

In [3]:

```
import tweepy
import pandas as pd
import numpy as np
import IPython.display
import matplotlib.pyplot as plt
import seaborn as sns
from textblob import TextBlob
import re
import warnings
warnings.filterwarnings('ignore')
%matplotlib inline
```

In [4]:

```
consumer_key = "weIW8lZ9KvxYGxUr8lzZnGnvY"
consumer_secret = "dvsg3AASJ9fSCufhdZ9HaRaIz19iqR0WNiol4jTKV5VNG9bbiV"
access_key = "719493937518522369-gpeAcmQzuoLnNhkPzoxu28bLl72kz00"
access_secret = "kMwOqBvHc4lGo5mEtztMZKQFyrEq1Zbt6a038Guy72v05"
```

In [5]:

```
def twitter_setup():
    auth=tweepy.OAuthHandler(consumer_key, consumer_secret)
    auth.set_access_token(access_key, access_secret)

    api = tweepy.API(auth)
    return api
```

In [6]:

```
screen_name="narendramodi"

def get_all_tweets(screen_name):
    auth=tweepy.OAuthHandler(consumer_key, consumer_secret)
    auth.set_access_token(access_key, access_secret)
    api=tweepy.API(auth)

    tweets=[]
    new_tweets=api.user_timeline(screen_name=screen_name, count=200)
    tweets.extend(new_tweets)

    oldest=tweets[-1].id-1

    while len(new_tweets)>0:
        print(f"Getting tweets before {oldest}")
        #all request will include oldest parameter to exclude the chances of the duplic
ates
        new_tweets=api.user_timeline(screen_name=screen_name, count=200, max_id=oldest)
        tweets.extend(new_tweets)
        oldest=tweets[-1].id-1
        print(f"Number of Tweets have been downloaded so far: {len(tweets)}")

    return tweets

tweets=get_all_tweets(screen_name)
print("15 recent Tweets")
for tweet in tweets[:15]:
    print(tweet.text)
    print()
```

Getting tweets before 1138118402172739583
Number of Tweets have been downloaded so far: 400
Getting tweets before 1131596593541476351
Number of Tweets have been downloaded so far: 600
Getting tweets before 1126093422543028224
Number of Tweets have been downloaded so far: 800
Getting tweets before 1120536499689349122
Number of Tweets have been downloaded so far: 1000
Getting tweets before 1115982223012818944
Number of Tweets have been downloaded so far: 1200
Getting tweets before 1111899413960519679
Number of Tweets have been downloaded so far: 1400
Getting tweets before 1104951510805274623
Number of Tweets have been downloaded so far: 1600
Getting tweets before 1098864547492880383
Number of Tweets have been downloaded so far: 1800
Getting tweets before 1090442174955769857
Number of Tweets have been downloaded so far: 2000
Getting tweets before 1085536748468264964
Number of Tweets have been downloaded so far: 2200
Getting tweets before 1078290034808115199
Number of Tweets have been downloaded so far: 2400
Getting tweets before 1069632709977198591
Number of Tweets have been downloaded so far: 2600
Getting tweets before 1064423907552186368
Number of Tweets have been downloaded so far: 2800
Getting tweets before 1058319109308305407
Number of Tweets have been downloaded so far: 3000
Getting tweets before 1053657190320488447
Number of Tweets have been downloaded so far: 3200
Getting tweets before 1050336290757988351
Number of Tweets have been downloaded so far: 3212
Getting tweets before 1049854341614583808
Number of Tweets have been downloaded so far: 3212
15 recent Tweets

Reached Osaka to join the #G20 Summit.

Grateful to the dynamic Indian community for the warm welcome! <https://t.co/BrPk19VJqJ>

Democracy is not merely a system of governance for us.

Democracy is in India's ethos for centuries. A democratic... <https://t.co/ui b18tthJS>

The manner in which elections are held in India is admired globally.

We should be proud of our electoral system i... <https://t.co/MtxyJe8sLz>

New India stands for hope, aspiration and inclusive development.

