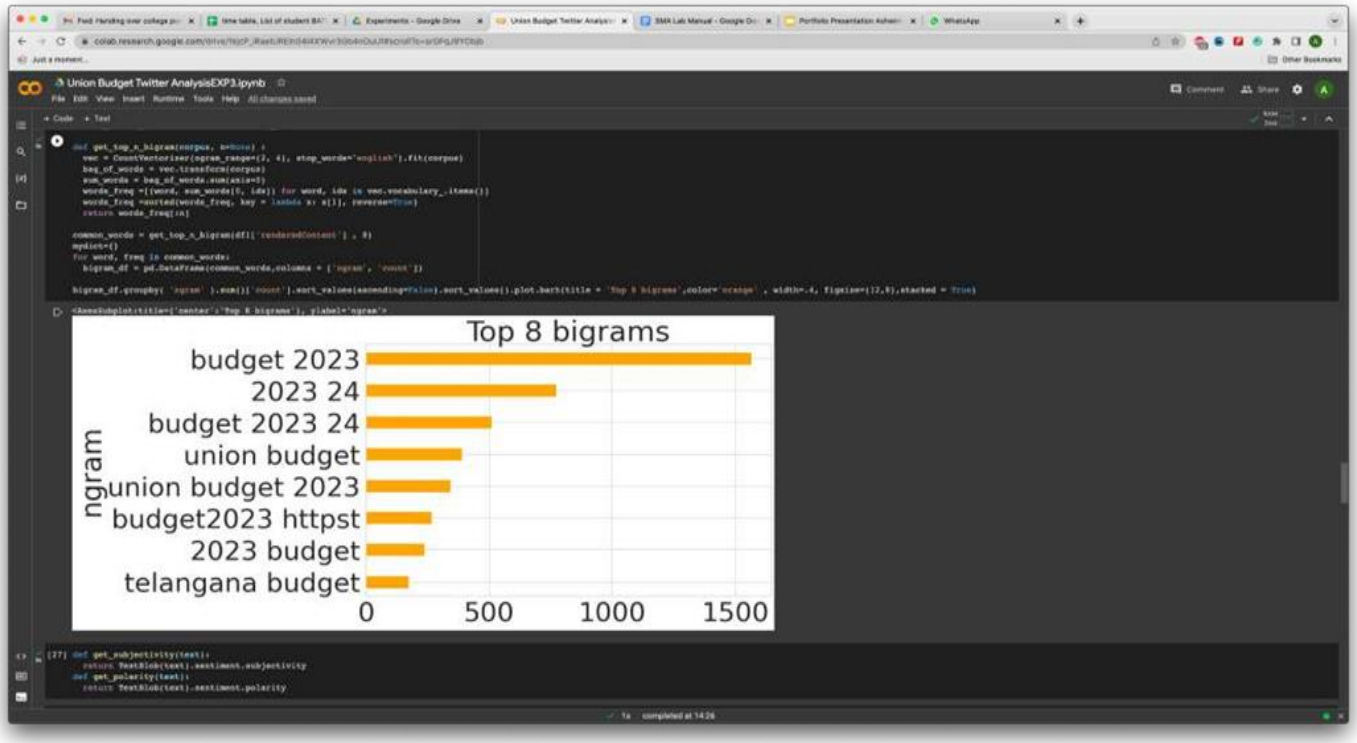
```
from nltk. corpus import stopwords stop = stopwords.words('english')
df1['renderedContent'].apply(lambda x: [item for item in x if item not in stop])

df1.shape
!pip install tweet-preprocessor #Remove unnecessary characters punct = ['%','/',':','\\','&amp','&',';','?']
```

