```
import pandas as pd
import tweepy
from tweepy import OAuthHandler
from textblob import TextBlob
import matplotlib.pyplot as plt
import re
import configparser
from wordcloud import WordCloud, STOPWORDS
stopwords = set(STOPWORDS)

config = configparser.ConfigParser()
config.read("/kaggle/input/config-file/config.ini")

['config.ini']

api_key = config['twitter']['api_key']
api_key_secret = config['twitter']['api_key_secret']

access_token = config['twitter']['access_token']
access_token_secret = config['twitter']['access_token_secret']

auth = tweepy.OAuthHandler(api_key,api_key_secret)
auth.set_access_token(access_token,access_token_secret)
api = tweepy.API(auth)

db = pd.DataFrame(columns=['user_name',
                           'user_location',
                           'user_description',
                           'user_followers',
                           'date',
                           'text',
                           'hashtags',
                           'retweetcount'])

tweets = tweepy.Cursor(api.search_tweets,
                       'Rafael Nadal', lang="en",
                       tweet_mode='extended').items(9000)

list_tweets = [tweet for tweet in tweets]

i = 1

for tweet in list_tweets:
        user_name = tweet.user.screen_name
        user_location = tweet.user.location
        user_description = tweet.user.description
        user_followers = tweet.user.followers_count
        date = tweet.created_at
        text = tweet.full_text
        hashtags = tweet.entities['hashtags']
        retweetcount = tweet.retweet_count
```

```
        ith_tweet = [user_name, user_location,
                     user_description, user_followers,
                     date, text,
                     hashtags, retweetcount]
        db.loc[len(db)] = ith_tweet

filename =
'/kaggle/input/rafael-nadal-twitter-dataset/rafaelnadal_tweets.csv'

db.to_csv(filename)

df =
pd.read_csv('/kaggle/input/rafael-nadal-twitter-dataset/rafaelnadal_tw
eets.csv')
df.head()
```

	user_name	user_location	user_description	user_followers	date	text
0	Nong Nhat Minh	NaN	NaN	20	08-06-2022 17:02	@DappCensus Nice project. @linhair8 @LongAirdr...
1	Peter Ndoro	Africa	Broadcast Journalist | This is not a News Feed...	279853	08-06-2022 16:52	The champions are being born everyday. They ar...
2	Gurpreet Singh	Mansa	https://t.co/2zAmCdu2Jh	61	08-06-2022 16:43	@DappCensus □\n Successful in 2022\nBig profit...
3	💯 Earning Tips💰💰	Dhaka, Bangladesh	ARKERARMY💪	115	08-06-2022 16:39	@DappCensus This is very huge and great projec...
4	ahs	universe	a common man.	35	08-06-2022 16:35	@neeteshb @RajKumarMUFC @87vintage @nadalprop ...

```
                                                hashtags  retweetCount
0  ['dappcensus', 'Airdrop', 'BNB', 'giveaway', '...           637
1                                                NaN           302
2                                                NaN             0
3                                                NaN         23781
4                                     ['Djokovic']         13067
```

```
df.shape
```

```
(8286, 8)
```

```
df.info()
```

```
<class 'pandas.core.frame.DataFrame'>

RangeIndex: 8286 entries, 0 to 8285

Data columns (total 8 columns):

 #   Column            Non-Null Count  Dtype

---  ------            --------------  -----

 0   user_name         8286 non-null   object

 1   user_location     5853 non-null   object

 2   user_description  7405 non-null   object

 3   user_followers    8286 non-null   int64

 4   date              8286 non-null   object

 5   text              8286 non-null   object

 6   hashtags          6586 non-null   object

 7   retweetCount      8286 non-null   int64

dtypes: int64(2), object(6)

memory usage: 518.0+ KB
```

```
df['date'] = pd.to_datetime(df['date'],format="%d-%m-%Y %H:%M")
df.info()
```

```
<class 'pandas.core.frame.DataFrame'>

RangeIndex: 8286 entries, 0 to 8285
```

```
Data columns (total 8 columns):
 #   Column            Non-Null Count  Dtype
---  ------            --------------  -----
 0   user_name         8286 non-null   object
 1   user_location     5853 non-null   object
 2   user_description  7405 non-null   object
 3   user_followers    8286 non-null   int64
 4   date              8286 non-null   datetime64[ns]
 5   text              8286 non-null   object
 6   hashtags          6586 non-null   object
 7   retweetCount      8286 non-null   int64
dtypes: datetime64[ns](1), int64(2), object(5)
memory usage: 518.0+ KB
df.head()
          user_name      user_location  \
0    Nong Nhat Minh                NaN
1       Peter Ndoro             Africa
2    Gurpreet Singh              Mansa
3  💯 Earning Tips🙇🙇  Dhaka, Bangladesh
4              ahs           universe

                                   user_description
user_followers  \
0                                               NaN              20
1  Broadcast Journalist | This is not a News Feed...          279853
2                          https://t.co/2zAmCdu2Jh              61
3                                      ARKERARMY💪              115
4                                   a common man.               35
```

```
                 date
text  \
0 2022-06-08 17:02:00  @DappCensus Nice project. @linhair8
@LongAirdr...
1 2022-06-08 16:52:00  The champions are being born everyday. They
ar...
2 2022-06-08 16:43:00  @DappCensus □\n Successful in 2022\nBig
profit...
3 2022-06-08 16:39:00  @DappCensus This is very huge and great
projec...
4 2022-06-08 16:35:00  @neeteshb @RajKumarMUFC @87vintage
@nadalprop ...

                                              hashtags  retweetCount
0  ['dappcensus', 'Airdrop', 'BNB', 'giveaway', '...           637
1                                                NaN           302
2                                                NaN             0
3                                                NaN         23781
4                                     ['Djokovic']         13067
```

```
df.describe()
```

```
       user_followers   retweetCount
count    8.286000e+03    8286.000000
mean     1.016901e+04    5927.665339
std      2.445845e+05    8069.822615
min      0.000000e+00       0.000000
25%      6.600000e+01     205.000000
50%      2.535000e+02    1750.000000
75%      1.061500e+03   10614.000000
max      1.444403e+07  100500.000000
```

```
pd.DatetimeIndex(df['date']).month.unique()
```

```
Int64Index([6, 5], dtype='int64', name='date')
```

1. What is the % growth in the tweet as compared to last month?

```
df['month'] = df['date'].dt.month
df.head()
```

```
          user_name      user_location  \
0    Nong Nhat Minh                NaN
1       Peter Ndoro             Africa
2    Gurpreet Singh              Mansa
3  💯 Earning Tips🙏🙏  Dhaka, Bangladesh
4              ahs           universe

                                  user_description
user_followers  \
0                                              NaN              20
```

```
1  Broadcast Journalist | This is not a News Feed...          279853

2                           https://t.co/2zAmCdu2Jh              61

3                                        ARKERARMY💪             115

4                                    a common man.               35


                  date
text  \
0 2022-06-08 17:02:00  @DappCensus Nice project. @linhair8
@LongAirdr...
1 2022-06-08 16:52:00  The champions are being born everyday. They
ar...
2 2022-06-08 16:43:00  @DappCensus □\n Successful in 2022\nBig
profit...
3 2022-06-08 16:39:00  @DappCensus This is very huge and great
projec...
4 2022-06-08 16:35:00  @neeteshb @RajKumarMUFC @87vintage
@nadalprop ...

                                          hashtags  retweetCount
month
0  ['dappcensus', 'Airdrop', 'BNB', 'giveaway', '...           637
6
1                                                NaN           302
6
2                                                NaN             0
6
3                                                NaN         23781
6
4                                    ['Djokovic']            13067
6
```

```
df.month.value_counts()
```

```
6    7077
5    1209
Name: month, dtype: int64
```