New India stands for pro-people and corruption-f... <https://t.co/8SEakK8eOw>

Will be participating in the #G20 Summit in Osaka, Japan. Various global issues including women empowerment, techno... <https://t.co/ouSryyzXgR>

Speaking in the Rajya Sabha <https://t.co/1zcKaIxKRr>

Birthday greetings to our youthful and dedicated Cabinet Minister, Shri Dharmendra Pradhan. Since the last five years... <https://t.co/FuOdakRXY8>

For all these years, we have rightly focused on the Rights given to us by our Constitution.

Let us also think abo... <https://t.co/Wc8Y22Tos1>

So busy were they with delusions of soaring high that they forgot to remain rooted to the ground.

So busy were th... <https://t.co/uefTLdiP0w>

Here is a glimpse of our belief and convictions- that every Indian has a role to play in the making of the nation. <https://t.co/m9hxdDtWcD>

Our dream:

More investment in India.

More opportunities for Indians.

Making India a five trillion dollar economy. <https://t.co/GlpOU9K1fP>

जब हौसला बना लिया ऊंची उड़ान का,
फिर देखना फिज़ूल है कद आसमान का...

तीन सप्ताह हुए सरकार बने, इस दौरान जनहित में अनेक... <https://t.co/6wY78h3eoE>

कुछ लोगों ने बड़े नारे बुलवाए - किसने किया, किसने किया।

25 जून 1975 - किसने किया?

लोकतंत्र का गला घोंटा गया - किस... <https://t.co/xZtk7HfqzB>

भारत के लिए गर्व की बात है कि हमारा मतदाता कितना जागरूक है।

हमारा मतदाता अपने से ज्यादा देश के बारे में सोचता है। <https://t.co/yqqL1aTSMC>

Replying to 'Motion Of Thanks On the President's Address' in Lok Sabha <https://t.co/oXpl0TMD0g>

These are recent tweets by
Modi

In [7]:

```
data=pd.DataFrame(data=[tweet.text for tweet in tweets], columns=['Tweets'])
display(data.head(10))
```

Tweets

- | | Tweets |
|---|---|
| 0 | Reached Osaka to join the #G20 Summit. \n\nGra... |
| 1 | Democracy is not merely a system of governance... |
| 2 | The manner in which elections are held in Indi... |
| 3 | New India stands for hope, aspiration and incl... |
| 4 | Will be participating in the #G20 Summit in Os... |
| 5 | Speaking in the Rajya Sabha https://t.co/1zcKa... |
| 6 | Birthday greetings to our youthful and dedicat... |
| 7 | For all these years, we have rightly focused o... |
| 8 | So busy were they with delusions of soaring hi... |
| 9 | Here is a glimpse of our belief and conviction... |

In [8]:

```
print(dir(tweets[0]))
```

```
['__class__', '__delattr__', '__dict__', '__dir__', '__doc__', '__eq__',
 '__format__', '__ge__', '__getattribute__', '__getstate__', '__gt__', '__h
ash__', '__init__', '__init_subclass__', '__le__', '__lt__', '__module__',
 '__ne__', '__new__', '__reduce__', '__reduce_ex__', '__repr__', '__setattr
__', '__sizeof__', '__str__', '__subclasshook__', '__weakref__', '_api',
 '_json', 'author', 'contributors', 'coordinates', 'created_at', 'destroy',
 'entities', 'extended_entities', 'favorite', 'favorite_count', 'favorite
d', 'geo', 'id', 'id_str', 'in_reply_to_screen_name', 'in_reply_to_status_
id', 'in_reply_to_status_id_str', 'in_reply_to_user_id', 'in_reply_to_user
_id_str', 'is_quote_status', 'lang', 'parse', 'parse_list', 'place', 'poss
ibly_sensitive', 'retweet', 'retweet_count', 'retweeted', 'retweets', 'sou
rce', 'source_url', 'text', 'truncated', 'user']
```

