Twitter Sentiment analysis

Tweepy library is used to extract the tweets based on the given query. The tweets are extracted based on the location, search term(query), language and the date.

Vader sentiment analysis is performed on the extracted tweets to categorize the tweets as positive, negative and neutral.

The hyperlinks, emojis etc are removed and only the final text is used to perform the sentiment analysis.

We experimented on textlblob for sentiment analysis and observed that Vader sentiment analysis is more reliable.

```
RT A review of a century of evidence shows that cloth masks are indeed effective at blocking droplet and aerosol contaminatio
('Positive', 0.128)
```

```
This the support that and corporations hinge opening on Not the impact of the COVID outbreak harming
('Negative', -0.2263)
```

```
RT A review of a century of evidence shows that cloth masks are indeed effective at blocking droplet and aerosol contaminatio
('Positive', 0.128)
```

```
Half of the COVID 19 deaths in Nebraska have been residents of long term care facilities But the state s top medi
('Positive', 0.5106)
```

```
Today during our Cognitive Behavioural Therapy group psychotherapy session I told my patients I would write an art
('Neutral', 0.0)
```

Output of twitter API:

The user gives the input in the format as a json, with the attribute location and also the number of tweets that he/she wanted to extract.

```
>>> res = requests.post('http://localhost:5000/tweet-sentiment',json={"location":"new york"})
>>> res.json()
[{'polarity_score': -0.886, 'sentiment-label': 'Negative', 'tweet': '@realDonaldTrump 115000 People Killed By current Administration.\n\nFirst They Take Away Your Masks\nTh
en You Die Alone!  \n\n#covid'}, {'polarity_score': 0.2481, 'sentiment-label': 'Positive', 'tweet': 'RT @WeissJsw819: WIN this WAR. https://t.co/VKL1ZxZSKh\n\nC l I c k:htt
ps://t.co/IN9IezZ3GH\n\n#COVID▩ 19 #COVID #coronavirus #ChineseVirus #Hea…'}, {'polarity_score': 0.7184, 'sentiment-label': 'Positive', 'tweet': 'RT @WeissJsw819: Startling
. https://t.co/VKL1ZxZSKh\n\nC l I c k: https://t.co/IN9IezZ3GH\n\n#coronavirus #COVID #COVID19 #healthy #occult #spi…'}, {'polarity_score': 0.0, 'sentiment-label': 'Neutra
l', 'tweet': 'RT @matthewherper: This morning, $REGN announced its #Covid antibody cocktail has entered human tests. It also said it has data coming out…'}, {'polarity_scor
e': -0.2732, 'sentiment-label': 'Negative', 'tweet': 'Scary stuff: #CoronaRally #tulsa #Oklahoma - 45's next infectious #covid confab.  GopMaga go on -&gt;Do sign up! https
://t.co/WJGhR77HyP'}]
>>>
>>>
>>>
>>> res = requests.post('http://localhost:5000/tweet-sentiment',json={"location":"toronto"})
>>> res.json()
[{'polarity_score': 0.25, 'sentiment-label': 'Positive', 'tweet': 'RT @bradwouters: Is #anxiety keeping you up at night? Help a team of international researchers, including
 Dr. Frances Chung @UHN, understan…'}, {'polarity_score': -0.2263, 'sentiment-label': 'Negative', 'tweet': 'This the support that @fordnation and corporations hinge opening
 on. Not the impact of the #COVID outbreak harming… https://t.co/I1eNkBL505'}, {'polarity_score': 0.4019, 'sentiment-label': 'Positive', 'tweet': 'RT @PandemicPreg: Are you
 currently #pregnant or did you give birth during the #pandemic? We are interested in learning about your #COVID-1…'}, {'polarity_score': 0.0, 'sentiment-label': 'Neutral',
 'tweet': 'RT @rafiahaniff: @AccessibleGC Are we less than able bodied people? They get #CERB $2,000/mth  and pwd get a one time $600?! Even tho we in…'}, {'polarity_score'
