

Cleaning All Newsfeed and Plotting Feed Volume

Notebook Preparation

In [380...

```
import pandas as pd
import numpy as np
import datetime as dt
from pathlib import Path
import itertools as it

%matplotlib inline

# Import the hvPlot library
import hvplot.pandas
```

In [381...

```
# Vader Sentiment
from vaderSentiment.vaderSentiment import SentimentIntensityAnalyzer

analyser = SentimentIntensityAnalyzer()

def print_sentiment_scores(sentence):
    snt = analyser.polarity_scores(sentence)
    print("{:-<40} {}".format(sentence, str(snt)))
```

AAPL 30 Day Newsfeed

In [382...

```
# Access the CSV and rename the columns
AAPL_news = Path ('AAPL.csv')
AAPL_news_df = pd.read_csv(AAPL_news)
AAPL_news_df.head()
AAPL_news_df1 = AAPL_news_df.rename(columns={'publishedAt': 'Date', 'title': 'Title'})

# Need to convert the date time into dates so it can be sortby

AAPL_news_df1["Date"] = AAPL_news_df1["Date"].str.replace("T", " ", regex=True).str.replace("Z", "")
AAPL_news_df1["Date"] = pd.to_datetime(AAPL_news_df1["Date"]).dt.strftime('%d/%m/%Y')
AAPL_news_df1.head()
```

Out[382...

	Unnamed: 0	status	totalResults	source	author	Title	description	
0	0	ok	1947	{'id': 'reuters', 'name': 'Reuters'}	NaN	Epic accuses Apple of 'delaying' key U.S. appe...	Video game maker Epic Games Inc on Wednesday a...	https://ww
1	1	ok	1947	{'id': 'reuters', 'name': 'Reuters'}	NaN	Apple fights NFL Sunday Ticket plaintiffs over...	Apple Inc is fighting to shield its commercial...	https://www
2	2	ok	1947	{'id': 'reuters', 'name': 'Reuters'}	Reuters Editorial	Apple store workers in Maryland form first US ...	19/06 Apple Inc AAPL.O workers in Maryland vot...	https://w

	Unnamed: 0	status	totalResults	source	author	Title	description
3	3	ok	1947	{'id': 'reuters', 'name': 'Reuters'}	NaN	Enjoy Technology, led by ex-Apple and JC Penne...	Enjoy Technology Inc <a href="https://www.reut...https://
4	4	ok	1947	{'id': 'reuters', 'name': 'Reuters'}	NaN	Adobe revamps metaverse design tools for Apple...	Adobe Inc <a href="https://www.reuters.com/com...https://v

In [383...

```
# Remove irrelevant columns and set the 'publishedAt' as the index

AAPL_news_df1.set_index(pd.to_datetime(AAPL_news_df1['Date'], infer_datetime_format=True), inplace=True)
AAPL_news_df1.drop(columns=['Date', 'status', 'Unnamed: 0', 'totalResults', 'source', 'author'], inplace=True)
AAPL_news_df1
```

Out[383...

	Date	Title
2022-06-30	Epic accuses Apple of 'delaying' key U.S. appe...	
2022-06-14	Apple fights NFL Sunday Ticket plaintiffs over...	
2022-06-19	Apple store workers in Maryland form first US ...	
2022-06-30	Enjoy Technology, led by ex-Apple and JC Penne...	
2022-06-14	Adobe revamps metaverse design tools for Apple...	
...	...	
2022-06-06	Apple just got approval for a major new Apple ...	
2022-06-19	Apple Inc workers in Maryland, US vote to join...	
2022-06-30	Gene Leoff, a former lawyer at Apple, pleads ...	
2022-06-13	In One Chart: How big is the stock-market sell...	
2022-06-28	Goldman Sachs: These 3 Stocks Could Gain More ...	

100 rows × 1 columns

Sentiment Analysis: AAPL

In [384...

```
AAPL_news_df1['Neg'] = AAPL_news_df1['Title'].apply(lambda x: analyser.polarity_scores(x)['neg'])
AAPL_news_df1['Neu'] = AAPL_news_df1['Title'].apply(lambda x: analyser.polarity_scores(x)['neu'])
AAPL_news_df1['Pos'] = AAPL_news_df1['Title'].apply(lambda x: analyser.polarity_scores(x)['pos'])
AAPL_news_df1['Compound'] = AAPL_news_df1['Title'].apply(lambda x: analyser.polarity_scores(x)['compound'])

AAPL_news_df1
```

Out[384...

	Date	Title	Neg	Neu	Pos	Compound
2022-06-30	Epic accuses Apple of 'delaying' key U.S. appe...		0.179	0.821	0.000	-0.3400
2022-06-14	Apple fights NFL Sunday Ticket plaintiffs over...		0.213	0.787	0.000	-0.4019

		Title	Neg	Neu	Pos	Compound
Date						
2022-06-19	Apple store workers in Maryland form first US ...	0.000	1.000	0.000		0.0000
2022-06-30	Enjoy Technology, led by ex-Apple and JC Penne...	0.000	0.802	0.198		0.4939
2022-06-14	Adobe revamps metaverse design tools for Apple...	0.000	1.000	0.000		0.0000
...
2022-06-06	Apple just got approval for a major new Apple ...	0.000	0.763	0.237		0.4767
2022-06-19	Apple Inc workers in Maryland, US vote to join...	0.000	0.820	0.180		0.2960
2022-06-30	Gene Levoﬀ, a former lawyer at Apple, pleads ...	0.186	0.814	0.000		-0.7506
2022-06-13	In One Chart: How big is the stock-market sell...	0.000	1.000	0.000		0.0000
2022-06-28	Goldman Sachs: These 3 Stocks Could Gain More ...	0.000	0.779	0.221		0.5267