In [9]:

```
#Add relevant data to Panda DataFrame
data['Length']=np.array([len(tweet.text) for tweet in tweets])
data['ID']=np.array([tweet.id for tweet in tweets])
data['Date']=np.array([tweet.created_at for tweet in tweets])
data['Source']=np.array([tweet.source for tweet in tweets])
data['Likes']=np.array([tweet.favorite_count for tweet in tweets])
data['RTs']=np.array([tweet.retweet_count for tweet in tweets])
display(data.head(10))
```

	Tweets	Length	ID	Date	Source	Likes	RTs
0	Reached Osaka to join the #G20 Summit. \n\nGra...	127	1144042531987922944	2019-06-27 00:39:29	Twitter for iPhone	28501	3617
1	Democracy is not merely a system of governance...	139	1144041786056167424	2019-06-27 00:36:31	Twitter Media Studio	9032	1782
2	The manner in which elections are held in Indi...	140	1144041531487092736	2019-06-27 00:35:31	Twitter Media Studio	14889	2780
3	New India stands for hope, aspiration and incl...	140	1144041206474653696	2019-06-27 00:34:13	Twitter Media Studio	8865	1824
4	Will be participating in the #G20 Summit in Os...	140	1143901941392478208	2019-06-26 15:20:50	Twitter for iPhone	20125	3401
5	Speaking in the Rajya Sabha https://t.co/1zcKa...	51	1143798971837534208	2019-06-26 08:31:40	Periscope	21138	4654
6	Birthday greetings to our youthful and dedicat...	140	1143713971771363328	2019-06-26 02:53:54	Twitter for iPhone	28466	2994
7	For all these years, we have rightly focused o...	140	1143549946152574976	2019-06-25 16:02:07	Twitter Media Studio	19725	3917
8	So busy were they with delusions of soaring hi...	140	1143529980921442305	2019-06-25 14:42:47	Twitter Media Studio	14363	3226
9	Here is a glimpse of our belief and conviction...	138	1143528753345130497	2019-06-25 14:37:55	Twitter Media Studio	9962	2354

In [10]:

```

#Most Liked and retweeted tweets
lik_max=np.max(data['Likes'])
rt_max=np.max(data['RTs'])

#Extract the index of max
fav=data[data.Likes==lik_max].index[0]
rt=data[data.RTs==rt_max].index[0]

#Print the result
print(f"The most liked tweet is: {data['Tweets'][fav]}")
print(f"Number of likes: {lik_max}")
print("-----")
print()

#Print the most retweeted tweet
print(f"The most liked tweet is: {data['Tweets'][rt]}")
print(f"Number of likes: {rt_max}")
print("-----")
print()

```

The most liked tweet is: सबका साथ + सबका विकास + सबका विश्वास = विजयी भारत

Together we grow.

Together we prosper.

Together we will buil... <https://t.co/orKx7u7syJ>

Number of likes: 426692

The most liked tweet is: सबका साथ + सबका विकास + सबका विश्वास = विजयी भारत

Together we grow.

Together we prosper.

Together we will buil... <https://t.co/orKx7u7syJ>

Number of likes: 120922

In [11]:

```

#Plots
like=pd.Series(data=data['Likes'].values, index=data['Date'])
retweet=pd.Series(data=data['RTs'].values, index=data['Date'])

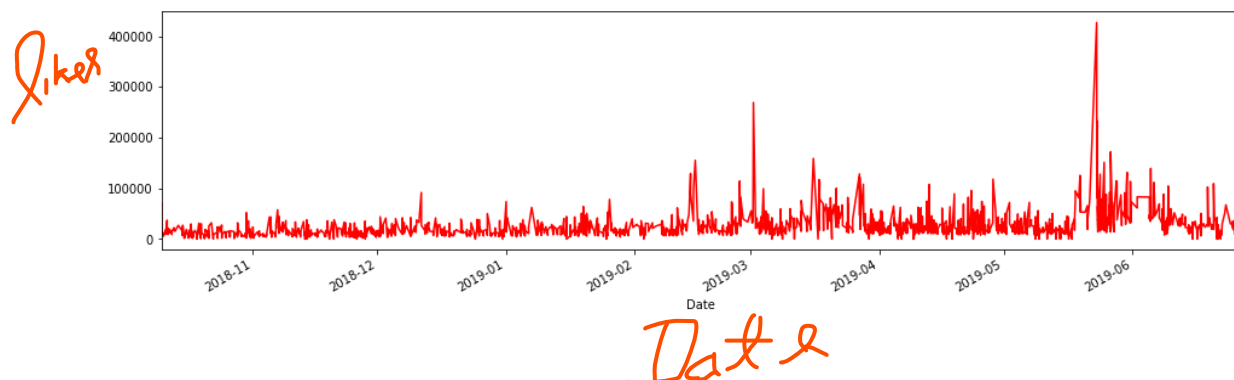
```