: 0.4215, 'sentiment-label': 'Positive', 'tweet': 'Back at work and taking all possible precautions for patient's safety!  #optometry #optometrist #doctorsofinstagram… http
s://t.co/xAk4aAPnSx'}]
>>>
```

```
>>> res = requests.post('http://localhost:5000/tweet-sentiment',json={"location":"toronto","count":2})
>>> res.json()
[{'polarity_score': 0.25, 'sentiment-label': 'Positive', 'tweet': 'RT @bradwouters: Is #anxiety keeping you up at night? Help a team of international researchers, including
 Dr. Frances Chung @UHN, understan…'}, {'polarity_score': -0.2263, 'sentiment-label': 'Negative', 'tweet': 'This the support that @fordnation and corporations hinge opening
 on. Not the impact of the #COVID outbreak harming… https://t.co/I1eNkBL505'}]
>>> res = requests.post('http://localhost:5000/tweet-sentiment',json={"location":"toronto"})
>>> res.json()
[{'polarity_score': 0.25, 'sentiment-label': 'Positive', 'tweet': 'RT @bradwouters: Is #anxiety keeping you up at night? Help a team of international researchers, including
 Dr. Frances Chung @UHN, understan…'}, {'polarity_score': -0.2263, 'sentiment-label': 'Negative', 'tweet': 'This the support that @fordnation and corporations hinge opening
 on. Not the impact of the #COVID outbreak harming… https://t.co/I1eNkBL505'}, {'polarity_score': 0.4019, 'sentiment-label': 'Positive', 'tweet': 'RT @PandemicPreg: Are you
 currently #pregnant or did you give birth during the #pandemic? We are interested in learning about your #COVID-1…'}, {'polarity_score': 0.0, 'sentiment-label': 'Neutral',
 'tweet': 'RT @rafiahaniff: @AccessibleGC Are we less than able bodied people? They get #CERB $2,000/mth  and pwd get a one time $600?! Even tho we in…'}, {'polarity_score'
: 0.4215, 'sentiment-label': 'Positive', 'tweet': 'Back at work and taking all possible precautions for patient's safety!  #optometry #optometrist #doctorsofinstagram… http
s://t.co/xAk4aAPnSx'}, {'polarity_score': -0.296, 'sentiment-label': 'Negative', 'tweet': 'Received an invite to a Video Interview? Don't stress. Watch  my most recent vide
o tutorial on tips for a successfu… https://t.co/EAz0WJ1k4P'}, {'polarity_score': 0.0, 'sentiment-label': 'Neutral', 'tweet': 'RT @dmrider: News from me: Toronto City Counc
illor Michael Ford, diagnosed Tuesday with #COVID-19, hospitalized Thursday for tests https://…'}, {'polarity_score': 0.5106, 'sentiment-label': 'Positive', 'tweet': 'RT @D
avidLepofsky: Doug Ford @fordnation, it's been 497 days since your Gov got @HonDavidOnley report. Calls for strong new action on #acce…'}, {'polarity_score': 0.25, 'sentime
nt-label': 'Positive', 'tweet': 'RT @bradwouters: Is #anxiety keeping you up at night? Help a team of international researchers, including Dr. Frances Chung @UHN, understan
…'}, {'polarity_score': 0.7964, 'sentiment-label': 'Positive', 'tweet': 'RT @Girl_Pow_R: A remix to our original song 'This Is Us', we have changed the lyrics to reflect ou
r support and thankfulness for the coura…'}, {'polarity_score': 0.7964, 'sentiment-label': 'Positive', 'tweet': 'A remix to our original song 'This Is Us', we have changed
the lyrics to reflect our support and thankfulness for t… https://t.co/x0eF36Nlng'}, {'polarity_score': 0.4404, 'sentiment-label': 'Positive', 'tweet': '8 MORE DAYS!!! Our
NEW SONG, 'Thanks to You' will be out on Friday, June 19th!!! #girlpowr #covid #thankstoyou… https://t.co/8mjTlM0d0O'}, {'polarity_score': -0.5106, 'sentiment-label': 'Nega
tive', 'tweet': 'In the rush to get back to sports the workers are always the ones facing the risks and the cuts. #CFL #COVID https://t.co/8S2ISV9nFT'}, {'polarity_score':