100 rows × 5 columns

In [385...

```
# Groupby index (date)
AAPL_news_df_grp = AAPL_news_df1.groupby('Date')['Compound'].describe()
AAPL_news_df_grp
```

Out[385...

	count	mean	std	min	25%	50%	75%	max
Date								
2022-06-05	1.0	0.000000	NaN	0.0000	0.000000	0.000000	0.000000	0.0000
2022-06-06	17.0	0.194735	0.216753	0.0000	0.000000	0.07720	0.381800	0.6369
2022-06-07	5.0	0.171100	0.382591	0.0000	0.000000	0.000000	0.000000	0.8555
2022-06-08	3.0	0.001200	0.307838	-0.3182	-0.146200	0.02580	0.160900	0.2960
2022-06-09	3.0	0.239467	0.414768	0.0000	0.000000	0.000000	0.359200	0.7184
2022-06-10	7.0	-0.001114	0.252835	-0.3818	-0.051350	0.000000	0.000000	0.4767
2022-06-11	3.0	-0.333233	0.329902	-0.6597	-0.499850	-0.34000	-0.170000	0.0000
2022-06-12	1.0	-0.381800	NaN	-0.3818	-0.381800	-0.38180	-0.381800	-0.3818
2022-06-13	2.0	-0.076550	0.108258	-0.1531	-0.114825	-0.07655	-0.038275	0.0000
2022-06-14	5.0	0.021740	0.323988	-0.4019	0.000000	0.000000	0.000000	0.5106
2022-06-15	2.0	0.327100	0.462589	0.0000	0.163550	0.32710	0.490650	0.6542
2022-06-16	1.0	-0.757900	NaN	-0.7579	-0.757900	-0.75790	-0.757900	-0.7579
2022-06-17	1.0	-0.077200	NaN	-0.0772	-0.077200	-0.07720	-0.077200	-0.0772
2022-06-18	1.0	0.735100	NaN	0.7351	0.735100	0.73510	0.735100	0.7351
2022-06-19	3.0	0.098667	0.170896	0.0000	0.000000	0.000000	0.148000	0.2960
2022-06-20	2.0	-0.345400	0.488469	-0.6908	-0.518100	-0.34540	-0.172700	0.0000
2022-06-21	2.0	-0.074100	0.778949	-0.6249	-0.349500	-0.07410	0.201300	0.4767
2022-06-22	1.0	-0.318200	NaN	-0.3182	-0.318200	-0.31820	-0.318200	-0.3182
2022-06-23	3.0	-0.233700	0.291331	-0.4019	-0.401900	-0.40190	-0.149600	0.1027
2022-06-24	4.0	0.036275	0.113920	-0.0572	-0.014300	0.000000	0.050575	0.2023
2022-06-26	2.0	0.113150	0.160018	0.0000	0.056575	0.11315	0.169725	0.2263
2022-06-27	2.0	0.422850	0.452760	0.1027	0.262775	0.42285	0.582925	0.7430

	count	mean	std	min	25%	50%	75%	max
Date								
2022-06-28	3.0	0.175567	0.304090	0.0000	0.000000	0.00000	0.263350	0.5267
2022-06-29	3.0	0.091967	0.441198	-0.2960	-0.148000	0.00000	0.285950	0.5719
2022-06-30	10.0	-0.015440	0.360116	-0.7506	-0.038700	0.00000	0.000000	0.4939
2022-07-01	9.0	0.175533	0.489347	-0.4767	0.000000	0.00000	0.493900	0.8957
2022-07-02	3.0	0.190633	0.780695	-0.6597	-0.151550	0.35660	0.615800	0.8750
2022-07-05	1.0	0.421500	NaN	0.4215	0.421500	0.42150	0.421500	0.4215

In [386...

```
# Drop columns to create a better plot
AAPL_news_df_grp.drop(columns=['std','min','25%','50%','75%','max'], inplace=True)
```

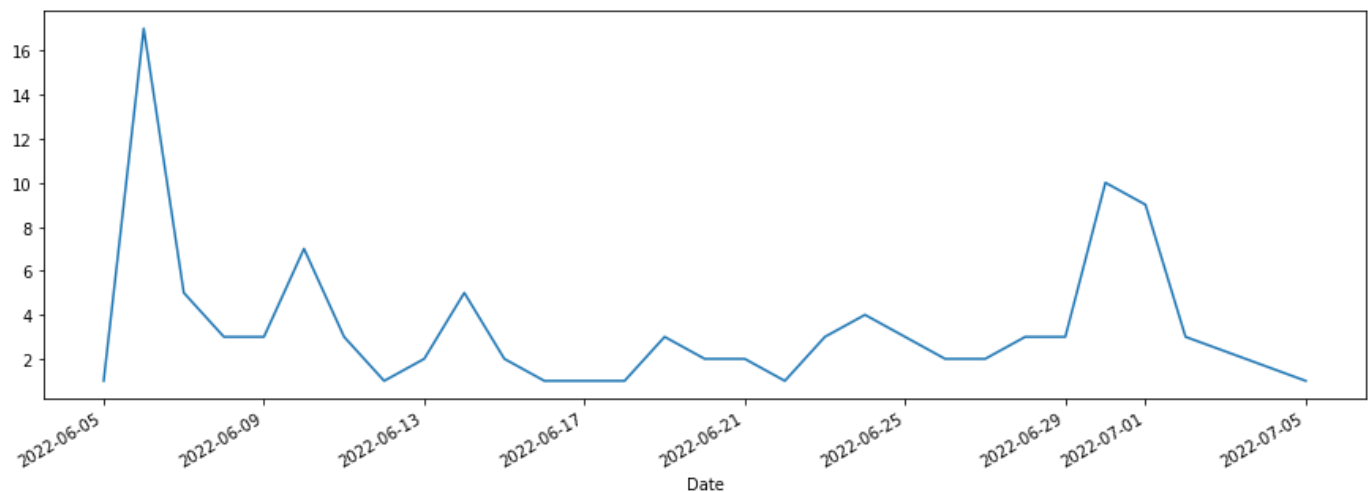
Total mention on Newsfeed for 30 days

In [387...

```
# Plot the total count for newsfeed for the month
AAPL_news_df_grp['count'].plot(figsize=(15,5))
```

Out[387...