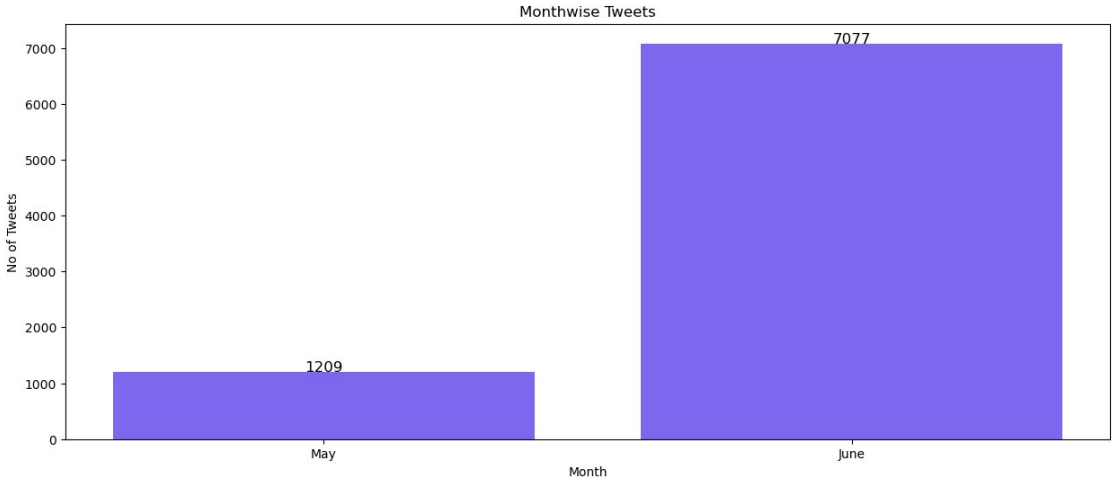
```
june = len(df[df.month==6])
may = len(df[df.month==5])
month_dict = {'May' : may, "June" : june}
month_dict
```

```
{'May': 1209, 'June': 7077}
```

```
plt.figure(figsize=(15,6))
plt.bar(month_dict.keys(),
month_dict.values(),color='mediumslateblue')
```

```
# set the axis labels and title
plt.xlabel('Month')
plt.ylabel('No of Tweets')
plt.title('Monthwise Tweets')

# rotate the x-axis labels for better visibility
for i, v in enumerate(month_dict):
    print(i,v)
    plt.text(v, month_dict[v]+0.4, str(round(month_dict[v],2)),
fontsize=12, color='black', ha='center')
# show the plot
plt.show()
```

```
0 May

1 June
```




```
# Percent increase = [(new value - original value)/original value] ×
100
percent_increase_in_june = (month_dict['June'] -
month_dict['May'])/month_dict['May'] * 100
percent_increase_in_june
```

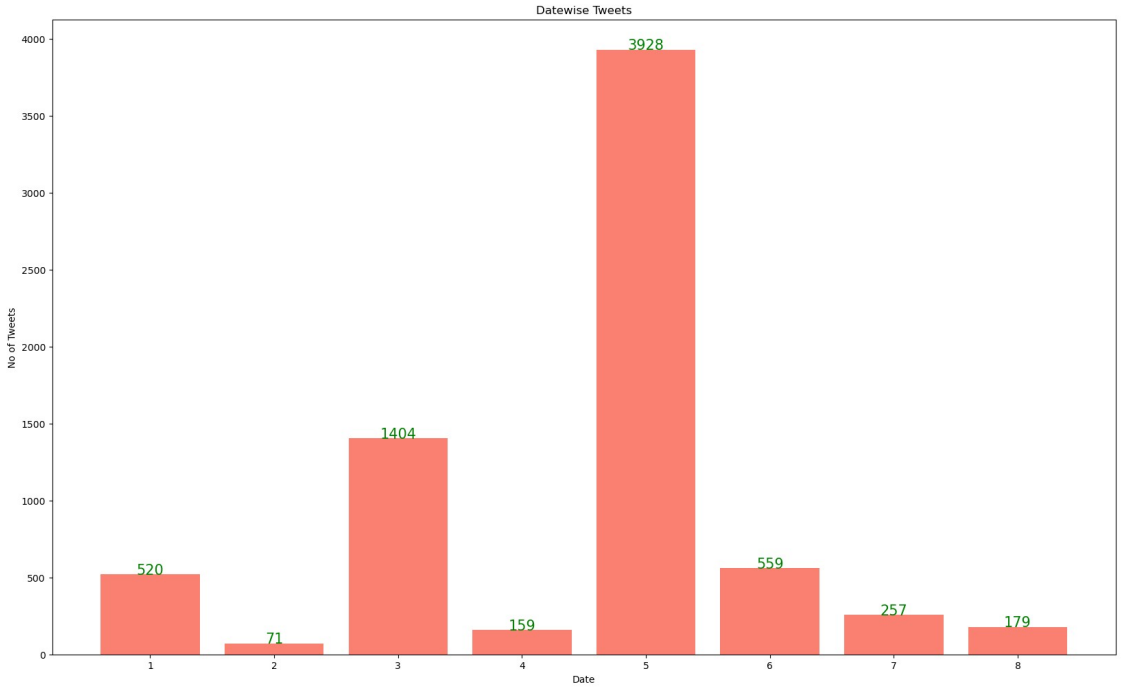
```
485.35980148883374
```

```
df_june = df[df.month==6]
df_june['day'] = df_june['date'].dt.day
df_june.day.value_counts()
```

```
C:\Users\amitb\anaconda3\envs\envv\lib\site-packages\
ipykernel_launcher.py:2: 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



5    3928
3    1404
6     559
1     520
7     257
8     179
4     159
2      71
Name: day, dtype: int64
```

```
plt.figure(figsize=(20,12))
plt.bar(df_june.day.value_counts().index,
df_june.day.value_counts().values,color="salmon")

# set the axis labels and title
plt.xlabel('Date')
plt.ylabel('No of Tweets')
plt.title('Datewise Tweets')

# rotate the x-axis labels for better visibility
for i, v in enumerate(df_june.day.value_counts().values):
    plt.text(df_june.day.value_counts().index[i], v+0.15,
str(round(v,2)), fontsize=15, color='green', ha='center')

# show the plot
plt.show()
```



So the % growth in the tweet of June month as compared to May month is 485%. And maximum tweets are on the 5th June 2022 i.e. 3928 because Nadal won French Open on that day.

2. How many % of tweets were of positive sentiments?

```
def Clean_text(text):
    text = re.sub(r'@[A-Za-z0-9]+', '',text)
    text = re.sub(r'#', '',text)
    text = re.sub(r'RT[\s]+', '',text)
    text = re.sub(r'https?:\/\/\S+', '',text)
    return text

df['text'] = df['text'].apply(Clean_text)

df.head(100)
```

```
           user_name      user_location  \
0     Nong Nhat Minh                NaN
1        Peter Ndoro             Africa
2     Gurpreet Singh              Mansa
3   💯 Earning Tips💰💰  Dhaka, Bangladesh
4                ahs           universe
..               ...                ...
95        Calculator                NaN
96        Calculator                NaN
97               fvc                NaN
98     Tatisuryati05                NaN
99           Ashwath   Bengaluru, India

                                    user_description  user_followers
```

```
\
0                                                    NaN              20
1   Broadcast Journalist | This is not a News Feed...          279853
2                              https://t.co/2zAmCdu2Jh              61
3                                          ARKERARMY💪              115
4                                       a common man.               35
..                                                 ...              ...
95                                         Iam good♡               123
96                                         Iam good♡               123
97                                                 NaN              142
98                           Airdrop crypto is the best              21
99                                      ◎❤♡◎♡\n♡◎♡♡◎
667

                  date
text  \
0  2022-06-08 17:02:00   Nice project.    \ndappcensus Airdrop BNB
giv...
1  2022-06-08 16:52:00  The champions are being born everyday. They
ar...
2  2022-06-08 16:43:00   \n Successful in 2022\nBig profitable\n \n
_...
3  2022-06-08 16:39:00   This is very huge and great project and
team ...
4  2022-06-08 16:35:00      With 50% GS on his surface 2 GS per year
D...
..                 ...
...
95 2022-06-08 09:50:00   Good project😁\n\n\n\n\ndappcensus Airdrop
BNB...
96 2022-06-08 09:49:00   Good project😁\n\n\n\n\ndappcensus Airdrop
BNB...
97 2022-06-08 09:48:00   This project looks very interesting. I am
int...
98 2022-06-08 09:37:00   Nice project with good token in world
crypto ...
99 2022-06-08 09:36:00   Very good &amp;amp; strong project❤\n\n\n_u\n\
nda...
```

```
                                                  hashtags  retweetCount
month
0   ['dappcensus', 'Airdrop', 'BNB', 'giveaway', '...           637
6
1                                                     NaN           302
6
2                                                     NaN             0
6
3                                                     NaN         23781
6
4                                          ['Djokovic']         13067
6
..                                                    ...           ...
...
95       ['dappcensus', 'Airdrop', 'BNB', 'giveaway']          1728
6
96       ['dappcensus', 'Airdrop', 'BNB', 'giveaway']          2761
6
97                                                    NaN             2
6
98                                                    NaN          3141
6
99                          ['dappcensus', 'Airdrop']         13320
6

[100 rows x 9 columns]
```

```python
def getsentimemts(text):
    return TextBlob(text).sentiment.polarity

df['polarity'] = df['text'].apply(getsentimemts)

df.head()
```

```
          user_name      user_location  \
0    Nong Nhat Minh                NaN
1       Peter Ndoro             Africa
2    Gurpreet Singh              Mansa
3  💯 Earning Tips🙇🙇  Dhaka, Bangladesh
4               ahs           universe

                                    user_description
user_followers  \
0                                               NaN             20

1  Broadcast Journalist | This is not a News Feed...          279853

2                           https://t.co/2zAmCdu2Jh             61

3                                       ARKERARMY💪             115
```

```
4                                        a common man.              35


                  date
text  \
0 2022-06-08 17:02:00   Nice project.    \ndappcensus Airdrop BNB
giv...
1 2022-06-08 16:52:00  The champions are being born everyday. They
ar...
2 2022-06-08 16:43:00   \n Successful in 2022\nBig profitable\n \n
_...
3 2022-06-08 16:39:00   This is very huge and great project and
team ...
4 2022-06-08 16:35:00      With 50% GS on his surface 2 GS per year
D...

                                                hashtags  retweetCount
month  \
0  ['dappcensus', 'Airdrop', 'BNB', 'giveaway', '...           637
6
1                                                 NaN           302
6
2                                                 NaN             0
6
3                                                 NaN         23781
6
4                                       ['Djokovic']          13067
6

   polarity
0     0.600
1    -0.200
2     0.375
3     0.664
4     0.600
```

```
def getanalysis(score):
    if score < 0 :
        return "Negative"
    elif score == 0 :
        return "Neutral"
    else :
        return "Positive"

df['sentiment'] = df['polarity'].apply(getanalysis)

df.head()
```