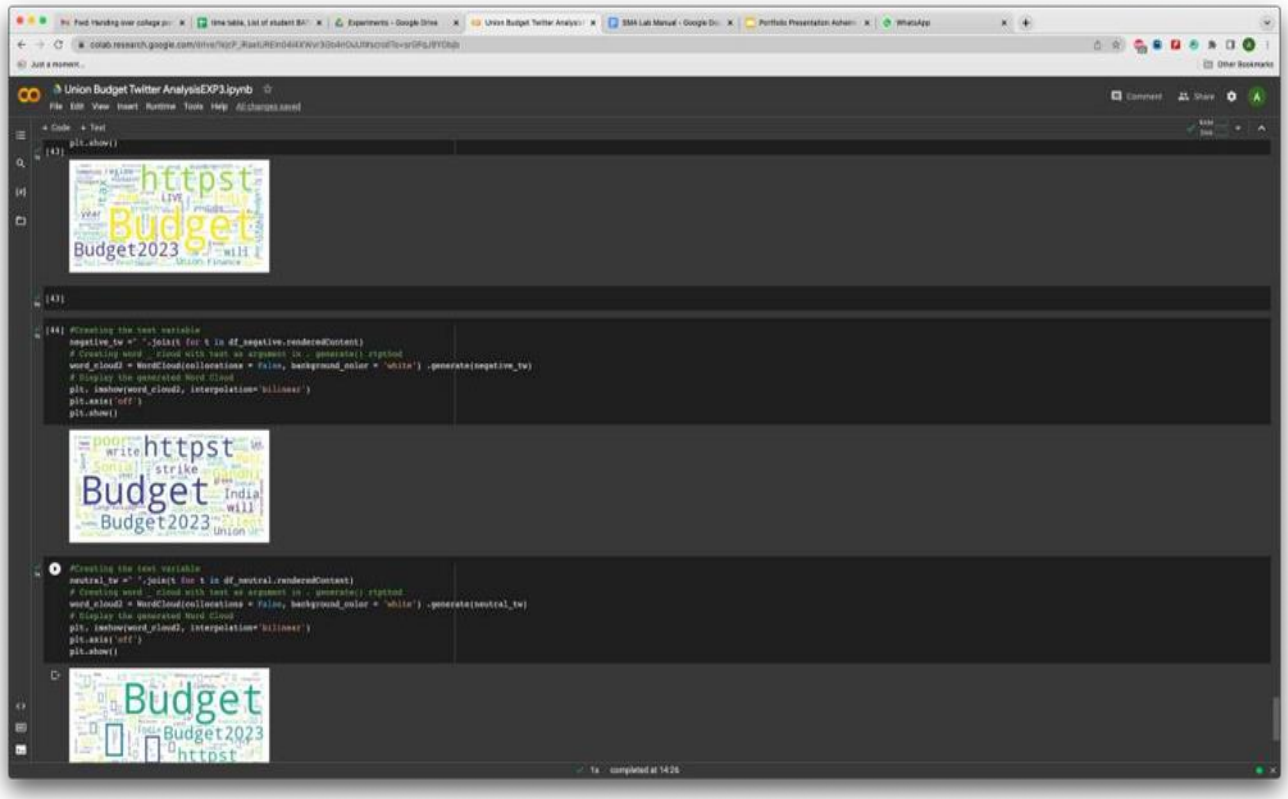
```
def remove_punctuations(text):
for punctuation in punct:
text = text.replace(punctuation,'') return text
df1['renderedContent'] = df1['renderedContent'].apply(lambda x: remove_punctuations(x))
df1['renderedContent'].replace( '', np.nan, inplace=True)
df1.dropna(subset=["renderedContent''],inplace=True) len(df1)
df1 = df1.reset_index(drop=True) df1.head()
from sklearn.feature_extraction. text import TfidfVectorizer, CountVectorizer
sns.set_style('whitegrid')
%matplotlib inline
stop=stop+['budget2023' , 'budget' , 'httpst' , '2023', 'modi' ,'nsitaraman' , 'union', 'pmindia' , 'tax' ,
'india']
def plot_20_most_common_words(count_data, count_vectorizer) :

import matplotlib. pyplot as plt
words = count_vectorizer.get_feature_names()

total_counts = np. zeros(len(words)) for t in count_data:
total_counts = t.toarray()[0]

count_dict = (zip(words, total_counts))
count_dict = sorted(count_dict, key=lambda x:x[1],reverse=True)[0:20] words = [w[0] for w in
count_dict]
counts = [w[1] for w in count_dict] x_pos = np.arange(len(words))

plt.figure(2, (40,40))
plt.subplot(title = '20 most common words')
sns. set_context('notebook',font_scale=4,rc={ 'lines.linewidth' :2.5}) sns.barplot(x_pos, counts,
palette='husl')
plt.xticks(x_pos, words, rotation=90) plt.xlabel('words')
plt.ylabel('counts') plt.show()

count_vectorizer = CountVectorizer(stop_words=stop) # Fit and transform the processed titles
count_data = count_vectorizer.fit_transform(df1['renderedContent']) # print(count_vectorizer)
# print(count_data)
# Visualise the 20 most common words plot_20_most_common_words(count_data,count_vectorizer)
plt.savefig( 'saved_figure.png')
import cufflinks as cf cf.go_offline()
cf.set_config_file(offline=False, world_readable=True)

def get_top_n_bigram(corpus, n=None) :
vec = CountVectorizer(ngram_range=(2, 4), stop_words="english").fit(corpus) bag_of_words =
vec.transform(corpus)

sum_words = bag_of_words.sum(axis=0)
words_freq =[(word, sum_words[0, idx]) for word, idx in vec.vocabulary_.items()]
words_freq =sorted(words_freq, key = lambda x: x[1], reverse=True) return words_freq[:n]

common_words = get_top_n_bigram(df1['renderedContent'] , 8) mydict={}
for word, freq in common_words:
```

```
bigram_df = pd.DataFrame(common_words,columns = ['ngram', 'count'])

bigram_df.groupby( 'ngram'
).sum()['count'].sort_values(ascending=False).sort_values().plot.barh(title = 'Top 8
bigrams',color='orange' , width=.4, figsize=(12,8),stacked = True)
def get_subjectivity(text):
return TextBlob(text).sentiment.subjectivity def get_polarity(text):
return TextBlob(text).sentiment.polarity
df1['subjectivity']=df1[ 'renderedContent'].apply(get_subjectivity) df1[ 'polarity' ]=df1[
'renderedContent'].apply(get_polarity) df1.head()
df1['textblob_score'] =df1[ 'renderedContent'].apply(lambda x: TextBlob(x).sentiment.polarity)
neutral_threshold=0.05
df1['textblob_sentiment']=df1[ 'textblob_score'].apply(lambda c:'positive' if c >= neutral_threshold
else ('Negative' if c <= -(neutral_threshold) else 'Neutral' ) ) textblob_df =
df1[['renderedContent','textblob_sentiment','likeCount']] textblob_df
textblob_df["textblob_sentiment"].value_counts()
textblob_df["textblob_sentiment"].value_counts().plot.barh(title = 'Sentiment Analysis',color='orange'
, width=.4, figsize=(12,8),stacked = True)
df_positive=textblob_df[textblob_df['textblob_sentiment']=='positive' ]
df_very_positive=df_positive[df_positive['likeCount']>0] df_very_positive.head()

df_negative=textblob_df[textblob_df['textblob_sentiment']=='Negative' ] df_negative
df_neutral=textblob_df[textblob_df['textblob_sentiment']=='Neutral' ] df_neutral
from wordcloud import WordCloud, STOPWORDS

from PIL import Image #Creating the text variable
positive_tw =" ".join(t for t in df_very_positive.renderedContent)
# Creating word _ cloud with text as argument in . generate() rtpthod word_cloud1 =
WordCloud(collocations = False, background_color = 'white')
.generate(positive_tw)
# Display the generated Word Cloud
plt. imshow(word_cloud1, interpolation='bilinear') plt.axis('off')
plt.show()
#Creating the text variable
negative_tw =" ".join(t for t in df_negative.renderedContent)
# Creating word _ cloud with text as argument in . generate() rtpthod word_cloud2 =
WordCloud(collocations = False, background_color = 'white')
.generate(negative_tw)
# Display the generated Word Cloud
plt. imshow(word_cloud2, interpolation='bilinear') plt.axis('off')
plt.show()
#Creating the text variable
neutral_tw =" ".join(t for t in df_neutral.renderedContent)
# Creating word _ cloud with text as argument in . generate() rtpthod word_cloud2 =
WordCloud(collocations = False, background_color = 'white')
.generate(neutral_tw)
# Display the generated Word Cloud
plt. imshow(word_cloud2, interpolation='bilinear') plt.axis('off')
plt.show()
```