<AxesSubplot:xlabel='Date'>



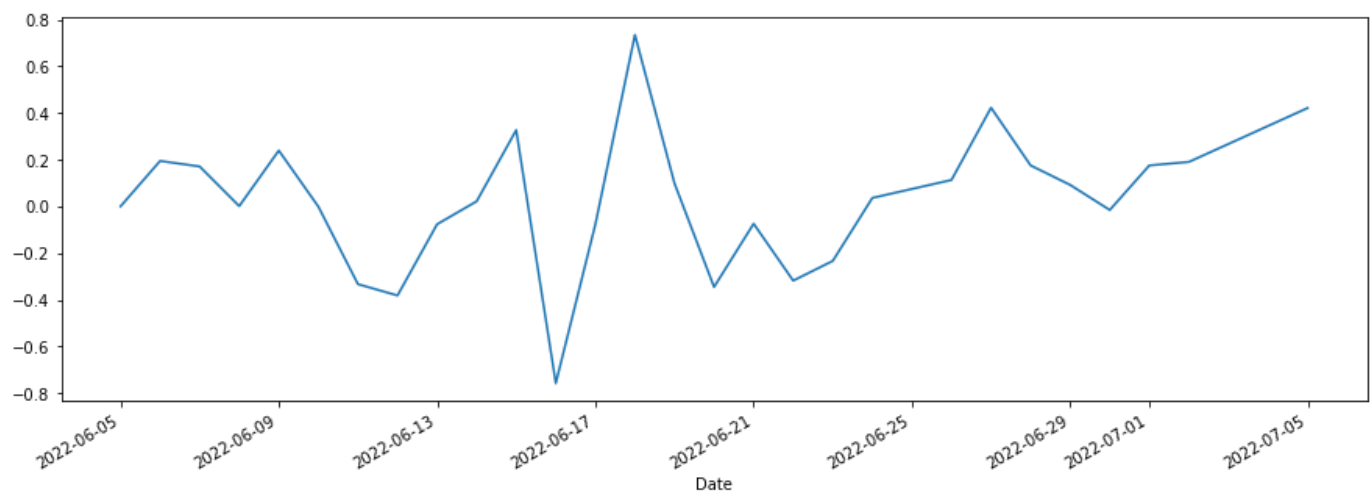
Sentiment Analysis: Compound Mean

In [388...

```
# Plot the mean for Compound Sentiment Analysis
AAPL_news_df_grp['mean'].plot(figsize=(15,5))
```

Out[388...

<AxesSubplot:xlabel='Date'>



```
In [389... AAPL_news_df_grp.hvplot(  
    x='Date',  
    y='mean',  
    xlabel='Previous 30-Days',  
    ylabel='Sentiment Analysis',  
    rot=45)
```

Out[389...

```
In [390... AAPL_news_df_grp.hvplot.bar(  
    x='Date',  
    y='count',  
    xlabel='Previous 30-Days',  
    ylabel='Sentiment Analysis',  
    rot=45)
```

Out[390...

XOM 30 Day Newsfeed

```
In [391... # Access the CSV and rename the columns  
XOM_news = Path ('XOM.csv')  
XOM_news_df = pd.read_csv(XOM_news)  
XOM_news_df.head()  
XOM_news_df1 = XOM_news_df.rename(columns={'publishedAt': 'Date', 'title': 'Title'})  
  
# Need to convert the date time into dates so it can be sortby  
  
XOM_news_df1["Date"] = XOM_news_df1["Date"].str.replace("T", " ", regex=True).str.replace("Z",  
XOM_news_df1['Date'] = pd.to_datetime(XOM_news_df1['Date']).dt.strftime('%d/%m/%Y')  
XOM_news_df1.head()
```

Out[391...

	Unnamed: 0	status	totalResults	source	author	Title	description	
0	0	ok	1164	{'id': 'reuters', 'name': 'Reuters'}	NaN	Exxon prepares to progressively shut down Fren...	Exxon Mobil <a href="https://www.reuters.com/c...	https://www.rei
1	1	ok	1164	{'id': 'reuters', 'name': 'Reuters'}	NaN	Strike ends at Exxon refinery in France - Reuters	A workers' strike at Exxon Mobil's <a href="ht...	https://www.r
2	2	ok	1164	{'id': 'reuters', 'name': 'Reuters'}	NaN	Strike underway at Exxon refinery in France - ...	Workers at Exxon's Esso refinery in Fos-sur-Me...	https://www.r
3	3	ok	1164	{'id': 'reuters', 'name': 'Reuters'}	NaN	Exxon signals big profits from second quarter ...	Exxon Mobil Corp <a href="https://www.reuters....	https://www.rei

Unnamed: 0	status	totalResults	source	author	Title	description
4	4	ok	1164	{'id': 'reuters', 'name': 'Reuters'}	NaN	Buyer interest in Exxon's Montana refinery ris... Record-high refining margins have renewed buye... https://www.re

In [392...

```
# Remove irrelevant columns and set the 'publishedAt' as the index

XOM_news_df1.set_index(pd.to_datetime(XOM_news_df1['Date'], infer_datetime_format=True), inplace=True)
XOM_news_df1.drop(columns=['Date', 'status', 'Unnamed: 0', 'totalResults', 'source', 'author'], inplace=True)
XOM_news_df1
```

Out[392...