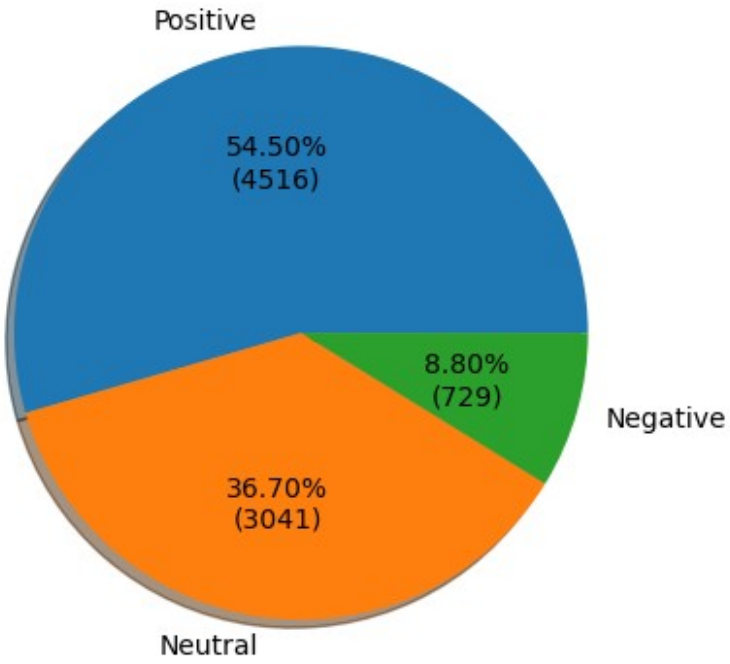
```
          user_name      user_location  \
0    Nong Nhat Minh                NaN
```

```
1       Peter Ndoro             Africa
2    Gurpreet Singh              Mansa
3  💯 Earning Tips🙏🙏  Dhaka, Bangladesh
4              ahs           universe

                                    user_description
user_followers  \
0                                                NaN              20

1  Broadcast Journalist | This is not a News Feed...           279853

2                           https://t.co/2zAmCdu2Jh              61

3                                      ARKERARMY💪              115

4                                  a common man.                35


                 date
text  \
0 2022-06-08 17:02:00   Nice project.    \ndappcensus Airdrop BNB
giv...
1 2022-06-08 16:52:00  The champions are being born everyday. They
ar...
2 2022-06-08 16:43:00   □\n Successful in 2022\nBig profitable\n \n
_...
3 2022-06-08 16:39:00   This is very huge and great project and
team ...
4 2022-06-08 16:35:00      With 50% GS on his surface 2 GS per year
D...

                                          hashtags  retweetCount
month  \
0  ['dappcensus', 'Airdrop', 'BNB', 'giveaway', '...           637
6
1                                                NaN           302
6
2                                                NaN             0
6
3                                                NaN         23781
6
4                                    ['Djokovic']         13067
6

   polarity sentiment
0     0.600  Positive
1    -0.200  Negative
2     0.375  Positive
```

```
3     0.664  Positive
4     0.600  Positive
```

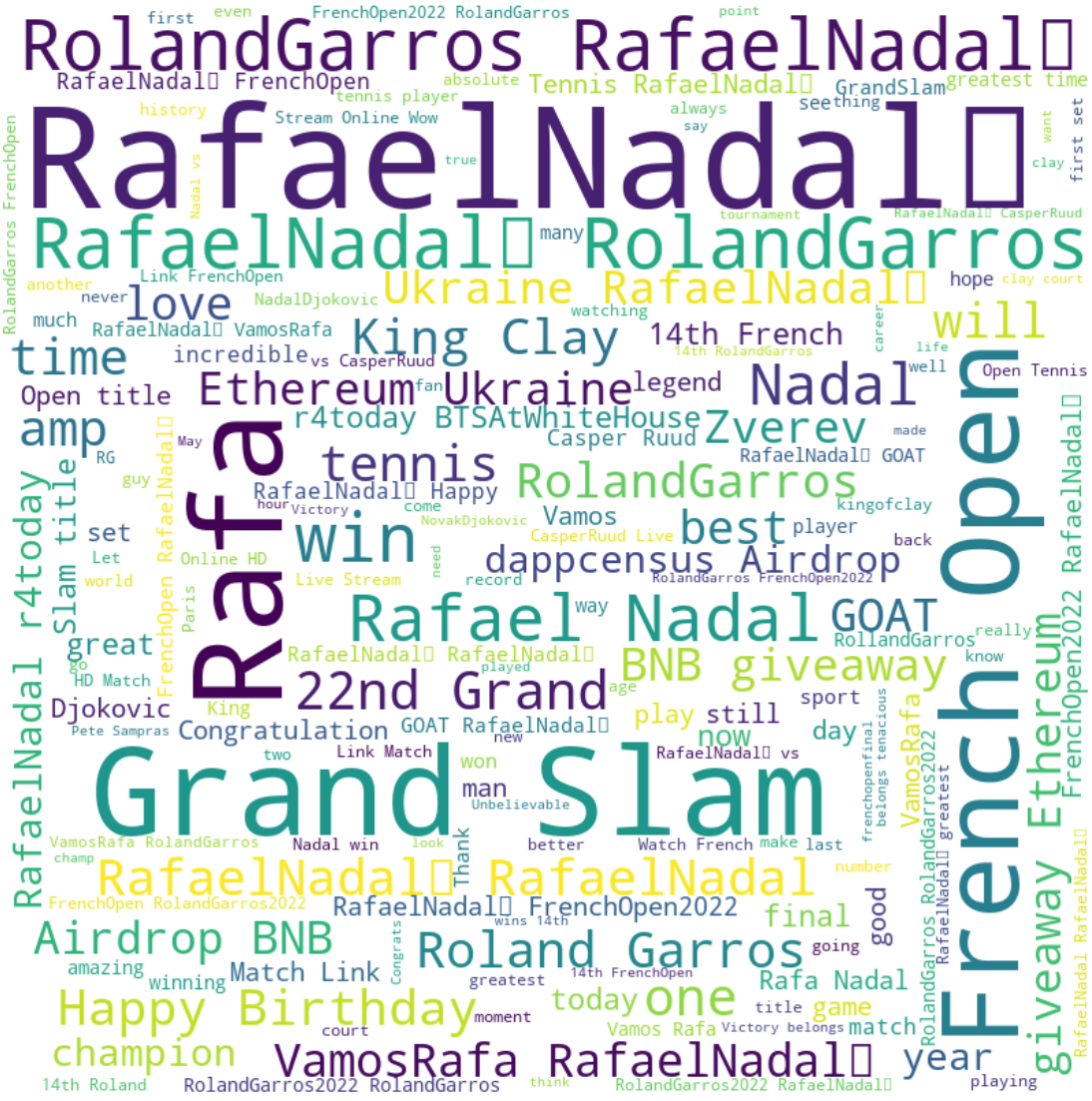
```
def my_fmt(x):
    return '{:.2f}%\n({:.0f})'.format(x, total*x/100)

v_counts = df['sentiment'].value_counts()
total = len(df['sentiment'])
fig = plt.figure()
plt.pie(v_counts, labels=v_counts.index, autopct=my_fmt, shadow=True)
```

```
([<matplotlib.patches.Wedge at 0x1b5b0f67188>,
  <matplotlib.patches.Wedge at 0x1b5b0f63848>,
  <matplotlib.patches.Wedge at 0x1b5b0f62708>],
 [Text(-0.15504504404049427, 1.0890183810746636, 'Positive'),
  Text(-0.14802265504658377, -1.089995088793046, 'Neutral'),
  Text(1.0582495456156478, -0.3001797781401595, 'Negative')],
 [Text(-0.08457002402208778, 0.5940100260407255, '54.50%\n(4516)'),
  Text(-0.08073963002540932, -0.5945427757052978, '36.70%\n(3041)'),
  Text(0.5772270248812623, -0.16373442444008698, '8.80%\n(729)')])
```




```
df_positive = df[df.sentiment=="Positive"]
words = ' '.join([text for text in df_positive['text']])

wordcloud = WordCloud(width = 800, height = 800,
                background_color ='white',
                stopwords = stopwords,
                min_font_size = 10).generate(words)
```

```
plt.figure(figsize = (8, 8), facecolor = None)
plt.imshow(wordcloud)
plt.axis("off")
plt.tight_layout(pad = 0)

plt.show()
```