OUTPUT :


Union Budget Twitter AnalysisEXP3.ipynb
[22] df['renderedContent'].replace('', np.nan, inplace=True)
df.dropna(subset=['renderedContent'],inplace=True)
len(df)
4544
[23] df1 = df1.reset_index(drop=True)
df1.head()
[24] from sklearn.feature_extraction. text import TfidfVectorizer, CountVectorizer


Union Budget Twitter AnalysisEXP3.ipynb
Top 8 bigrams
budget 2023
2023 24
budget 2023 24
union budget
union budget 2023
budget2023 httpst
2023 budget
telangana budget
ngram
0
500
1000
1500


Union Budget Twitter AnalysisEXP3.ipynb
plt.show()
[43]
[44] #Creating the text variable
negative_tw =" ".join([for t in df_negative.renderedContent])
# Creating word _ cloud with text as argument in . generate() method
word_cloud2 = WordCloud(collocations = False, background_color = 'white') .generate(negative_tw)
# Display the generated Word Cloud
plt. imshow(word_cloud2, interpolation='bilinear')
plt.axis('off')
plt.show()
#Creating the text variable
neutral_tw =" ".join(t for t in df_neutral.renderedContent)
# Creating word _ cloud with text as argument in . generate() method
word_cloud2 = WordCloud(collocations = False, background_color = 'white') .generate(neutral_tw)
# Display the generated Word Cloud
plt. imshow(word_cloud2, interpolation='bilinear')
plt.axis('off')
plt.show()
1s completed at 14:26