Date	Title
2022-01-07	Exxon prepares to progressively shut down Fren...
2022-03-07	Strike ends at Exxon refinery in France - Reuters
2022-06-29	Strike underway at Exxon refinery in France - ...
2022-01-07	Exxon signals big profits from second quarter ...
2022-06-14	Buyer interest in Exxon's Montana refinery ris...
...	...
2022-08-06	Jim Cramer says oil is the 'only dip that can ...
2022-06-22	Deep Dive: This dividend fund is down only 3% ...
2022-10-06	Carbon Capture, Utilization, And Storage Globa...
2022-06-28	Aviation Fuel Global Market Report 2022
2022-06-15	Refiners Led by Exxon Face Biden's Wrath as Pr...

100 rows × 1 columns

Sentiment Analysis: XOM

In [393...

```
XOM_news_df1['Neg'] = XOM_news_df1['Title'].apply(lambda x: analyser.polarity_scores(x)['neg'])
XOM_news_df1['Neu'] = XOM_news_df1['Title'].apply(lambda x: analyser.polarity_scores(x)['neu'])
XOM_news_df1['Pos'] = XOM_news_df1['Title'].apply(lambda x: analyser.polarity_scores(x)['pos'])
XOM_news_df1['Compound'] = XOM_news_df1['Title'].apply(lambda x: analyser.polarity_scores(x)['compound'])

XOM_news_df1
```

Out[393...

Date	Title	Neg	Neu	Pos	Compound
2022-01-07	Exxon prepares to progressively shut down Fren...	0.000	1.000	0.000	0.0000
2022-03-07	Strike ends at Exxon refinery in France - Reuters	0.158	0.842	0.000	-0.1280
2022-06-29	Strike underway at Exxon refinery in France - ...	0.158	0.842	0.000	-0.1280
2022-01-07	Exxon signals big profits from second quarter ...	0.000	0.805	0.195	0.4404
2022-06-14	Buyer interest in Exxon's Montana refinery ris...	0.000	0.800	0.200	0.4588
...

		Title	Neg	Neu	Pos	Compound
Date						
2022-08-06	Jim Cramer says oil is the ‘only dip that can ...		0.000	0.854	0.146	0.5859
2022-06-22	Deep Dive: This dividend fund is down only 3% ...		0.000	0.924	0.076	0.2023
2022-10-06	Carbon Capture, Utilization, And Storage Globa...		0.000	1.000	0.000	0.0000
2022-06-28	Aviation Fuel Global Market Report 2022		0.000	1.000	0.000	0.0000
2022-06-15	Refiners Led by Exxon Face Biden’s Wrath as Pr...		0.000	0.756	0.244	0.4404

100 rows × 5 columns

In [394...

```
# Groupby index (date)
XOM_news_df_grp = XOM_news_df1.groupby('Date')['Compound'].describe()
XOM_news_df_grp
```

Out[394...

	count	mean	std	min	25%	50%	75%	max
Date								
2022-01-07	5.0	0.081300	0.402759	-0.5106	0.000000	0.000000	0.440400	0.4767
2022-02-07	1.0	-0.381800	NaN	-0.3818	-0.381800	-0.38180	-0.381800	-0.3818
2022-03-07	1.0	-0.128000	NaN	-0.1280	-0.128000	-0.12800	-0.128000	-0.1280
2022-05-06	1.0	-0.526700	NaN	-0.5267	-0.526700	-0.52670	-0.526700	-0.5267
2022-06-06	1.0	-0.226300	NaN	-0.2263	-0.226300	-0.22630	-0.226300	-0.2263
2022-06-13	5.0	-0.015380	0.050075	-0.1027	0.000000	0.000000	0.000000	0.0258
2022-06-14	5.0	0.000000	0.324421	-0.4588	0.000000	0.000000	0.000000	0.4588
2022-06-15	7.0	0.182314	0.375971	-0.4019	-0.022500	0.40190	0.440400	0.4404
2022-06-16	2.0	0.107700	0.748402	-0.4215	-0.156900	0.10770	0.372300	0.6369
2022-06-17	2.0	0.397750	0.143896	0.2960	0.346875	0.39775	0.448625	0.4995
2022-06-18	1.0	-0.340000	NaN	-0.3400	-0.340000	-0.34000	-0.340000	-0.3400
2022-06-20	4.0	-0.085000	0.295484	-0.3400	-0.307000	-0.14800	0.074000	0.2960
2022-06-21	7.0	-0.008914	0.374829	-0.6249	-0.051350	0.000000	0.000000	0.6652
2022-06-22	8.0	-0.181400	0.289744	-0.6908	-0.332100	-0.11315	0.000000	0.2023
2022-06-23	5.0	-0.096880	0.352526	-0.4767	-0.458800	0.000000	0.177900	0.2732
2022-06-24	2.0	0.159850	0.226062	0.0000	0.079925	0.15985	0.239775	0.3197
2022-06-25	1.0	0.361200	NaN	0.3612	0.361200	0.36120	0.361200	0.3612
2022-06-26	1.0	-0.421500	NaN	-0.4215	-0.421500	-0.42150	-0.421500	-0.4215
2022-06-27	2.0	0.229400	0.324421	0.0000	0.114700	0.22940	0.344100	0.4588
2022-06-28	8.0	0.047163	0.390070	-0.6124	-0.079550	0.03860	0.243525	0.6124
2022-06-29	5.0	0.099200	0.398316	-0.3400	-0.128000	0.000000	0.273200	0.6908
2022-06-30	3.0	-0.070233	0.470498	-0.5719	-0.285950	0.000000	0.180600	0.3612
2022-07-06	3.0	0.249133	0.431512	0.0000	0.000000	0.000000	0.373700	0.7474
2022-08-06	9.0	-0.063967	0.380501	-0.6249	-0.381800	0.000000	0.025800	0.5859
2022-09-06	4.0	0.020000	0.561882	-0.7506	-0.187650	0.13660	0.344250	0.5574
2022-10-06	2.0	-0.238350	0.337078	-0.4767	-0.357525	-0.23835	-0.119175	0.0000

	count	mean	std	min	25%	50%	75%	max
Date								
2022-11-06	3.0	-0.273233	0.442846	-0.7845	-0.405150	-0.02580	-0.017600	-0.0094
2022-12-06	2.0	0.000000	0.000000	0.0000	0.000000	0.00000	0.000000	0.0000