In [12]:

```
like.plot(figsize=(16,4), color='r')
```

Out[12]:

<matplotlib.axes._subplots.AxesSubplot at 0x24fe7a41978>

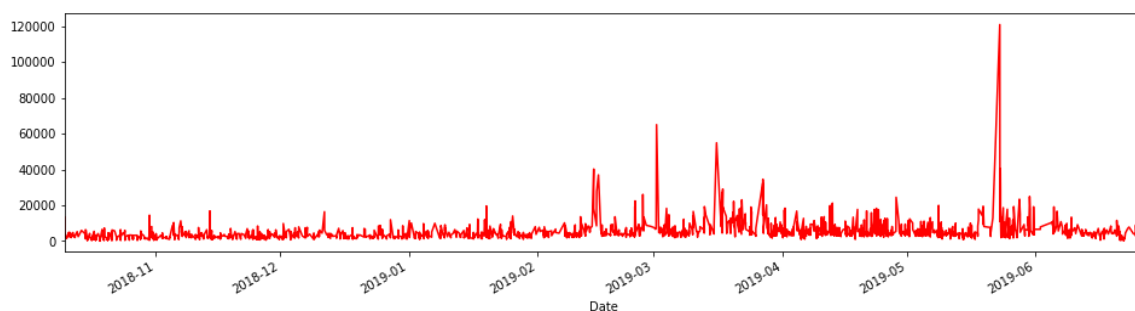


In [13]:

```
retweet.plot(figsize=(16,4), color='r')
```

Out[13]:

<matplotlib.axes._subplots.AxesSubplot at 0x24fefb082b0>

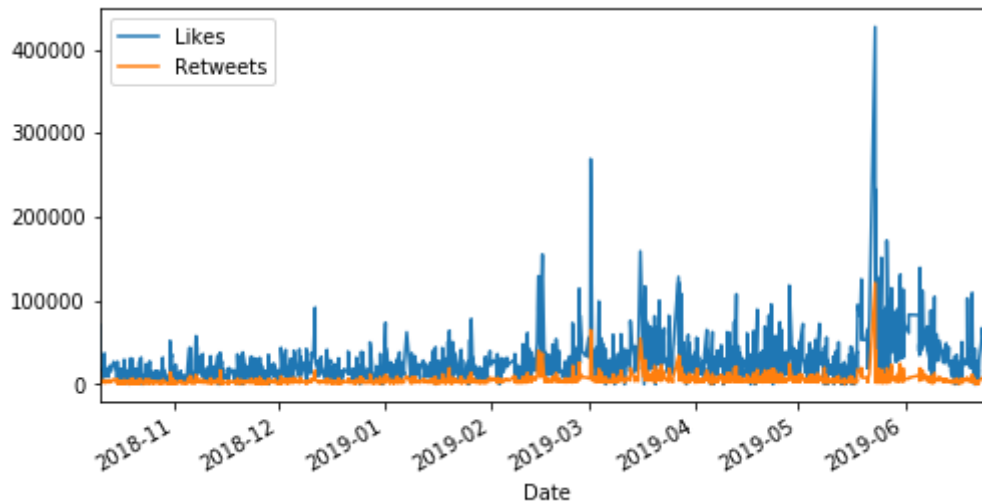


In [14]:

```
like.plot(figsize=(8,4), label="Likes", legend=True)  
retweet.plot(figsize=(8,4), label="Retweets", legend=True)
```

Out[14]:

<matplotlib.axes._subplots.AxesSubplot at 0x24fefb61ba8>



In [15]:

```
#Before proceeding with any data analysis Let's analyze whether we have null in datase t.  
#We got False, stating that we have no null in DataFrame  
data.isnull().any()
```

Out[15]:

```
Tweets    False  
Length    False  
ID         False  
Date       False  
Source     False  
Likes      False  
RTs        False  
dtype: bool
```

In [16]:

```
data.describe()
```

Out[16]:

	Length	ID	Likes	RTs
count	3212.000000	3.212000e+03	3212.000000	3212.000000
mean	127.698941	1.096409e+18	18409.065380	4016.286115
std	23.180442	2.819994e+16	20634.643452	4374.235031
min	33.000000	1.049854e+18	0.000000	41.000000
25%	127.000000	1.069568e+18	7482.750000	1841.000000
50%	140.000000	1.098548e+18	13216.000000	3110.000000
75%	140.000000	1.120367e+18	22109.250000	4708.500000
max	148.000000	1.144043e+18	426692.000000	120922.000000

In [17]:

```
#Data cleaning for Tweet text analysis
#Search for the text beginning with http or @ and then delete the proceeding text until
we find whitespace
#Also, remove & and white chracter trailing the last character
data['Tweets_Cln']=data.Tweets.str.replace(r'http\S+', '').str.replace(r'@\S+', '').str
.replace('&', '').str.rstrip()

#We can remove the Tweets that are retweets by deleting the tweets that have zero like
s.
#In Twitter data, retweets from users have zero Likes

data=data[data.Likes!=0]
```

In [18]:

```
data.head(2)
```

Out[18]:

	Tweets	Length	ID	Date	Source	Likes	RTs	Tweets_Cln
0	Reached Osaka to join the #G20 Summit. \n\nGra...	127	1144042531987922944	2019- 06-27 00:39:29	Twitter for iPhone	28501	3617	Reached Osaka to join the #G20 Summit. \n\nGra...
1	Democracy is not merely a system of governance...	139	1144041786056167424	2019- 06-27 00:36:31	Twitter Media Studio	9032	1782	Democracy is not merely a system of governance...

In [19]:

```

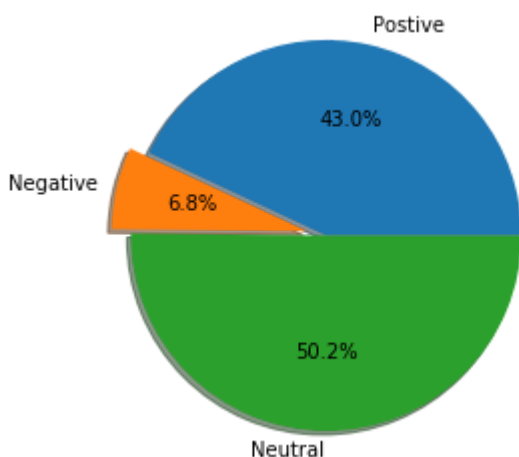
def analyze_sentiment(tweet):
    analysis = TextBlob(tweet)
    if analysis.sentiment.polarity > 0:
        return 1
    elif analysis.sentiment.polarity == 0:
        return 0
    else:
        return -1
data['sentiment'] = np.array([ analyze_sentiment(tweet) for tweet in data['Tweets_Cln']
])
display(data.head(2))

positive=data.loc[data.sentiment==1,'Tweets'].count()
negative=data.loc[data.sentiment==-1,'Tweets'].count()
neutral=data.loc[data.sentiment==0,'Tweets'].count()

#Let's plot
labels='Positive', 'Negative', 'Neutral'
sizes=[positive, negative, neutral]
explode=(0, 0.1, 0)
fig1, ax1 = plt.subplots()
ax1.pie(sizes, explode=explode, labels=labels, autopct='%1.1f%%',
        shadow=True, startangle=0)
ax1.axis('equal')
plt.show()

```

	Tweets	Length		ID	Date	Source	Likes	RTs	Tweets_Cln
0	Reached Osaka to join the #G20 Summit. \n\nGra...	127	1144042531987922944		2019-06-27 00:39:29	Twitter for iPhone	28501	3617	Reached Osaka to join the #G20 Summit. \n\nGra...
1	Democracy is not merely a system of governance...	139	1144041786056167424		2019-06-27 00:36:31	Twitter Media Studio	9032	1782	Democracy is not merely a system of governance...