-0.8779, 'sentiment-label': 'Negative', 'tweet': 'RT @CityNews: U.S. #markets suffered their worst day since March amid fears of a resurgence in #COVID-19. Plus, @AirTransa
t announces plans…'}, {'polarity_score': -0.34, 'sentiment-label': 'Negative', 'tweet': 'RT @nkeung: Cases are rising in nearly half the states, according to an Associated
Press analysis, a worrying trend that could intensify as…'}, {'polarity_score': 0.0, 'sentiment-label': 'Neutral', 'tweet': 'RT @dmrider: News from me: Toronto City Counci
lor Michael Ford, diagnosed Tuesday with #COVID-19, hospitalized Thursday for tests https://…'}, {'polarity_score': -0.34, 'sentiment-label': 'Negative', 'tweet': 'Cases ar
e rising in nearly half the states, according to an Associated Press analysis, a worrying trend that could… https://t.co/0E3zaEj6dn'}, {'polarity_score': -0.7579, 'sentimen
t-label': 'Negative', 'tweet': 'But are you liable if someone becomes infected with COVID-19 on your premises? #liability #infection #covid… https://t.co/WM5xZKzENn'}, {'po
larity_score': 0.5859, 'sentiment-label': 'Positive', 'tweet': 'RT @_DebSchulte: We've heard from seniors across Canada about increased costs from #COVID-19. The Government
 of Canada's special one-time p…'}, {'polarity_score': 0.0, 'sentiment-label': 'Neutral', 'tweet': 'RT @dmrider: News from me: Toronto City Councillor Michael Ford, diagnos
ed Tuesday with #COVID-19, hospitalized Thursday for tests https://…'}, {'polarity_score': 0.0, 'sentiment-label': 'Neutral', 'tweet': 'RT @dmrider: News from me: Toronto C
ity Councillor Michael Ford, diagnosed Tuesday with #COVID-19, hospitalized Thursday for tests https://…'}, {'polarity_score': 0.0, 'sentiment-label': 'Neutral', 'tweet':
RT @dmrider: News from me: Toronto City Councillor Michael Ford, diagnosed Tuesday with #COVID-19, hospitalized Thursday for tests https://…'}, {'polarity_score': 0.0, 'sen
timent-label': 'Neutral', 'tweet': 'RT @dmrider: News from me: Toronto City Councillor Michael Ford, diagnosed Tuesday with #COVID-19, hospitalized Thursday for tests
://…'}, {'polarity_score': 0.0, 'sentiment-label': 'Neutral', 'tweet': 'RT @dmrider: News from me: Toronto City Councillor Michael Ford, diagnosed Tuesday with #COVID-19, h
ospitalized Thursday for tests https://…'}, {'polarity_score': 0.0, 'sentiment-label': 'Neutral', 'tweet': 'RT @dmrider: News from me: Toronto City Councillor Michael Ford,
 diagnosed Tuesday with #COVID-19, hospitalized Thursday for tests https://…'}, {'polarity_score': 0.0, 'sentiment-label': 'Neutral', 'tweet': 'RT @dmrider: News from me: T
oronto City Councillor Michael Ford, diagnosed Tuesday with #COVID-19, hospitalized Thursday for tests https://…'}, {'polarity_score': 0.0, 'sentiment-label': 'Neutral', 't
weet': 'RT @dmrider: News from me: Toronto City Councillor Michael Ford, diagnosed Tuesday with #COVID-19, hospitalized Thursday for tests https://…'}, {'polarity_score': 0
```

The latitudes and longitudes of a city are obtained by using geopy API. Other API's like geocoding API, openwather API, Opencage Geocoding API are experimeted. However the acuuracy of latitudes andd longitudes, number of

requests are better for geopy API.

```
[ ] getLocationCoordinates('Bay Area')
```

(37.7884969, -122.3558473)

```
[ ] getLocationCoordinates('California')
```

(36.7014631, -118.7559974)

```
[ ] getLocationCoordinates("New York")
```

(40.7127281, -74.0060152)

```
[ ] getLocationCoordinates("Hamilton")
```

(43.2560802, -79.8728583)