In [395...

```
# Drop columns to create a better plot
XOM_news_df_grp.drop(columns=['std', 'min', '25%', '50%', '75%', 'max'], inplace=True)
```

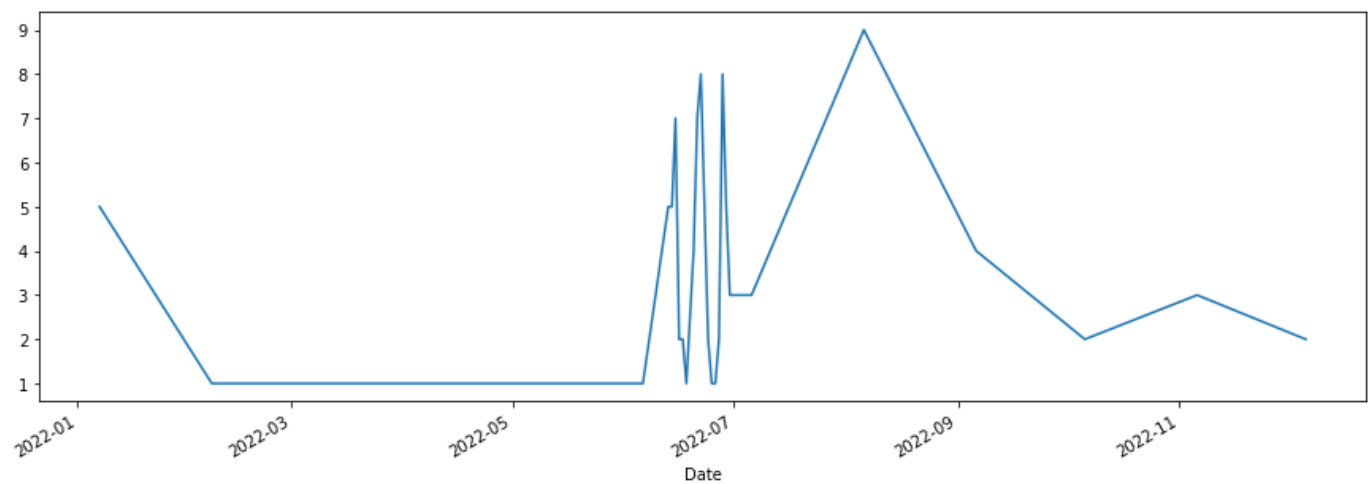
Total mention on Newsfeed for 30 days

In [396...

```
# Plot the total count for newsfeed for the month
XOM_news_df_grp['count'].plot(figsize=(15,5))
```

Out[396...

<AxesSubplot: xlabel='Date'>



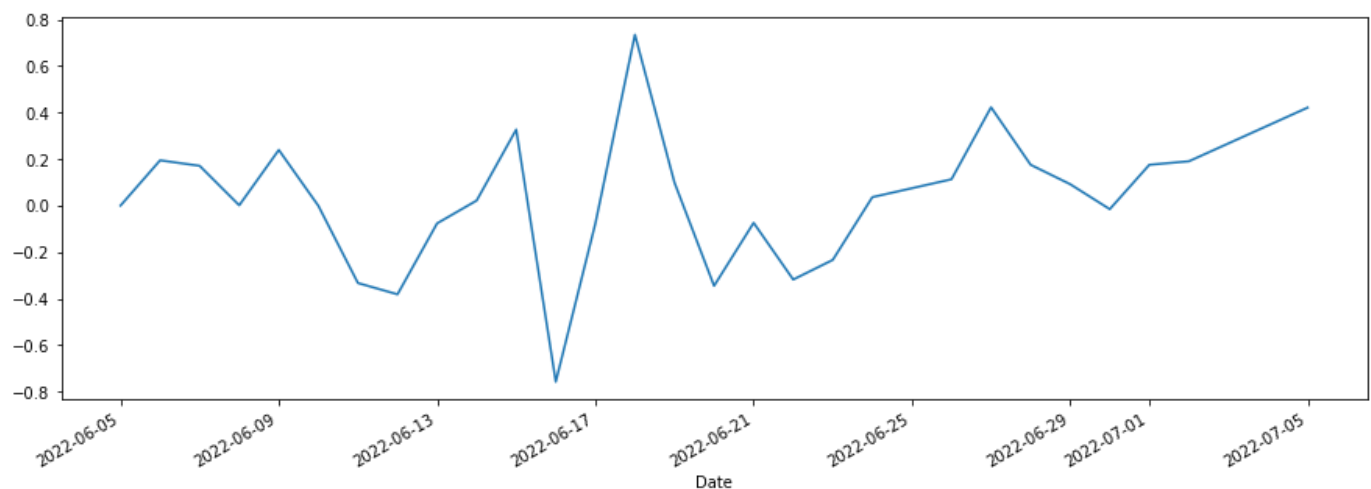
Sentiment Analysis: Compound Mean

In [397...

```
# Plot the mean for Compound Sentiment Analysis
AAPL_news_df_grp['mean'].plot(figsize=(15,5))
```

Out[397...