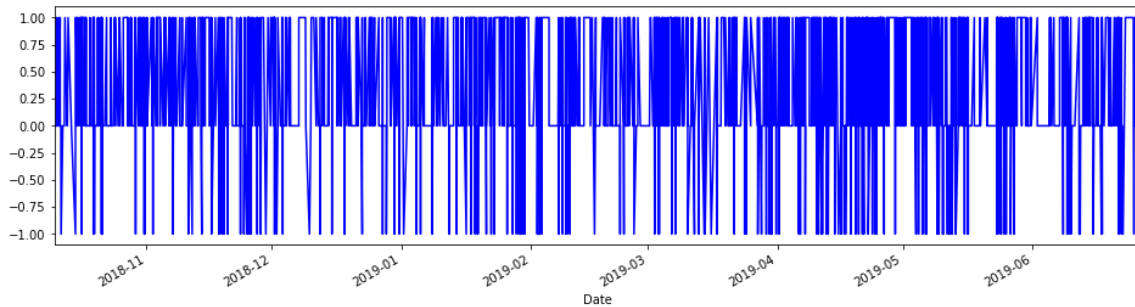
People
Sentiments

In [20]:

```
tсен=pd.Series(data=data['sentiment'].values, index=data['Date'])  
tсен.plot(figsize=(16,4), color='b')
```

Out[20]:

<matplotlib.axes._subplots.AxesSubplot at 0x24fefc2cb70>



↑
Sentiments date wise

In [21]:

```
#I'm curious how many times Modi talks about Chowkidar. Let's see
swachh_count = data.Tweets[data.Tweets.str.contains('Chowkidar', flags=re.IGNORECASE)].
count()
print(f"PM Modi has tweeted about Chowkidar {swachh_count} times.")
print("-----")
print()
data.Tweets[data.Tweets.str.contains('Chowkidar', flags=re.IGNORECASE)]
```

PM Modi has tweeted about Chowkidar 26 times.

Out[21]:

```
425 Now, the time has come to take the Chowkidar S...
426 The people of India became Chowkidars and rend...
1014 This Chowkidar is tremendously indebted to the...
1160 Wonderful rendition of #MainBhiChowkidar. Supe...
1181 India came together and said in one voice- #Ma...
1182 We are all Chowkidars, committed to a strong &...
1184 There are lakhs of Chowkidars in every part of...
1185 Am sure the community of vibrant professionals...
1186 The day we were most looking forward to is her...
1208 Dear citizens of Andhra Pradesh,\n\nStrengthen...
1273 The #MainBhiChowkidar programme on the 31st wi...
1274 For the 31st programme you can:\n\nShare your ...
1276 31st March 2019...an invigorating interaction wi...
1280 The vibrant colours of Holi and Josh of so man...
1282 Superb enthusiasm in Jammu! \n\nMy best wishes...
1297 Colours of Holi, flavours of music, a catchy t...
1298 Happy Holi to the energetic Chowkidars in Band...
1299 Extremely adorable! \n\nExuberant young Chowki...
1305 चौकीदार भाइयो और बहनो, पूरे देश को आप पर गर्व ...
1308 Having a wonderful interaction with Chowkidars...
1309 Looking forward to interacting with over 25 la...
1321 Happy to see young Chowkidar Navya take the le...
1331 My best wishes to these adorable young Chowkid...
1332 Fantastic effort! \n\nWith Chowkidars like you...
1336 Fellow Indians,\n\nHappy that #MainBhiChowkida...
1340 Your Chowkidar is standing firm & serving ...
Name: Tweets, dtype: object
```