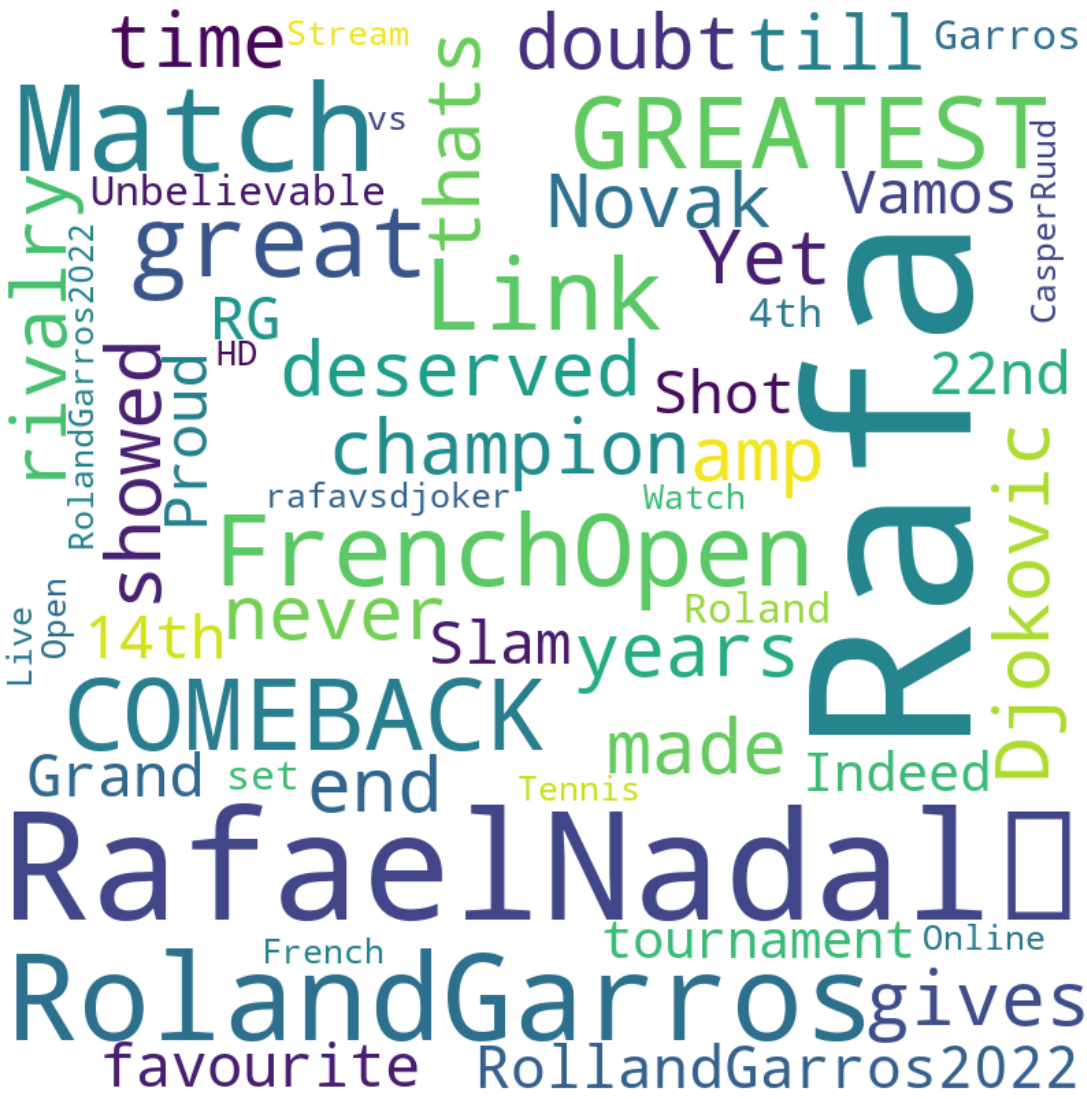
From all extracted tweets, approx 55% tweets are positive sentiments and his name grand slam are mostly mentioned with praises and congratulations.

3. Top 5 most viral tweets (based upon retweets)

```
df_top5 = df.sort_values(by='retweetCount',ascending='False')
[df.shape[0]-5:][::-1][['text','retweetCount']]
df_top5
```

```
                                                   text  retweetCount
6835  "He showed why he's a great champion,no doubt ...        100500
3575  Vamos  !!! 14th RG and 22nd Grand Slam!!! Rafa...         66596
5555  Shot of the tournament Indeed!!\nRafaelNadal...          46812
7084  Unbelievable match and great comeback from Raf...        46812
4519  Watch French Open Tennis\n\nRafaelNadal  v...          44008
```

```
words = ' '.join([text for text in df_top5['text']])

wordcloud = WordCloud(width = 800, height = 800,
                background_color ='white',
                stopwords = stopwords,
                min_font_size = 10).generate(words)

plt.figure(figsize = (8, 8), facecolor = None)
plt.imshow(wordcloud)
plt.axis("off")
plt.tight_layout(pad = 0)

plt.show()
```



The above tweets are the top 5 most viral tweets (based upon retweets) and praises are all over for Refael Nadal.

4. How many influential people are talking about our product (whose followers are greater than 1000)

```
df_influential_people = df[df.user_followers > 1000]
[['user_name','user_followers']]
df_influential_people.shape
```

```
(2131, 2)
```

```
df_influential_people.head()
```

```
       user_name  user_followers
1    Peter Ndoro          279853
5   TroubleFault            5982
6   TroubleFault            5982
```

```
13  TroubleFault            5982
14  TroubleFault            5982
```

```
df_influential_people =
df_influential_people.drop_duplicates(subset=['user_name'])
df_influential_people.shape
```

```
(1175, 2)
```

```
df_influential_people.head()
```

```
                    user_name  user_followers
1                 Peter Ndoro          279853
5                TroubleFault            5982
18                    AlexCam            3147
22  🏳 ⓅⓈ♡♡ junsu / hana            1431
24                    □Y □ □∩             1109
```

There are total 1175 influential people (whose followers are greater than 1000) are tweeted about Rafael Nadal.

5. Which geographical location has the most tweets?

```
df.user_location.value_counts()
```

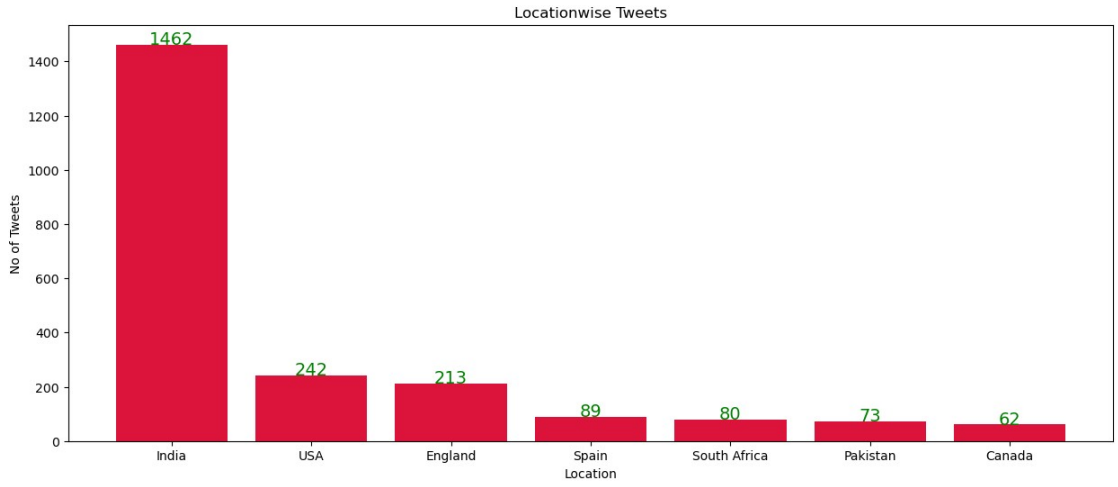
```
India                           298
New Delhi, India                113
Mumbai, India                   109
Mumbai                           92
barcaelona                       78
                               ...
Bhubaneswar                       1
Kolkata, West Bengal, India       1
Victoria, Australia               1
New Delhi , India                 1
शिवभूमि                 1
Name: user_location, Length: 2109, dtype: int64
```

```
def get_country(location):
    try:
        if location is not None:
            if ',' in location:
                location = location.split(',')[-1]
                location = location.strip()
        if 'Mumbai' in location:
            location = 'India'
        elif location == 'United Kingdom':
            location = 'England'
        elif location == 'barcaelona':
            location = 'Spain'
        elif location == 'NY' or location == 'CA':
            location = 'USA'
```

```
        return location
    except Exception as e:
        return location

df_tweet_location = df.user_location.apply(get_country)
df_tweet_location.value_counts()[:7]
```

```
India           1462
USA              242
England          213
Spain             89
South Africa      80
Pakistan          73
Canada            62
Name: user_location, dtype: int64
```

```
plt.figure(figsize=(15,6))
plt.bar(df_tweet_location.value_counts().index[:7],
df_tweet_location.value_counts().values[:7],color='crimson')

# set the axis labels and title
plt.xlabel('Location')
plt.ylabel('No of Tweets')
plt.title('Locationwise Tweets')

# rotate the x-axis labels for better visibility
for i, v in enumerate(df_tweet_location.value_counts()[:7]):
    plt.text(df_tweet_location.index[i], v+0.4, str(round(v,2)),
fontsize=14, color='green', ha='center')
# show the plot
plt.show()
```



Most tweets are from India and USA stands second with England as third.

6. what is the hashtag that appears most frequently and can be considered the most trending among the analyzed data?

```
def get_hashtags(hashtag_list):
    try:
        if hashtag_list is not None:
            hashtag_list = hashtag_list.split(',')
            for i in range(len(hashtag_list)):
                hashtag_list[i] = hashtag_list[i].replace('[','')
                hashtag_list[i] = hashtag_list[i].replace(']','')
                hashtag_list[i] = hashtag_list[i].replace("'",'')
                hashtag_list[i] = hashtag_list[i].replace("'",'')
                hashtag_list[i] = hashtag_list[i].replace("",'')
                hashtag_list[i] = hashtag_list[i].strip()
        text_join = ','.join(hashtag_list)
        return text_join
    except Exception as e:
        return ''

df['hashtags'] = df['hashtags'].apply(get_hashtags)
df['hashtags'].head()
```

```
0    dappcensus,Airdrop,BNB,giveaway,Ethereum
1
2
3
4                                    Djokovic
Name: hashtags, dtype: object
```

```
df1=pd.DataFrame()
df1['hashtags'] = df['hashtags'].str.split(',')
# df1['hashtags'] = df1['hashtags'].fillna('')
df1.head()
```

```
                                        hashtags
0  [dappcensus, Airdrop, BNB, giveaway, Ethereum]
1                                              []
2                                              []
3                                              []
4                                       [Djokovic]
```

```
df2 = pd.DataFrame(df1['hashtags'].tolist()).add_prefix('hashtags_')
df2
```

```
      hashtags_0    hashtags_1     hashtags_2     hashtags_3
hashtags_4  \
0     dappcensus       Airdrop            BNB       giveaway
Ethereum
1                         None           None           None
None
```

```
2                        None           None           None
None
3                        None           None           None
None
4       Djokovic         None           None           None
None
...          ...          ...            ...            ...        ..
.
8281  FrenchOpen  RolandGarros    RafaelNadal  NovakDjokovic
Tennis
8282   VamosRafa   RafaelNadal  DjokovicNadal  NovakDjokovic
None
8283                     None           None           None
None
8284                     None           None           None
None
8285  latestnews   RafaelNadal           None           None
None

     hashtags_5 hashtags_6 hashtags_7 hashtags_8 hashtags_9
hashtags_10
0          None       None       None       None       None
None
1          None       None       None       None       None
None
2          None       None       None       None       None
None
3          None       None       None       None       None
None
4          None       None       None       None       None
None
...         ...        ...        ...        ...        ...        ..
.
8281        ATP       None       None       None       None
None
8282       None       None       None       None       None
None
8283       None       None       None       None       None
None
8284       None       None       None       None       None
None
8285       None       None       None       None       None
None

[8286 rows x 11 columns]

df2.isnull().sum()

hashtags_0        0
hashtags_1     4074
```

```
hashtags_2     6299
hashtags_3     7419
hashtags_4     7879
hashtags_5     8072
hashtags_6     8196
hashtags_7     8236
hashtags_8     8258
hashtags_9     8279
hashtags_10    8285
dtype: int64
```

```
df3 = pd.Series(df2.values.ravel('F'))
df3.shape
```

```
(91146,)
```

```
df3.isnull().sum()
```

```
74997
```

```
df3 = df3.dropna()
df3.shape
```

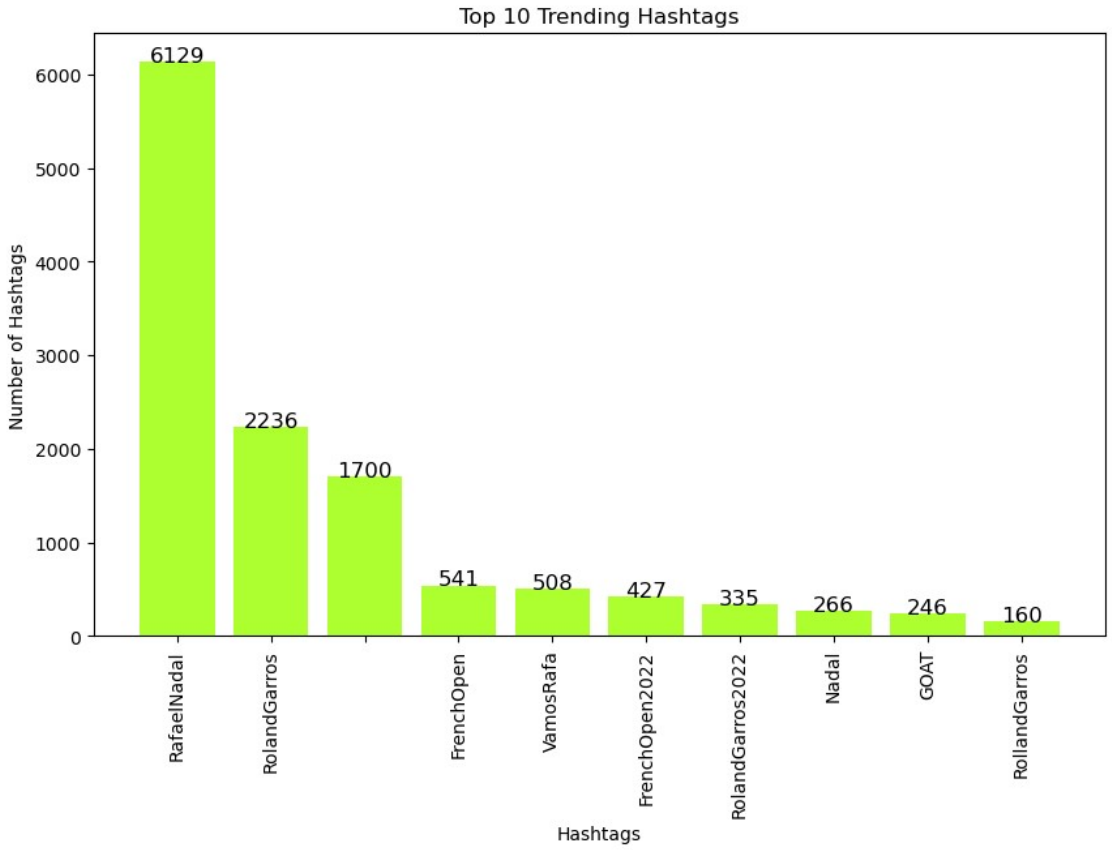
```
(16149,)
```

```
a = df3.value_counts()
a.index
```

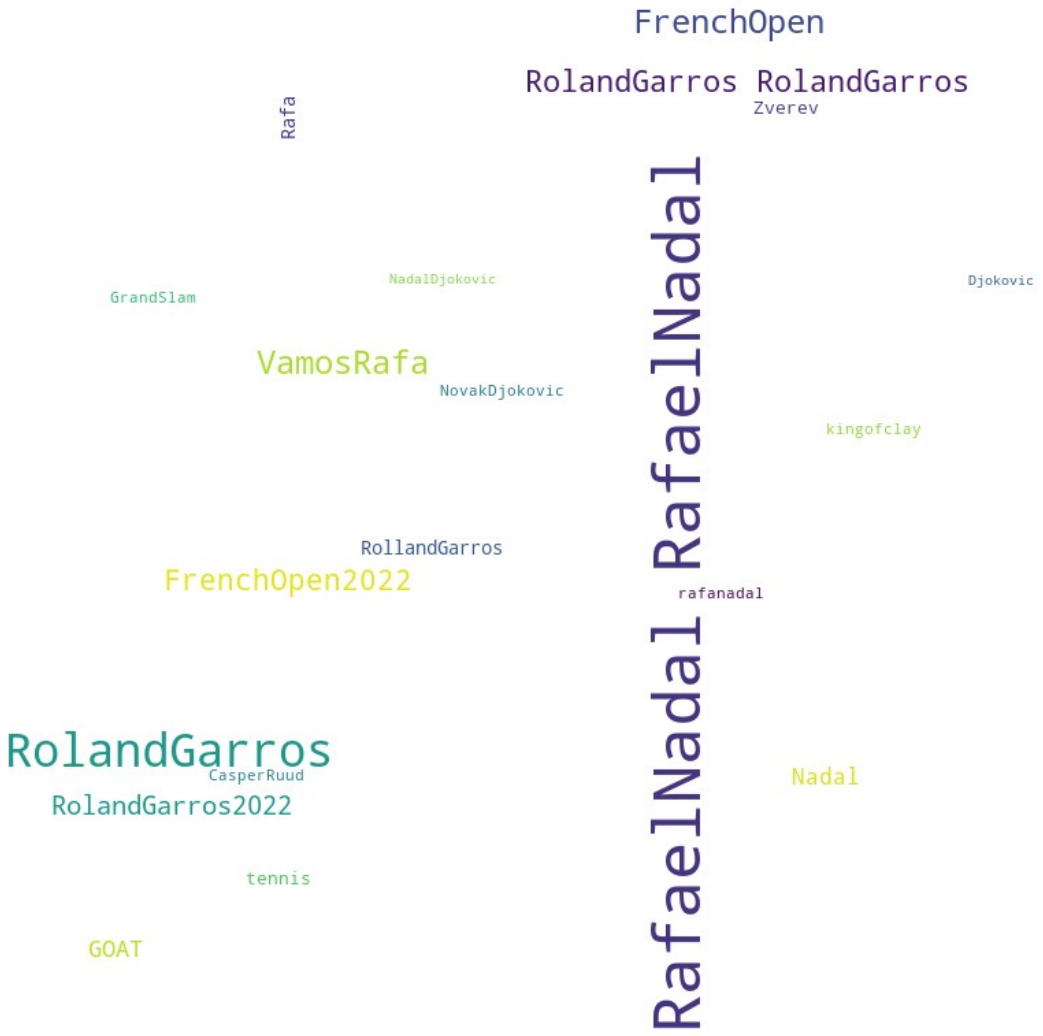
```
Index(['RafaelNadal', 'RolandGarros', '', 'FrenchOpen', 'VamosRafa',
       'FrenchOpen2022', 'RolandGarros2022', 'Nadal', 'GOAT',
'RollandGarros',
       ...
       'Alex', 'ATOBTTR', 'champ14n', 'PayPal', 'Kolkata',
'[illegible]',
       'Airdrops', 'Stopinsulting_ProphetMuhammad', 'SPAIN',
       'PlatinumJubileeconcert'],
      dtype='object', length=969)
```

```
plt.figure(figsize=(10,6))
plt.bar(df3.value_counts()[:10].sort_values(ascending=False).index,
df3.value_counts()
[:10].sort_values(ascending=False).values,color="greenyellow")

# set the axis labels and title
plt.xlabel('Hashtags')
plt.ylabel('Number of Hashtags')
plt.title('Top 10 Trending Hashtags')

# rotate the x-axis labels for better visibility
plt.xticks(rotation=90)
for i, v in enumerate(df3.value_counts()
[:10].sort_values(ascending=False).values):
```

```
    plt.text(df3.value_counts()
[:10].sort_values(ascending=False).index[i], v+0.2, str(round(v,2)),
fontsize=12, color='black', ha='center')
# show the plot
plt.show()
```




```
text = ''
for i in df3:
    value  = i
    value = value.strip()
    value = value.replace(" ","_")
    text = text + " " + value

text = text.strip()
wordcloud =  WordCloud(width = 800, height = 800, stopwords=stopwords,
background_color="white", min_font_size = 10).generate(text)
plt.figure(figsize = (8, 8), facecolor = None)
plt.imshow(wordcloud, interpolation='bilinear')
plt.axis("off")
plt.tight_layout(pad = 0)
plt.show()
```



Clearly RafaelNadal is th most trending hashtag followed by RolandGarros which is the tennis tournament he played.

7. Which username has the most tweets?

```
df.user_name.value_counts()[:5]
```

```
🏳 ⓅⓈ♡♡ junsu / hana    78
X Games 2023 Live          72
Ruth😊☕ⓊⒶ                  47
Deepali NO DMs 🚫           46
Mowafak Alkawass (Mo)      42
Name: user_name, dtype: int64
```

```
plt.figure(figsize=(20,8))
plt.barh(df.user_name.value_counts()[:5].index,
df.user_name.value_counts()[:5].values,color="cadetblue")
```

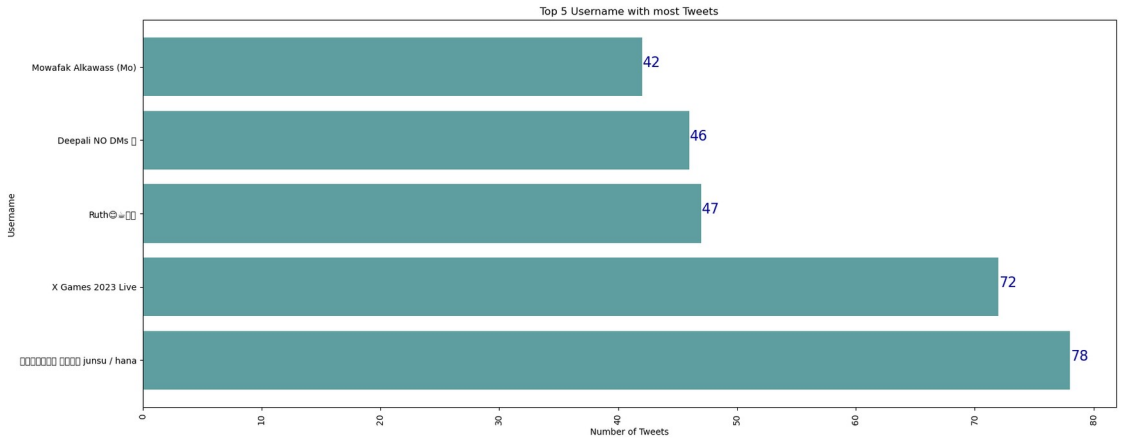
```
# set the axis labels and title
plt.xlabel('Number of Tweets')
plt.ylabel('Username')
plt.title('Top 5 Username with most Tweets')

# rotate the x-axis labels for better visibility
plt.xticks(rotation=90)
# for i, v in enumerate(highest_values.values):
#     plt.text(highest_values.index[i], v+0.15, str(round(v,2)),
fontsize=14, color='red', ha='center')
for i, v in enumerate( df.user_name.value_counts()[:5].values):
    plt.text(v+0.8, df.user_name.value_counts()
[:5].index[i],str(round(v,2)), fontsize=16, color='darkblue',
ha='center')
# show the plot
plt.show()
```

```
C:\Users\amitb\anaconda3\envs\envv\lib\site-packages\IPython\core\
pylabtools.py:151: UserWarning: Glyph 127988 (\N{WAVING BLACK FLAG})
missing from current font.

  fig.canvas.print_figure(bytes_io, **kw)

C:\Users\amitb\anaconda3\envs\envv\lib\site-packages\IPython\core\
pylabtools.py:151: UserWarning: Glyph 917607 (\N{TAG LATIN SMALL
LETTER G}) missing from current font.

  fig.canvas.print_figure(bytes_io, **kw)

C:\Users\amitb\anaconda3\envs\envv\lib\site-packages\IPython\core\
pylabtools.py:151: UserWarning: Glyph 917602 (\N{TAG LATIN SMALL
LETTER B}) missing from current font.

  fig.canvas.print_figure(bytes_io, **kw)

C:\Users\amitb\anaconda3\envs\envv\lib\site-packages\IPython\core\
pylabtools.py:151: UserWarning: Glyph 917619 (\N{TAG LATIN SMALL
LETTER S}) missing from current font.

  fig.canvas.print_figure(bytes_io, **kw)

C:\Users\amitb\anaconda3\envs\envv\lib\site-packages\IPython\core\
pylabtools.py:151: UserWarning: Glyph 917603 (\N{TAG LATIN SMALL
LETTER C}) missing from current font.

  fig.canvas.print_figure(bytes_io, **kw)

C:\Users\amitb\anaconda3\envs\envv\lib\site-packages\IPython\core\
pylabtools.py:151: UserWarning: Glyph 917620 (\N{TAG LATIN SMALL
```

```
LETTER T}) missing from current font.

  fig.canvas.print_figure(bytes_io, **kw)

C:\Users\amitb\anaconda3\envs\envv\lib\site-packages\IPython\core\
pylabtools.py:151: UserWarning: Glyph 917631 (\N{CANCEL TAG}) missing
from current font.

  fig.canvas.print_figure(bytes_io, **kw)

C:\Users\amitb\anaconda3\envs\envv\lib\site-packages\IPython\core\
pylabtools.py:151: UserWarning: Glyph 127477 (\N{REGIONAL INDICATOR
SYMBOL LETTER P}) missing from current font.

  fig.canvas.print_figure(bytes_io, **kw)

C:\Users\amitb\anaconda3\envs\envv\lib\site-packages\IPython\core\
pylabtools.py:151: UserWarning: Glyph 127480 (\N{REGIONAL INDICATOR
SYMBOL LETTER S}) missing from current font.

  fig.canvas.print_figure(bytes_io, **kw)

C:\Users\amitb\anaconda3\envs\envv\lib\site-packages\IPython\core\
pylabtools.py:151: UserWarning: Glyph 128155 (\N{YELLOW HEART})
missing from current font.

  fig.canvas.print_figure(bytes_io, **kw)

C:\Users\amitb\anaconda3\envs\envv\lib\site-packages\IPython\core\
pylabtools.py:151: UserWarning: Glyph 128153 (\N{BLUE HEART}) missing
from current font.

  fig.canvas.print_figure(bytes_io, **kw)

C:\Users\amitb\anaconda3\envs\envv\lib\site-packages\IPython\core\
pylabtools.py:151: UserWarning: Glyph 127482 (\N{REGIONAL INDICATOR
SYMBOL LETTER U}) missing from current font.

  fig.canvas.print_figure(bytes_io, **kw)

C:\Users\amitb\anaconda3\envs\envv\lib\site-packages\IPython\core\
pylabtools.py:151: UserWarning: Glyph 127462 (\N{REGIONAL INDICATOR
SYMBOL LETTER A}) missing from current font.

  fig.canvas.print_figure(bytes_io, **kw)

C:\Users\amitb\anaconda3\envs\envv\lib\site-packages\IPython\core\
pylabtools.py:151: UserWarning: Glyph 128683 (\N{NO ENTRY SIGN})
missing from current font.
```

```
  fig.canvas.print_figure(bytes_io, **kw)

C:\Users\amitb\anaconda3\envs\envv\lib\site-packages\IPython\core\
pylabtools.py:151: UserWarning: Glyph 127988 (\N{WAVING BLACK FLAG})
missing from current font.

  fig.canvas.print_figure(bytes_io, **kw)

C:\Users\amitb\anaconda3\envs\envv\lib\site-packages\IPython\core\
pylabtools.py:151: UserWarning: Glyph 917607 (\N{TAG LATIN SMALL
LETTER G}) missing from current font.

  fig.canvas.print_figure(bytes_io, **kw)

C:\Users\amitb\anaconda3\envs\envv\lib\site-packages\IPython\core\
pylabtools.py:151: UserWarning: Glyph 917602 (\N{TAG LATIN SMALL
LETTER B}) missing from current font.

  fig.canvas.print_figure(bytes_io, **kw)

C:\Users\amitb\anaconda3\envs\envv\lib\site-packages\IPython\core\
pylabtools.py:151: UserWarning: Glyph 917619 (\N{TAG LATIN SMALL
LETTER S}) missing from current font.

  fig.canvas.print_figure(bytes_io, **kw)

C:\Users\amitb\anaconda3\envs\envv\lib\site-packages\IPython\core\
pylabtools.py:151: UserWarning: Glyph 917603 (\N{TAG LATIN SMALL
LETTER C}) missing from current font.

  fig.canvas.print_figure(bytes_io, **kw)

C:\Users\amitb\anaconda3\envs\envv\lib\site-packages\IPython\core\
pylabtools.py:151: UserWarning: Glyph 917620 (\N{TAG LATIN SMALL
LETTER T}) missing from current font.

  fig.canvas.print_figure(bytes_io, **kw)

C:\Users\amitb\anaconda3\envs\envv\lib\site-packages\IPython\core\
pylabtools.py:151: UserWarning: Glyph 917631 (\N{CANCEL TAG}) missing
from current font.

  fig.canvas.print_figure(bytes_io, **kw)

C:\Users\amitb\anaconda3\envs\envv\lib\site-packages\IPython\core\
pylabtools.py:151: UserWarning: Glyph 127477 (\N{REGIONAL INDICATOR
SYMBOL LETTER P}) missing from current font.
```

```
  fig.canvas.print_figure(bytes_io, **kw)

C:\Users\amitb\anaconda3\envs\envv\lib\site-packages\IPython\core\
pylabtools.py:151: UserWarning: Glyph 127480 (\N{REGIONAL INDICATOR
SYMBOL LETTER S}) missing from current font.

  fig.canvas.print_figure(bytes_io, **kw)

C:\Users\amitb\anaconda3\envs\envv\lib\site-packages\IPython\core\
pylabtools.py:151: UserWarning: Glyph 128155 (\N{YELLOW HEART})
missing from current font.

  fig.canvas.print_figure(bytes_io, **kw)

C:\Users\amitb\anaconda3\envs\envv\lib\site-packages\IPython\core\
pylabtools.py:151: UserWarning: Glyph 128153 (\N{BLUE HEART}) missing
from current font.

  fig.canvas.print_figure(bytes_io, **kw)

C:\Users\amitb\anaconda3\envs\envv\lib\site-packages\IPython\core\
pylabtools.py:151: UserWarning: Glyph 127482 (\N{REGIONAL INDICATOR
SYMBOL LETTER U}) missing from current font.

  fig.canvas.print_figure(bytes_io, **kw)

C:\Users\amitb\anaconda3\envs\envv\lib\site-packages\IPython\core\
pylabtools.py:151: UserWarning: Glyph 127462 (\N{REGIONAL INDICATOR
SYMBOL LETTER A}) missing from current font.

  fig.canvas.print_figure(bytes_io, **kw)

C:\Users\amitb\anaconda3\envs\envv\lib\site-packages\IPython\core\
pylabtools.py:151: UserWarning: Glyph 128683 (\N{NO ENTRY SIGN})
missing from current font.

  fig.canvas.print_figure(bytes_io, **kw)
```



Username ⚐ ⋐♡♡ junsu/hana has tweeted most tweets while having username X Games 2023 Live is second on the list.

8. Analyze username with most tweets

Lets analyze ⚐ ⋐♡♡ junsu / hana

```
df_user = df[df.user_name=='⚐ ⓅⓈ♡♡ junsu / hana']
df_user.head()
```

```
                      user_name user_location  \
22    ⚐ ⓅⓈ♡♡ junsu / hana    barcaelona
73    ⚐ ⓅⓈ♡♡ junsu / hana    barcaelona
117   ⚐ ⓅⓈ♡♡ junsu / hana    barcaelona
374   ⚐ ⓅⓈ♡♡ junsu / hana    barcaelona
375   ⚐ ⓅⓈ♡♡ junsu / hana    barcaelona

                                      user_description  user_followers
\
22   JYJBB BTS BARCA #AOT @fcbarcelona @RafaelNadal...            1431

73   JYJBB BTS BARCA #AOT @fcbarcelona @RafaelNadal...            1431

117  JYJBB BTS BARCA #AOT @fcbarcelona @RafaelNadal...            1431

374  JYJBB BTS BARCA #AOT @fcbarcelona @RafaelNadal...            1431

375  JYJBB BTS BARCA #AOT @fcbarcelona @RafaelNadal...            1431


                   date
text  \
22  2022-06-08 14:46:00  Lmfao last time someone accused rafa nadal of
...
73  2022-06-08 12:06:00  HAHAHHAHA DJOKOVIC FANS BEING SO PISSY AND
EMB...
117 2022-06-08 08:39:00  And the haters will still talk shit because
```

```
th...
374 2022-06-07 12:48:00  Man they are still crying 🤣😭 RafaNadal
RafaelN...
375 2022-06-07 12:43:00  Karma is getting you all good after all that
t...

                   hashtags  retweetCount  month  polarity sentiment
22              RafaelNadal          1041      6  0.000000   Neutral
73                                   5210      6  0.566667  Positive
117               RafaNadal          3866      6 -0.200000  Negative
374  RafaNadal,RafaelNadal           4914      6 -0.200000  Negative
375             RafaelNadal          9264      6  0.700000  Positive
```

```
df_user.shape
```

```
(78, 11)
```