<AxesSubplot: xlabel='Date'>



In [398...

```
XOM_news_df_grp.hvplot(
    x='Date',
    y='mean',
    xlabel='Previous 30-Days',
    ylabel='Sentiment Analysis',
    rot=45)
```


Out[398...

In [399...

```
XOM_news_df_grp.hvplot.bar(  
    x='Date',  
    y='count',  
    xlabel='Previous 30-Days',  
    ylabel='Sentiment Analysis',  
    rot=45)
```

Out[399...

JLL 30 Day Newsfeed

In [400...

```
# Access the CSV and rename the columns  
JLL_news = Path ('JLL.csv')  
JLL_news_df = pd.read_csv(JLL_news)  
JLL_news_df.head()  
JLL_news_df1 = JLL_news_df.rename(columns={'publishedAt': 'Date', 'title': 'Title'})  
  
# Need to convert the date time into dates so it can be sortby  
  
JLL_news_df1["Date"] = JLL_news_df1["Date"].str.replace("T", " ", regex=True).str.replace("Z",  
JLL_news_df1['Date'] = pd.to_datetime(JLL_news_df1['Date']).dt.strftime('%d/%m/%Y')  
JLL_news_df1.head()
```

Out[400...

	Unnamed: 0	status	totalResults	source	author	Title	description
0	0	ok	47	{'id': None, 'name': 'Los Angeles Business Jou...	NaN	Development Sites Sell for \$47M - Los Angeles ...	Learn about a nearly \$47 million sale of two s...
1	1	ok	47	{'id': None, 'name': 'Dailyinfographic.com'}	Lyle Opolentisima	The 10 Most Valuable Sports Empires. Defined B...	When we talk about sports, it's obvious that w...
2	2	ok	47	{'id': None, 'name': 'Www.rfi.fr'}	RFI	Warehouse business catches fire, boosted by pa...	The rise of e-commerce and the logistical nigh...
3	3	ok	47	{'id': None, 'name': 'Los Angeles Business Jou...	NaN	Melrose Sees Growing Interest - Los Angeles Bu...	Learn about what is happening on Melrose Avenu...
4	4	ok	47	{'id': None, 'name': 'Los Angeles Business Jou...	NaN	LVMH's luxury hotel project approved - Los Ang...	The long-awaited Cheval Blanc Beverly Hills ho...

In [401...

Remove irrelevant columns and set the 'publishedAt' as the index

```
JLL_news_df1.set_index(pd.to_datetime(JLL_news_df1['Date'], infer_datetime_format=True), inplace=True)
JLL_news_df1.drop(columns=['Date', 'status', 'Unnamed: 0', 'totalResults', 'source', 'author'], inplace=True)
JLL_news_df1
```

Out[401...

Title	
Date	
2022-06-20	Development Sites Sell for \$47M - Los Angeles ...
2022-06-19	The 10 Most Valuable Sports Empires. Defined B...
2022-06-19	Warehouse business catches fire, boosted by pa...
2022-06-06	Melrose Sees Growing Interest - Los Angeles Bu...
2022-06-27	LVMH's luxury hotel project approved - Los Ang...
2022-06-30	Real estate transparency gap widens in favor o...
2022-06-21	City Center Realty Partners Sells Class A Offi...
2022-06-23	Blackstone Real Estate Income Trust Completes ...
2022-06-15	How JLL Is Shaping the Future of Real Estate f...
2022-06-30	Global Real Estate Property Purchasing Market ...
2022-06-09	Real Estate Market by Property Type, by Busine...
2022-06-19	Warehouse business catches fire, boosted by pa...
2022-06-17	New Residential Investment Corp. Announces Int...
2022-06-20	Israeli weapons maker shuts London HQ followin...
2022-06-16	JLL launches the Centre of Excellence for Sust...
2022-07-01	The Leukemia & Lymphoma Society (LLS) Announce...
2022-06-26	Chinese Firms Are Dominating Key Parts of Hong...
2022-06-26	Chinese Firms Are Dominating Key Parts of Hong...
2022-06-06	StratCap Acquires Cleveland Data Center
2022-06-10	What type of property can you buy for under Rs...
2022-07-04	New Study from StrategyR Highlights a \$222.9 B...
2022-06-30	Could site of a proposed Chicago Bears stadium...
2022-07-04	Could the site of a proposed Chicago Bears sta...
2022-06-29	Jones Lang LaSalle: About To Break Out - Stron...
2022-06-21	USD 838.86 Billion Growth is expected in Real ...
2022-06-17	Jane Hamilton
2022-06-24	Has Britain drafted a law to protect Israel's ...
2022-06-18	3 Beaten-Down Real Estate Stocks That Look Cheap
2022-06-15	Mast raises £1.2m for mortgage origination pla...
2022-06-06	Major Russian law firm is hacked; terabytes of...
2022-06-27	Leadership program alumni tackling diversity i...
2022-06-06	JLL publishes 2021 Global Sustainability Report
2022-06-30	Real estate transparency gap widens in favor o...
2022-06-08	Landsea Homes Seems To Be In The Right Place I...

Title	
Date	
2022-06-30	Global Real Estate Property Purchasing Market ...
2022-07-01	The Leukemia & Lymphoma Society (LLS) Announce...
2022-06-26	Communications Operations Manager (Remote)
2022-06-21	Director, Communications
2022-06-26	Public Relations Manager
2022-06-23	Tracking John Rogers' Ariel Investments Portfo...
2022-07-04	Manager, Communications
2022-07-04	Could the site of a proposed Chicago Bears sta...
2022-06-30	Could site of a proposed Chicago Bears stadium...
2022-07-04	New Study from StrategyR Highlights a \$222.9 B...
2022-06-30	Could site of a proposed Chicago Bears stadium...
2022-06-26	Chinese Firms Are Dominating Key Parts of Hong...
2022-06-23	Adams' latest co-op confusion

Sentiment Analysis: JLL

In [402...]

```
JLL_news_df1['Neg'] = JLL_news_df1['Title'].apply(lambda x: analyser.polarity_scores(x)['neg'])
JLL_news_df1['Neu'] = JLL_news_df1['Title'].apply(lambda x: analyser.polarity_scores(x)['neu'])
JLL_news_df1['Pos'] = JLL_news_df1['Title'].apply(lambda x: analyser.polarity_scores(x)['pos'])
JLL_news_df1['Compound'] = JLL_news_df1['Title'].apply(lambda x: analyser.polarity_scores(x)['compound'])

JLL_news_df1
```

Out[402...]

Title		Neg	Neu	Pos	Compound
Date					
2022-06-20	Development Sites Sell for \$47M - Los Angeles ...	0.000	1.000	0.000	0.0000
2022-06-19	The 10 Most Valuable Sports Empires. Defined B...	0.000	0.793	0.207	0.5256
2022-06-19	Warehouse business catches fire, boosted by pa...	0.173	0.647	0.180	0.0258
2022-06-06	Melrose Sees Growing Interest - Los Angeles Bu...	0.000	0.598	0.402	0.5719
2022-06-27	LVMH's luxury hotel project approved - Los Ang...	0.000	0.763	0.237	0.4215
2022-06-30	Real estate transparency gap widens in favor o...	0.000	0.787	0.213	0.4019
2022-06-21	City Center Realty Partners Sells Class A Offi...	0.000	1.000	0.000	0.0000
2022-06-23	Blackstone Real Estate Income Trust Completes ...	0.000	0.798	0.202	0.5106
2022-06-15	How JLL Is Shaping the Future of Real Estate f...	0.000	0.805	0.195	0.4404
2022-06-30	Global Real Estate Property Purchasing Market ...	0.000	0.917	0.083	0.2023
2022-06-09	Real Estate Market by Property Type, by Busine...	0.000	0.859	0.141	0.4215
2022-06-19	Warehouse business catches fire, boosted by pa...	0.220	0.550	0.229	0.0258
2022-06-17	New Residential Investment Corp. Announces Int...	0.000	1.000	0.000	0.0000
2022-06-20	Israeli weapons maker shuts London HQ followin...	0.412	0.588	0.000	-0.5994
2022-06-16	JLL launches the Centre of Excellence for Sust...	0.000	0.760	0.240	0.6249
2022-07-01	The Leukemia & Lymphoma Society (LLS) Announce...	0.000	0.847	0.153	0.4019

		Title	Neg	Neu	Pos	Compound
Date						
2022-06-26	Chinese Firms Are Dominating Key Parts of Hong...		0.196	0.804	0.000	-0.2960
2022-06-26	Chinese Firms Are Dominating Key Parts of Hong...		0.196	0.804	0.000	-0.2960
2022-06-06	StratCap Acquires Cleveland Data Center		0.000	1.000	0.000	0.0000
2022-06-10	What type of property can you buy for under Rs...		0.000	1.000	0.000	0.0000
2022-07-04	New Study from StrategyR Highlights a \$222.9 B...		0.000	1.000	0.000	0.0000
2022-06-30	Could site of a proposed Chicago Bears stadium...		0.000	1.000	0.000	0.0000
2022-07-04	Could the site of a proposed Chicago Bears sta...		0.000	1.000	0.000	0.0000
2022-06-29	Jones Lang LaSalle: About To Break Out - Stron...		0.000	0.732	0.268	0.5106
2022-06-21	USD 838.86 Billion Growth is expected in Real ...		0.000	0.885	0.115	0.3818
2022-06-17	Jane Hamilton		0.000	1.000	0.000	0.0000
2022-06-24	Has Britain drafted a law to protect Israel's ...		0.215	0.593	0.193	-0.0772
2022-06-18	3 Beaten-Down Real Estate Stocks That Look Cheap		0.000	1.000	0.000	0.0000
2022-06-15	Mast raises £1.2m for mortgage origination pla...		0.000	1.000	0.000	0.0000
2022-06-06	Major Russian law firm is hacked; terabytes of...		0.424	0.576	0.000	-0.7096
2022-06-27	Leadership program alumni tackling diversity i...		0.000	1.000	0.000	0.0000
2022-06-06	JLL publishes 2021 Global Sustainability Report		0.000	1.000	0.000	0.0000
2022-06-30	Real estate transparency gap widens in favor o...		0.000	0.787	0.213	0.4019
2022-06-08	Landsea Homes Seems To Be In The Right Place I...		0.000	1.000	0.000	0.0000
2022-06-30	Global Real Estate Property Purchasing Market ...		0.000	0.917	0.083	0.2023
2022-07-01	The Leukemia & Lymphoma Society (LLS) Announce...		0.000	0.847	0.153	0.4019
2022-06-26	Communications Operations Manager (Remote)		0.000	1.000	0.000	0.0000
2022-06-21	Director, Communications		0.000	1.000	0.000	0.0000
2022-06-26	Public Relations Manager		0.000	1.000	0.000	0.0000
2022-06-23	Tracking John Rogers' Ariel Investments Portfo...		0.000	1.000	0.000	0.0000
2022-07-04	Manager, Communications		0.000	1.000	0.000	0.0000
2022-07-04	Could the site of a proposed Chicago Bears sta...		0.000	1.000	0.000	0.0000
2022-06-30	Could site of a proposed Chicago Bears stadium...		0.000	1.000	0.000	0.0000
2022-07-04	New Study from StrategyR Highlights a \$222.9 B...		0.000	1.000	0.000	0.0000
2022-06-30	Could site of a proposed Chicago Bears stadium...		0.000	1.000	0.000	0.0000
2022-06-26	Chinese Firms Are Dominating Key Parts of Hong...		0.167	0.833	0.000	-0.2960
2022-06-23	Adams' latest co-op confusion		0.423	0.577	0.000	-0.2960