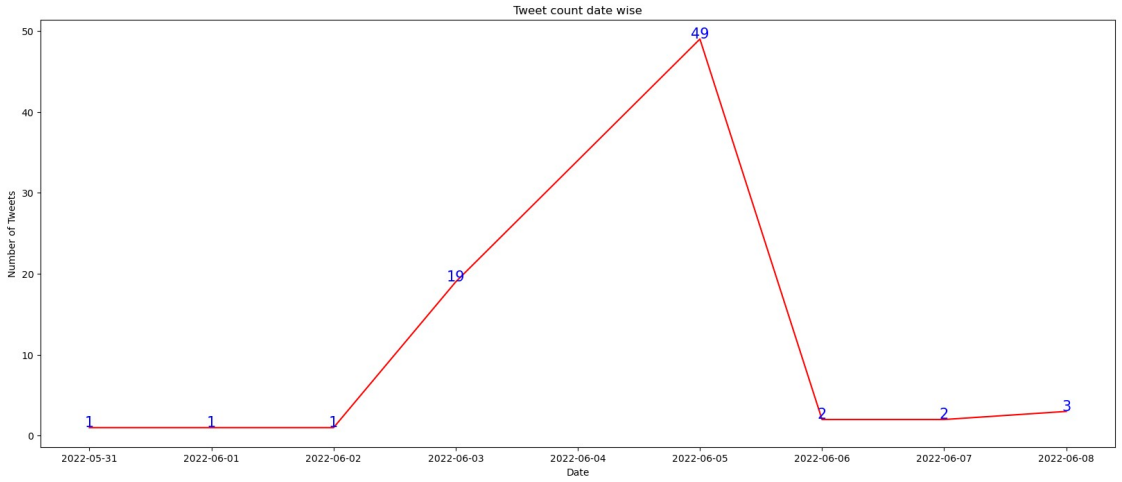
```
df_user['user_description'][22]
```

```
'JYJBB BTS BARCA #AOT @fcbarcelona @RafaelNadal @serenawilliams
#FUCKSM , @warriors @f1 @celtic , Anime'
```

```
df_user['date'].dt.date.value_counts().sort_index()
```

```
2022-05-31     1
2022-06-01     1
2022-06-02     1
2022-06-03    19
2022-06-05    49
2022-06-06     2
2022-06-07     2
2022-06-08     3
Name: date, dtype: int64
```

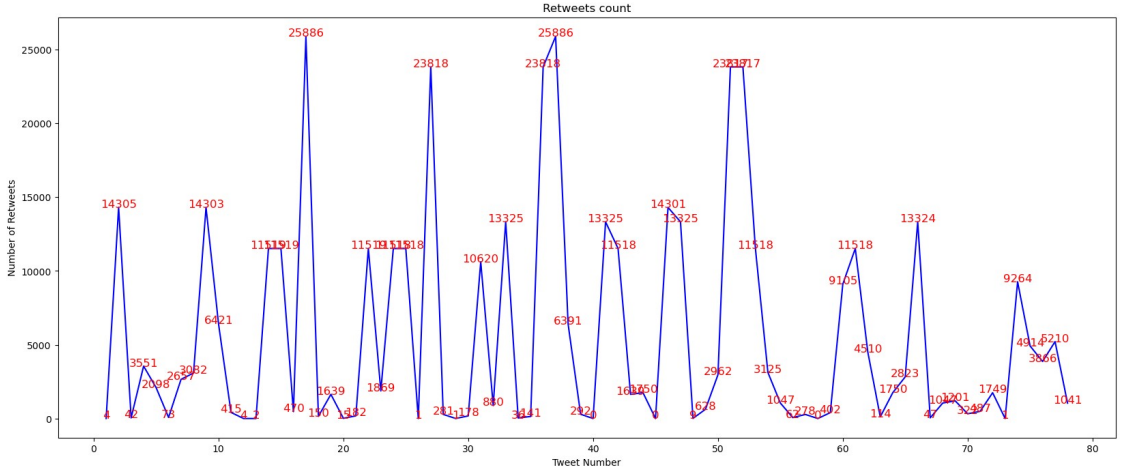
```
plt.figure(figsize=(20,8))
plt.plot(df_user['date'].dt.date.value_counts().sort_index().index,
df_user['date'].dt.date.value_counts().sort_index().values,
color="red")

plt.xlabel('Date')
plt.ylabel('Number of Tweets')
plt.title('Tweet count date wise')

for x, y in
zip(df_user['date'].dt.date.value_counts().sort_index().index,
df_user['date'].dt.date.value_counts().sort_index().values):
    y= round(int(y),2)
    plt.text(x, y+0.1, str(y), ha='center',color='blue',fontsize=15)
```




```
df_retweets = df_user['retweetCount'][::-1]
df_retweets.set_axis(range(1, len(df_retweets) + 1), inplace=True)
df_retweets.head()
```

```
1        4
2    14305
3       42
4     3551
5     2098
Name: retweetCount, dtype: int64
```

```
plt.figure(figsize=(20,8))
plt.plot(df_retweets.index,df_retweets.values, color="blue")

plt.xlabel('Tweet Number')
plt.ylabel('Number of Retweets')
plt.title('Retweets count')

for x, y in zip(df_retweets.index, df_retweets.values):
    y= round(int(y),2)
    plt.text(x, y+0.1, str(y), ha='center',color='red',fontsize=12)
```

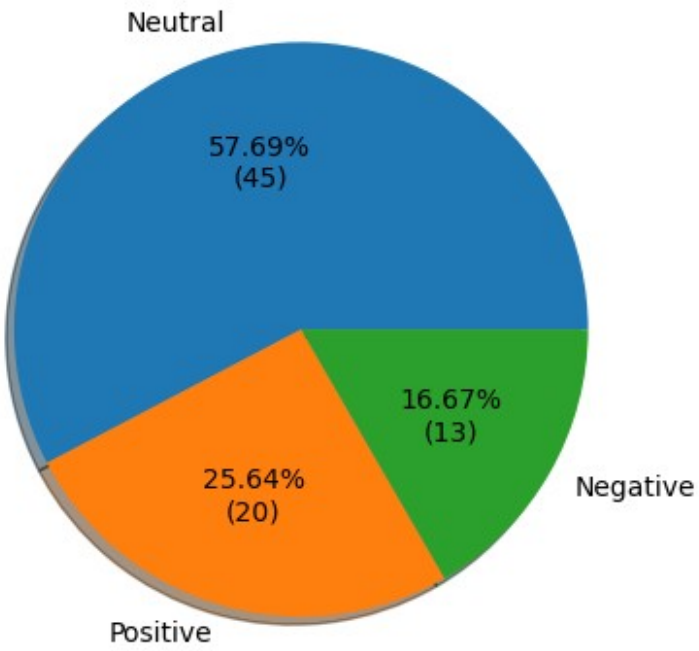


```
count = 0
for i in df_retweets:
    if i > 1000:
        count+=1
print(count)
```

```
47
```

```
def my_fmt(x):
    return '{:.2f}%\n({:.0f})'.format(x, total*x/100)

v_counts = df_user['sentiment'].value_counts()
total = len(df_user['sentiment'])
fig = plt.figure()
plt.pie(v_counts, labels=v_counts.index, autopct=my_fmt, shadow=True)
```

```
([<matplotlib.patches.Wedge at 0x1b5b0e94a08>,
  <matplotlib.patches.Wedge at 0x1b5afb27c08>,
  <matplotlib.patches.Wedge at 0x1b5afb26c48>],
 [Text(-0.26324721533219847, 1.0680360029605012, 'Neutral'),
  Text(-0.3060391925526493, -1.0565699279374379, 'Positive'),
  Text(0.9526279870751432, -0.5499999256737775, 'Negative')],
 [Text(-0.14358939018119915, 0.5825650925239096, '57.69%\n(45)'),
  Text(-0.1669304686650814, -0.576310869784057, '25.64%\n(20)'),
  Text(0.5196152656773508, -0.2999999594584241, '16.67%\n(13)')])
```



Insights from analysis:

1. 🏳 ㉦♡♡ junsu / hana user has tweeted most tweets i.e. 78 tweets.

2. This user has location barcaelona which is in Spain and Nadal is also from Spain.
3. This user mentioned Nadal's name i his description.
4. This user tweeted almost every day and most (49) on the 5th June beacuse Nadal won Tennis Championship on that day.
5. His tweets have many retweets as well, considering 47 tweets out of 76 having retweets more than 1000.
6. The sentiments of user's tweet are 26% positive, 17% negative and 58% neutral.