In [403...

```
# Groupby index (date)
JLL_news_df_grp = JLL_news_df1.groupby('Date')['Compound'].describe()
JLL_news_df_grp
```

Out[403...

	count	mean	std	min	25%	50%	75%	max
Date								
2022-06-06	4.0	-0.034425	0.524678	-0.7096	-0.177400	0.000000	0.142975	0.5719

	count	mean	std	min	25%	50%	75%	max
Date								
2022-06-08	1.0	0.000000	NaN	0.0000	0.000000	0.000000	0.000000	0.0000
2022-06-09	1.0	0.421500	NaN	0.4215	0.421500	0.421500	0.421500	0.4215
2022-06-10	1.0	0.000000	NaN	0.0000	0.000000	0.000000	0.000000	0.0000
2022-06-15	2.0	0.220200	0.311410	0.0000	0.110100	0.220200	0.330300	0.4404
2022-06-16	1.0	0.624900	NaN	0.6249	0.624900	0.624900	0.624900	0.6249
2022-06-17	2.0	0.000000	0.000000	0.0000	0.000000	0.000000	0.000000	0.0000
2022-06-18	1.0	0.000000	NaN	0.0000	0.000000	0.000000	0.000000	0.0000
2022-06-19	3.0	0.192400	0.288560	0.0258	0.025800	0.025800	0.275700	0.5256
2022-06-20	2.0	-0.299700	0.423840	-0.5994	-0.449550	-0.299700	-0.149850	0.0000
2022-06-21	3.0	0.127267	0.220432	0.0000	0.000000	0.000000	0.190900	0.3818
2022-06-23	3.0	0.071533	0.408030	-0.2960	-0.148000	0.000000	0.255300	0.5106
2022-06-24	1.0	-0.077200	NaN	-0.0772	-0.077200	-0.077200	-0.077200	-0.0772
2022-06-26	5.0	-0.177600	0.162126	-0.2960	-0.296000	-0.296000	0.000000	0.0000
2022-06-27	2.0	0.210750	0.298046	0.0000	0.105375	0.210750	0.316125	0.4215
2022-06-29	1.0	0.510600	NaN	0.5106	0.510600	0.510600	0.510600	0.5106
2022-06-30	7.0	0.172629	0.180874	0.0000	0.000000	0.202300	0.302100	0.4019
2022-07-01	2.0	0.401900	0.000000	0.4019	0.401900	0.401900	0.401900	0.4019
2022-07-04	5.0	0.000000	0.000000	0.0000	0.000000	0.000000	0.000000	0.0000

In [404...

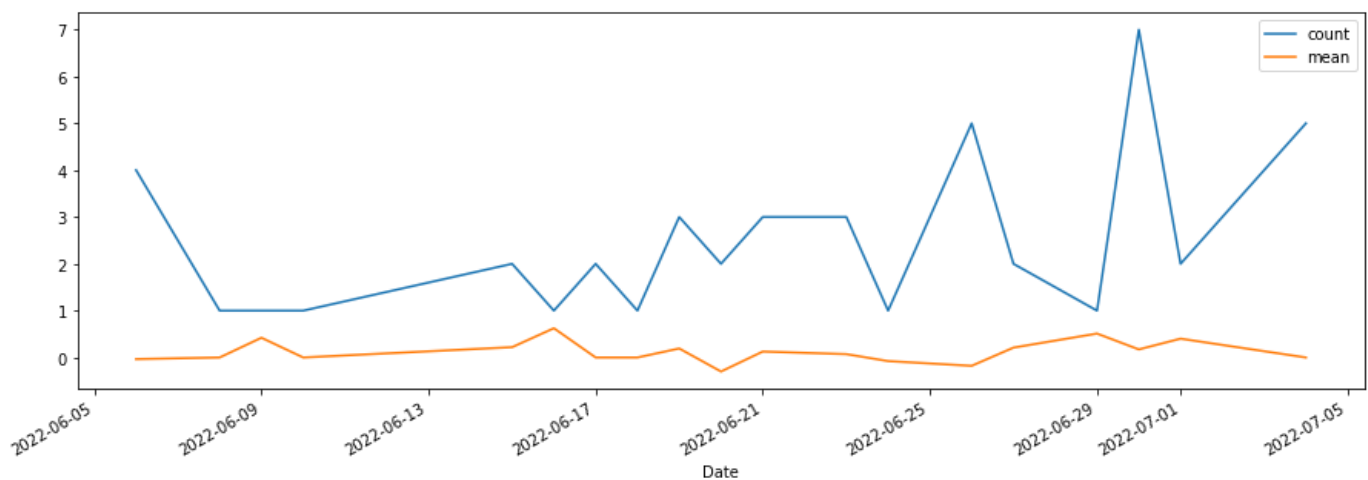
```
# Drop columns to create a better plot
JLL_news_df_grp.drop(columns=['std', 'min', '25%', '50%', '75%', 'max'], inplace=True)
```

In [405...

```
#Using pandas library
JLL_news_df_grp.plot(figsize=(15,5))
```

Out[405...

<AxesSubplot:xlabel='Date'>



In [406...

```
JLL_news_df_grp.hvplot(
    x='Date',
    y='mean',
    xlabel='Previous 30-Days',
    ylabel='Sentiment Analysis',
    rot=45)
```

Out[406...

In [407...

```
JLL_news_df_grp.hvplot.bar(  
    x='Date',  
    y='count',  
    xlabel='Previous 30-Days',  
    ylabel='Sentiment Analysis',  
    rot=45)
```

Out[407...

In []: