

```
!ls
```

```
credential.py __pycache__ sample_data tweets.xls
```

```
!cat credential.py
```

```
consumer_key = 'ftyAFYvGhebmeC2GfBUNMMWcW'
consumer_secret = 'vdtkkpn1K1NPkpPYpZLXVYEqcvPuPTmpkg3MfvwR5ZEXVWPuVH'
access_token = '429918788-A0KeKY9VIjoqUEakWzux60qZIBSSp4h38LdhF1qB'
access_token_secret = 'UiyHncoqp5uZf4mtS38CDQ87VQTpeRnPD4R1i7tkIeo51'
```

▼ Get Twitter Credential

- create app, and environment in twitter developer account
- get credentials and save in a file

```
import credential
```

```
!pip3 install oauth2
```

```
Requirement already satisfied: oauth2 in /usr/local/lib/python3.6/dist-packages (1
Requirement already satisfied: httplib2 in /usr/local/lib/python3.6/dist-packages
```

```
import oauth2 as oauth
import json
import re
```

```
#import credentials
# credential can be stored as config file, or in a database, or in environemt variable
CONSUMER_API_KEY = credential.consumer_key
API_SECRET_KEY = credential.consumer_secret
ACCESS_TOKEN = credential.access_token
ACCESS_TOKEN_SECRET= credential.access_token_secret
```

▼ Authentication

- Twitter supports OAuth 1.0a, Auth 2.0 Bearer Token, Basic authentication
- In this example Auth 2.0 is used. <https://developer.twitter.com/en/docs/basics/authentication>

```
#create Oauth2 Client
consumer = oauth.Consumer(CONSUMER_API_KEY, API_SECRET_KEY)
access_token = oauth.Token(ACCESS_TOKEN, ACCESS_TOKEN_SECRET)
client = oauth.Client(consumer, access_token)
```

```
sheet = wb.add_sheet('tweets_for_{}'.format(hashtag))
```

```
row = 1
```

```
sheet.write(0,0, "Tweets")
```

```
sheet.write(0,1, "Sentiment_Type")
```

```
for data in sentiment_result:
```

```
    print(data)
```

```
    sheet.write(row, 0, data[0])
```

```
    sheet.write(row, 1, data[1])
```

```
    row = row+1
```

```
wb.save('tweets.xls')
```



```

    return tweets_list

def clean_tweets(tweets_list):
    cleaned_list = []
    for tweet in tweets_list:
        clean_tweet = re.sub("(RT @\w+)|(@\w+)|(https://\w+)|(^[a-zA-Z0-9\s\.\!%,])",
                              "")
        cleaned_list.append(clean_tweet)
    return cleaned_list

# Get Tweets Sentiment
def get_sentiment(text):
    try:
        blob = TextBlob(text, analyzer=NaiveBayesAnalyzer())
        if blob.sentiment.p_pos >= blob.sentiment.p_neg:
            return 'Positive'
        else:
            return 'Negative'
    except:
        print("exception ocured")
        return ""

#Save workbook
def save_workbook(sentiment_result, sheet_name='result'):
    wb = Workbook()
    sheet = wb.add_sheet(sheet_name)

    row = 1
    sheet.write(0,0, "Tweets")
    sheet.write(0,1, "Sentiment_Type")
    for data in sentiment_result:
        print(data)
        sheet.write(row, 0, data[0])
        sheet.write(row, 1, data[1])
        row = row+1

    wb.save('tweets.xls')

if __name__ == "__main__":
    client=OauthClient()
    popular_tweets= client.get_tweets(result_type="popular")
    recent_tweets= client.get_tweets(result_type="recent")
    tweets_list = popular_tweets + recent_tweets
    cleaned_list = clean_tweets(tweets_list)
    sentiment_result = [(tweet, get_sentiment(tweet)) for tweet in cleaned_list]
    save_workbook(sentiment_result)

```


- with standard developer license twitter allow only 100 results in response.(Premium subscri

```
#prepare query
query = '%23atamnirbharbharat'
count = 100
lang = "en"
result_type="mixed"
tweet_mode = "extended"
search_endpoint = "https://api.twitter.com/1.1/search/tweets.json?q={}&result_type={}&c
```

```
#execute query
response, data = client.request(search_endpoint)
```

```
print(data)
```

```
↳ b'{"statuses":[{"created_at":"Mon Jun 08 11:04:17 +0000 2020","id":126994835834227
```

```
#get tweets from result
tweets = json.loads(data)
tweets_list = []
for tweet in tweets['statuses']:
    tweets_list.append(tweet['full_text'])
    print(tweet['full_text'])
```

```
↳
```

In this difficult time, PM @narendramodi still enjoys the overwhelming support of
|@PMOIndia, @nsitharaman @minmsme #COVID19 #AtamnirbharBharat|

<https://t.co/csvpxPHNP7>

RT @sumeetbhasin: Slowly and steadily nearing completion of all works at factory.
#SamajikSamarasta #Atamnirbharbharat

Protection of workers rights and safety

via NaMo App <https://t.co/5JPKwFHgD5>

RT @sumeetbhasin: Slowly and steadily nearing completion of all works at factory.

No words ☐

#Narendramodi #ABPnews #TimesofIndia #hindustanibhau #BJPJanSamvad #Kejriwal #aama

RT @vmlsanna9: We don't believe in freebies Sir, 1.3 billion Indians strongly beli

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@PTI_News Increased tax on Indian good (what ever it may be) and govt scheme of
One Swadeshi Movement was started in 1905 for our National Independence... IN☑

Now it's time to start it again for our Economic Independence... And to save our e

#swadeshikranti

#Atamnirbharbharat

#BoycottMadeInChina

Today the trust with which the people of India are supporting each other is commen
The government is empowered with the support and cooperation of all of you. 🙏

#Atamnirbharbharat

#NewIndia <https://t.co/6JjL8mFVKM>

Slowly and steadily nearing completion of all works at factory. @Cint_Security wil

RT @vmlsanna9: We don't believe in freebies Sir, 1.3 billion Indians strongly beli

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RT @Techelita1: We at Techelita #deliver rich #DataAnalytics Analytics to #Help yo

We at Techelita #deliver rich #DataAnalytics Analytics to #Help you ##incorporate

#software #datamining #techelita #corporate #applications #appdevelopment #softwar

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Slowly and steadily nearing completion of all works at factory. @Cint_Security wil

RT @vmlsanna9: We don't believe in freebies Sir, 1.3 billion Indians strongly beli

First strong step towards #Atamnirbharbharat <https://t.co/3E3nFqMOoU>

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We don't believe in freebies Sir, 1.3 billion Indians strongly believe in #Atamnir

We will never BEG

Further, if you genuinely want to help then do release Indian Citizen Kulbhushan J
@BloombergQuint It's good at this tough time...I will make the import expensive an
Shame on you

Mr @RobertDowneyJr

World fighting with Coronavirus

& Now you're Supporting Chinese Products....🙏🙏

Follow 📖 #AtamNirbharBharat <https://t.co/B2mMXQInOZ>

For the luxurious home decor 1800-121-100-027 Toll-Free for appointments

#luxurysofa #smartfurnituredealers #furniturestore #homefurniture #italiansofa #le

It is time to make India atma nirbhar, become vocal for local: PM Modi

#AtamnirbharBharat <https://t.co/MDilVYnpHZ>

RT @authindia: "Spinning and weaving should be regarded as the necessary part of a
#Atamnirbharb...

@azaz_86 @TSBBCare @TataSky @tataskynews @TataCompanies @ndtv @aahtak @HMOIndia M

@myntra please consider Avg height of Indian women and not go by international sta

RT @authindia: "Spinning and weaving should be regarded as the necessary part of a #Atamnirbharb...

Slogans shifting from India to Bharat by @narendramodi @makeinindia @startupindia @contrarianEPS Only going nifty long looking at Dow is real atamnirbhar... :) For

#atamnirbharbharat

Nitish Kumar reveals his big election promise for upcoming Bihar polls <https://t.c>

#atamnirbharbharat

Received on whatsapp but true

#IndiaFightsCorona

#IndiaFightsCoronavirus

#atamnirbharbharat <https://t.co/GdcSFHQXeN>

#Ourgreatpm_modiji, our nation proud of you and we all with you,

#atamnirbharbharat

#atamnirbharbano <https://t.co/cI4ahrRQ0v>

RT @KishanK54586354: India deploys main battle tanks closer to Chinese border-MBT

#Chinese #ChinaIndiaFaceoff #chinaindiab...

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#Chinese #ChinaIndiaFaceoff #chinaindiab...

India deploys main battle tanks closer to Chinese border-MBT T72M1 ,MBT T90 .

#Chinese #ChinaIndiaFaceoff #chinaindiaborder #BoycottChineseProducts #ChineseVirus

RT @DivyaInExile: I ♥ you Amul (@Amul_Coop)

Fruit & Nut Chocolate

Milk

Cheese

Ice Cream

Ghee

Dahi

Fresh Cream

Paneer

Butter

Butter Milk...

@dhruv_rathee Dnt spread fake news 😊😊😊😊😊😊😊😊.. we are under control, every thir

@PMOIndia @narendramodi Well said,but quality should not be compromised.#atamnirbh

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#Atamnirbharb...

How you will make #Atamnirbharbharat ☐

#Modi #NarendraModi #India #IndiaFightsCorona <https://t.co/dyUJqolQgI>

@JhaSanjay Good soon you along with other congri will be seen there only

And remember " #Atamnirbharbharat " banana hai koi naya kaam karna lekin bheekh ma

@ImranKhanPTI You should think before this twit that ,this is #Atamnirbharbharat J

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#Atamnirbharb...

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#Atamnirbharb...

Boycott Chinese products and made our INDIA self reliant

#Atamnirbharbharat

#BoycottChineseProduct

#MiNoteBooksAreHere

RT @authindia: "Spinning and weaving should be regarded as the necessary part of a

#Atamnirbharb

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#Atamnirbharbharat <https://t.co/D1t0km09Fw>

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"Spinning and weaving should be regarded as the necessary part of any national edu #Atamnirbharbharat

#handicraft #VocalForLocal

@fisheyedmeena @Pupulmimi @AlPallavi @MohdMuzzammilk @IAMSudhirMishra @indhandloo

@timesofindia @narendramodi Where are the trains that were designed for the beds a

@TractorMahindra #Harkissanatamnibhar #deshkelaal #Atamnirbharbharat

One year old tractor

See condition

Prayed in every way for the last six months, but no one listened to mahindra [https](https://t.co/ImranKhanPTI)

@ImranKhanPTI Mr Talibani Puppet PM @ArvindKejriwal needs it very badly as no mone

Today, every section of the country, every citizen is being provided the facility

Your government should be assured for you, be confident !

#Opportunities4Youth

#atamnirbharbharat

via <https://t.co/IJXWrRTLeE>

The patience with which the Prime Minister of India handled the situation. With th Really Praiseworthy!

#atamnirbharbharat

#IndiafightCorona

via MyNt <https://t.co/ihhPT0eZPm>

RT @eu_indo: @avigyanSingh18 @AFP @ecb @IMFNews @UNCTAD @MoodyAnalytics @RBI @NIT Lesson from covid-19

1. Life is short

2. Job are temporary

3. health is wealth

4. Always save money

5. We need god to survive

#coronavirus

#atamnirbharbharat

RT @eu_indo: @avigyanSingh18 @AFP @ecb @IMFNews @UNCTAD @MoodyAnalytics @RBI @NIT

@ndtv These people don't have food, shelter even clothes as seen in this picture.

India's PM Modi addressing Indian Chamber of Commerce #ICC Very impressive & m

@PMOIndia @narendramodi Indians doest know there capability.. agar indians apni sh

#atamnirbharbharat

This should have been initiated long time back.

Better late then never.

#atamnirbharbharat <https://t.co/VkGCGhTiUV>

#atamnirbharbharat We Build Better Products.! Other Countries.

Then We Can Do Something.

RT @amansharmagsp07: 5 Innocent Mathmaticians are sent to meet Albert Einstein By

RT @Officeof_IMS: #Atamnirbharbharat #atamnirbhardoctors #IMS2020 Only Physicians/

✗Not...

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with 2 years replacement guarantee.

#AtamNirbharBharat

#आत्मनिर्भरभारत

#MakeInIndia

#BuyIndianSellIndian

▼ get recent tweets

```
RT @theSudhirMohan: AS PM of India said to build a #Atamnirbharharat We are work  
# workaround solution, use premium licnesed apps to get more tweets and apply filters.  
result_type="recent"  
search_endpoint = "https://api.twitter.com/1.1/search/tweets.json?q={}&result_type={}&c  
extended_response, extended_data = client.request(search_endpoint)  
#extended list  
extended_tweets = json.loads(extended_data)  
extended_tweets_list = []  
for tweet in extended_tweets['statuses']:  
    extended_tweets_list.append(tweet['full_text'])  
    print(tweet['full_text'])
```



#productandservices
 #IndianProduct
 #MadeInIndia
 #goodmorning
 #IndianEntrepreneurs
 #viralIndia
 #innovation
 #ShopLocal

#vocalforlocal <https://t.co/CmQejZ0tc3>

@nhpcltd @MinOfPower @OfficeOfRKSingh @nhpcltd is among front liner for developmen
 Day#3

List out one non-Indian brand or halal certified product you have purchased in las

Need others to help provide good alternative of the same so that we don't purchase
 "An initiate by BJYM Udhampur."

BJYM Udhampur with a great initiate manufacturing "Self Made Face Shields" and dist

#AtamNirbharBharat #MakeInIndia

@DrJitendraSingh @poonam_mahajan @BJYM @RavinderBJPJK @BJP4JnK @IArundev @BJYMinJK
 Today, every section of the country, every citizen is being provided the facility
 Your government should be assured for you, be confident !

#Opportunities4Youth

#atamnirbharbharat <https://t.co/717CQrfX95>

RT @krishnaartsvns: Support our country by #goingvocalforlocal support all local b

#KrishnaArts...

Support our country by #goingvocalforlocal support all local businesses out there!

#KrishnaArts #localbusiness #localforvocal #vocalforlocal #localbusiness

#AtamNirbharBharat #LocalBrand <https://t.co/qpvKoImVyJ>

Today, every section of the country, every citizen is being provided the facility
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#atamnirbharbharat <https://t.co/hv0ke8bHKJ>

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via M <https://t.co/HNL9prdm39>

Today, every section of the country, every citizen is being provided the facility
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#atamnirbharbharat

#undersatnding response:

print(response)

☞ {'cache-control': 'no-cache, no-store, must-revalidate, pre-check=0, post-check=0'}

via MyNt <https://t.co/OJhYlyCxnV>

print(data)

☞ b'{"statuses":[{"created_at":"Mon Jun 08 11:04:17 +0000 2020","id":126994835834227

RT @GR/8548407: Swadeshi is the only solution #atamnirbharbharat

RT @sumeetbhasin: Slowly and steadily nearing completion of all works at factory.
 #SamajikSamarasta #Atamnirbharbharat
 Protection of workers rights and safety
 via NaMo App <https://t.co/5JPKWfHgD5>
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 No words ☐
 #Narendramodi #ABPnews #TimesofIndia #hindustanibhau #BJPJanSamvad #Kejriwal #aama
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Now it's time to start it again for our Economic Independence... And to save our e

#swadeshikranti
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 Today the trust with which the people of India are supporting each other is commen
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 RT @Techelita1: We at Techelita #deliver rich #DataAnalytics Analytics to #Help yo
 We at Techelita #deliver rich #DataAnalytics Analytics to #Help you ##incorporate
 #software #datamining #techelita #corporate #applications #appdevelopment #softwar
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 RT @vmlsanna9: We don't believe in freebies Sir, 1.3 billion Indians strongly beli
 We don't believe in freebies Sir, 1.3 billion Indians strongly believe in #Atamnir
 We will never BEG

Further, if you genuinely want to help then do release Indian Citizen Kulbhushan J
 @BloombergQuint It's good at this tough time...I will make the import expensive an
 For the luxurious home decor 1800-121-100-027 Toll-Free for appointments
 #luxurysofa #smartfurnituredealers #furniturestore #homefurniture #italiansofa #le
 It is time to make India atma nirbhar, become vocal for local: PM Modi
 #AtamnirbharBharat <https://t.co/MDilVYnpHZ>
 @azaz_86 @TSBBCare @TataSky @tataskynews @TataCompanies @ndtv @aaajtak @HMOIndia M
 @myntra please consider Avg height of Indian women and not go by international sta
 Slogans shifting from India to Bharat by @narendramodi @makeinindia @startupindia
 @contrarianEPS Only going nifty long looking at Dow is real atamnirbhar... :) For

#atamnirbharbharat
 Nitish Kumar reveals his big election promise for upcoming Bihar polls <https://t.c>

#atamnirbharbharat
 Received on whatsapp but true
 #IndiaFightsCorona
 #IndiaFightsCoronavirus
 #atamnirbharbharat <https://t.co/GdcSFHQXeN>
 #Ourgreatpm_modiji, our nation proud of you and we all with you,
 #atamnirbharbharat

#atamnirbharbano <https://t.co/cI4ahrRQ0v>

RT @KishanK54586354: India deploys main battle tanks closer to Chinese border-MBT

#Chinese #ChinaIndiaFaceoff #chinaindiab...

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#Chinese #ChinaIndiaFaceoff #chinaindiaborder #BoycottChineseProducts #ChineseVirus

RT @DivyaInExile: I ♥ you Amul (@Amul_Coop)

Fruit & Nut Chocolate

Milk

Cheese

Ice Cream

Ghee

Dahi

Fresh Cream

Paneer

Butter

Butter Milk...

@dhruv_rathee Dnt spread fake news 😊😊😊😊😊😊😊😊.. we are under control, every thir

@PMOIndia @narendramodi Well said,but quality should not be compromised.#atamnirbh

How you will make #Atamnirbharbharat ☐

#Modi #NarendraModi #India #IndiaFightsCorona <https://t.co/dyUJqolQgI>

@JhaSanjay Good soon you along with other congri will be seen there only

And remember " #Atamnirbharbharat " banana hai koi naya kaam karna lekin bheekh ma

@ImranKhanPTI You should think before this tweet that ,this is #Atamnirbharbharat J

Boycott Chinese products and made our INDIA self reliant

#Atamnirbharbharat

#BoycottChineseProduct

#MiNoteBooksAreHere

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.

#Atamnirbharbharat <https://t.co/D1t0km09Fw>

@timesofindia @narendramodi Where are the trains that were designed for the beds a

@TractorMahindra #Harkissanatamnibhar #deshkelaal #Atamnirbharbharat

One year old tractor

See condition

Prayed in every way for the last six months, but no one listened to mahindra <https://t.co/D1t0km09Fw>

@ImranKhanPTI Mr Talibani Puppet PM @ArvindKejriwal needs it very badly as no mone

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#Opportunities4Youth

#atamnirbharbharat

via <https://t.co/IJXWrRTLeE>

The patience with which the Prime Minister of India handled the situation. With th

Really Praiseworthy!

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#IndiafightCorona

via MyNt <https://t.co/ihhPT0eZPm>

RT @eu_indo: @avigyanSingh18 @AFP @ecb @IMFNews @UNCTAD @MoodyAnalytics @RBI @NIT

Lesson from covid-19

Lesson 11 on COVID 19

1. Life is short
2. Job are temporary
3. health is wealth
4. Always save money
5. We need god to survive

#coronavirus

#atamnirbharbharat

RT @eu_indo: @avigyanSingh18 @AFP @ecb @IMFNews @UNCTAD @MoodyAnalytics @RBI @NIT @ndtv These people don't have food, shelter even clothes as seen in this picture. India's PM Modi addressing Indian Chamber of Commerce #ICC Very impressive & m @PMOIndia @narendramodi Indians doest know there capability.. agar indians apni sh #atamnirbharbharat

This should have been initiated long time back.

Better late then never.

#atamnirbharbharat <https://t.co/VkGCGhTiUV>

#atamnirbharbharat We Build Better Products.! Other Countries.

Then We Can Do Something.

RT @amansharmagsp07: 5 Innocent Mathmaticians are sent to meet Albert Einstein By

RT @Officeof_IMS: #Atamnirbharbharat #atamnirbhardoctors #IMS2020 Only Physicians/

✕Not...

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.

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#आत्मनिर्भरभारत

#MakeInIndia

#BuyIndianSellIndian

#productandservices

#IndianProduct

#MadeInIndia

#goodmorning

#IndianEntrepreneurs

#viralIndia

#innovation

#ShopLocal

#vocalforlocal <https://t.co/CmQejZ0tc3>

@nhpcltd @MinOfPower @OfficeOfRKSingh @nhpcltd is among front liner for developmen Day#3

List out one non-Indian brand or halal certified product you have purchased in las

Need others to help provide good alternative of the same so that we don't purchase "An initate by BJYM Udhampur."

BJYM Udhampur with a great initate manufacturing "Self Made Face Shields" and dist

#AtamNirbharBharat #MakeInIndia

@DrJitendraSingh @poonam_mahajan @BJYM @RavinderBJPJK @BJP4JnK @IArundev @BJYMinJK Today, every section of the country, every citizen is being provided the facility Your government should be assured for you, be confident !

#Opportunities4Youth

#atamnirbharbharat <https://t.co/717CQrfX95>

RT @krishnaartsvns: Support our country by #goingvocalforlocal support all local b

#KrishnaArts...

Support our country by #goingvocalforlocal support all local businesses out there!

#KrishnaArts #localbusiness #localforvocal #vocalforlocal #localbusiness

#AtamNirbharBharat #LocalBrand <https://t.co/qpvKoImVyJ>

Today, every section of the country, every citizen is being provided the facility

Your government should be assured for you, be confident !

#Opportunities4Youth

#atamnirbharbharat <https://t.co/hv0ke8bHKJ>

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#atamnirbharbharat

via M <https://t.co/HNL9prdm39>

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#Opportunities4Youth

#atamnirbharbharat

via M <https://t.co/jRj4nfMxDE>

The patience with which the Prime Minister of India handled the situation. With th
Really Praiseworthy!

#atamnirbharbharat

#IndiafightCorona

via MyNt <https://t.co/OJhYlyCxnV>

RT @warrior34811802: There is huge compromise on Make In India , and #AtmanirbharB
@GurukulParents @PMOIndia @DrRPNishank @drdineshbjp @HRDMinistry @Minister_Edu @WH
#Atamnirbharbharat khud padho khud padhao

TEDBF: At \$71 million flyaway costs, TEDBF It will be Cheaper then Rafale M and F-

RT @GK78546407: Swadeshi is the only solution #atamnirbharbharat <https://t.co/MT9q>

RT @GK78546407: Swadeshi is the only solution #atamnirbharbharat

RT @GK78546407: Swadeshi is the only solution #atamnirbharbharat

Swadeshi is the only solution #atamnirbharbharat <https://t.co/MT9qXB3rDI>

RT @ImPrince_T: AS PM of India said to build a #Atamnirbharbharat. We are working

RT @theSudhirMohan: AS PM of India said to build a #Atamnirbharbharat. We are work

#atamnirbharbharat

#nochina

Join this slogan maximum to maximum and promote to indian product and make India s

RT @consultosian: Customers duty on bambo import by agarbati manufacturer is incre

#atamnirbharbharat 20 lakh crore package. <https://t.co/zggc4Z5eZb>

IT professionals crowd the job street <https://t.co/5xmRt73h1v> via @economictimes

#JobSeekersWednesday #Jobs #IT_company #informationtechnology #organisations #Rest
Gig coders to become a mainstream phenomenon in Indian IT <https://t.co/H5R2eAAT5R>

#CodersTeach #IndianIT #Mainstream #techelita #Services #gigwork #post_pandemic #t
@TEAMCAIT @praveendel @BCBHARTIA @sumitagarwal_82 @narendramodi @PiyushGoyal @Amit
For all the millennials wondering what people meant by saying " Licence Raj "

```
tweets_list = tweets_list + extended_tweets_list
```

```
print(len(tweets_list))
```

```
print(tweets_list)
```

```
200
```

```
['In this difficult time, PM @narendramodi still enjoys the overwhelming support o
```

```
There is a lot more coming on your way ↩
```

▼ Clean tweets for sentiment Analysis

- remove retweets user names, mentioned user, links, and special charachters except punctuati

```

#आत्मनिर्भरभारत
cleaned_list = []
for tweet in tweets_list:
    clean_tweet = re.sub("(RT @\w+)|(@\w+)|(https://\w+/t.co/\w+)|([^\a-zA-Z0-9\s\.\!%,])"
    cleaned_list.append(clean_tweet)

print(cleaned_list)

```

ment guarantee.\n.\nAtamNirbharBharat\n\nMakeInIndia\nBuyIndianSellIndian\nproducta

RT @Viveknailavaram: @ahmedabadmirror All that MIA and MP do is make money for the

▼ Sentiment Analysis Python

1. Option 1: Pretrained Model Provided by cloud provider like, AWS, GCP, IBM

- sample code below(not executed) - requires aws credential to be loaded.
- see reference:

<https://boto3.amazonaws.com/v1/documentation/api/latest/reference/services/comprehend>

2. Option 2: TextBlob API provided by Python Community(see reference:

https://textblob.readthedocs.io/en/dev/advanced_usage.html#sentiment-analyzers)

```

# Using AWS Comprehend
#import boto3
# Configure AWS credentials
# AWS_ACCESS_KEY =
# AWS_SECRET_KEY =
#comprehend = boto3.client(service_name='comprehend', region_name='ap-south-1', aws_acc
#sentimentData = comprehend.detect_sentiment(Text=comments, LanguageCode='en')

```

▼ TextBlob

- The textblob.sentiments module contains two sentiment analysis implementations, PatternA NaiveBayesAnalyzer (an NLTK classifier trained on a movie reviews corpus).
- Linguistic Data Source:(reference) http://www.nltk.org/nltk_data/
- TextBlob's Default linguistic module : textblob.download_corpora
 - ref: <https://textblob.readthedocs.io/en/dev/install.html>

```
! python -m textblob.download_corpora
```

↗

```
[nltk_data] Downloading package brown to /root/nltk_data...
[nltk_data]   Package brown is already up-to-date!
[nltk_data] Downloading package punkt to /root/nltk_data...
[nltk_data]   Package punkt is already up-to-date!
[nltk_data] Downloading package wordnet to /root/nltk_data...
[nltk_data]   Package wordnet is already up-to-date!
[nltk_data] Downloading package averaged_perceptron_tagger to
[nltk_data]   /root/nltk_data...
[nltk_data]   Package averaged_perceptron_tagger is already up-to-
[nltk_data]   date!
[nltk_data] Downloading package conll2000 to /root/nltk_data...
[nltk_data]   Package conll2000 is already up-to-date!
```

```
# TextBlob Test
```

```
from textblob import TextBlob
from textblob.sentiments import NaiveBayesAnalyzer
blob = TextBlob("I love this library", analyzer=NaiveBayesAnalyzer())
blob.sentiment
```

```
# Get Tweets Sentiment
```

```
def get_sentiment(text):
    try:
        blob = TextBlob(text, analyzer=NaiveBayesAnalyzer())
        if blob.sentiment.p_pos >= blob.sentiment.p_neg:
            return 'Positive'
        else:
            return 'Negative'
    except:
        print("exception ocured")
        return ""
```

```
sentiment_result = [(tweet, get_sentiment(tweet)) for tweet in cleaned_list]
```

```
print(sentiment_result)
```

```
↳ [('In this difficult time, PM still enjoys the overwhelming support of people and
```

▼ Export Result to Excel

- library user: xlwt - use to generate spreadsheet files compatible with Microsoft Excel version
- ref link <https://pypi.org/project/xlwt/>

```
import xlwt
from xlwt import Workbook
```

```
wb = Workbook()
hashtag = "atamnirbharbharat"
```


('In this difficult time, PM still enjoys the overwhelming support of people and
(' Slowly and steadily nearing completion of all works at factory. will commence
('SamajikSamarasta Atamnirbharbharat\nProtection of workers rights and safety\nvia
(' Slowly and steadily nearing completion of all works at factory. will commence
('No words \nNarendramodi ABPnews TimesofIndia hindustanibhau BJPJanSamvad Kejriwa
(' We dont believe in freebies Sir, 1.3 billion Indians strongly believe in Atamni
(' We dont believe in freebies Sir, 1.3 billion Indians strongly believe in Atamni
(' Increased tax on Indian good what ever it may be and govt scheme of Atamnirbh
('One Swadeshi Movement was started in 1905 for our National Independence... \n\nN
('Today the trust with which the people of India are supporting each other is comm
('Slowly and steadily nearing completion of all works at factory. will commence t
(' We dont believe in freebies Sir, 1.3 billion Indians strongly believe in Atamni
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(' We dont believe in freebies Sir, 1.3 billion Indians strongly believe in Atamni
('First strong step towards Atamnirbharbharat ', 'Positive')
(' We dont believe in freebies Sir, 1.3 billion Indians strongly believe in Atamni
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(' We dont believe in freebies Sir, 1.3 billion Indians strongly believe in Atamni
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(' We dont believe in freebies Sir, 1.3 billion Indians strongly believe in Atamni
('We dont believe in freebies Sir, 1.3 billion Indians strongly believe in Atamnir
(' Its good at this tough time...I will make the import expensive and help the exp
('Shame on you \nMr \nWorld fighting with Coronavirus\namp Now youre Supporting C
('For the luxurious home decor 1800121100027 TollFree for appointments\nluxurysofa
('It is time to make India atma nirbhar, become vocal for local PM Modi\nAtamnirbh
(' Spinning and weaving should be regarded as the necessary part of any national e
(' M still waiting for visit of the concern person. All are just zipped mou
(' please consider Avg height of Indian women and not go by international standard
(' Spinning and weaving should be regarded as the necessary part of any national e
('Slogans shifting from India to Bharat by StandupIndia atamnirbharbharat', '
(' Only going nifty long looking at Dow is real atamnirbhar... For our TV channel
('Nitish Kumar reveals his big election promise for upcoming Bihar polls \n\natam
('Received on whatsapp but true\nIndiaFightsCorona \nIndiaFightsCoronavirus \natam
('Ourgreatpmodiji, our nation proud of you and we all with you, \natamnirbharbhar
(' India deploys main battle tanks closer to Chinese borderMBT T72M1 ,MBT T90 .\nC
(' India deploys main battle tanks closer to Chinese borderMBT T72M1 ,MBT T90 .\nC
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('India deploys main battletanks closer to Chinese borderMBT T72M1 ,MBT T90 .\nC
(' I you Amul \nFruit amp Nut Chocolate \nMilk\nCheese\nIce Cream\nGhee\nDahi\nF
(' Dnt spread fake news .. we are under control, every thing open now.. we r free
(' Well said,but quality should not be compromised.atamnirbharbharat', 'Negative'
(' Spinning and weaving should be regarded as the necessary part of any national e
(' Spinning and weaving should be regarded as the necessary part of any national e
(' Spinning and weaving should be regarded as the necessary part of any national e
('How you will make Atamnirbharbharat \n\nModi NarendraModi India IndiaFightsCoron
(' Good soon you along with other congri will be seen there only \n\nAnd remember
(' You should think before this twit that ,this is Atamnirbharbharat Jo ,so
(' Spinning and weaving should be regarded as the necessary part of any national e
(' Spinning and weaving should be regarded as the necessary part of any national e
('Boycott Chinese products and made our INDIA self reliant\n\nAtamnirbharbharat \n
(' Spinning and weaving should be regarded as the necessary part of any national e
(' Your skin demands for a special care. So, give a sheer care of natural ingredie
(' Spinning and weaving should be regarded as the necessary part of any national e
('Spinning and weaving should be regarded as the necessary part of any national ed
(' Where are the trains that were designed for the beds and medical equipments W
(' Harkissanatamnibhar deshkelaal Atamnirbharbharat \nOne year old tractor\nSee co

```

(' Mr Talibani Puppet PM needs it very badly as no money is left with him for adv
('Today, every section of the country, every citizen is being provided the facilit
('The patience with which the Prime Minister of India handled the situation. With
('
    NewsAlert Now 100%', 'Positive')
('Lesson from covid19\n1. Life is short\n2. Job are temporary\n3. health is wealth
('
    NewsAlert Now 100%', 'Positive')
(' These people dont have food, shelter even clothes as seen in this picture. But
('Indias PM Modi addressing Indian Chamber of Commerce ICC Very impressive amp mot
(' Indians doest know there capability.. agar indians apni shamta ka 90% b use ka
('This should have been initiated long time back.\nBetter late then never.\natamni
('atamnirbharbharat We Build Better Products.! Other Countries.\nThen We Can Do So
(' 5 Innocent Mathmaticians are sent to meet Albert Einstein By IndianArmy in Reba
(' Atamnirbharbharat atamnirbhardoctors IMS2020 Only PhysiciansDoctors should infl
('A bridge to INNOVATION\nwith 2 years replacement guarantee.\n.\nAtamNirbharBhara
(' is among front liner for development of RE in India. We are committed for su
('Day3\nList out one nonIndian brand or halal certified product you have purchased
('An initate by BJYM Udampur.\n\nBJYM Udampur with a great initate manufacturing
('Today, every section of the country, every citizen is being provided the facilit
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('Today, every section of the country, every citizen is being provided the facilit
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    This is best! Withdrawal! \nAtamnirbharbharat khud padho khud padhao',
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(' Swadeshi is the only solution atamnirbharbharat', 'Positive')
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('Swadeshi is the only solution atamnirbharbharat ', 'Positive')
(' AS PM of India said to build a Atamnirbharbharat. We are working for the same f
(' AS PM of India said to build a Atamnirbharbharat. We are working for the same f
('atamnirbharbharat \nnochina\nJoin this slogan maximum to maximum and promote to
(' Customers duty on bambo import by agarbati manufacturer is increased from 10% t
('atamnirbharbharat 20 lakh crore package. ', 'Negative')
('IT professionals crowd the job street via \n\nJobSeekersWednesday Jobs ITcompa
('Gig coders to become a mainstream phenomenon in Indian IT via \n\nCodereach
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    atamnirbharbharat Support!', 'Positive')
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```

```

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('It is time to make India atma nirbhar, become vocal for local PM Modi\nAtamnirbh
(' M still waiting for visit of the concern person. All are just zipped mou
(' please consider Avg height of Indian women and not go by international standard
('Slogans shifting from India to Bharat by StandupIndia atamnirbharbharat', '
(' Only going nifty long looking at Dow is real atamnirbhar... For our TV channel
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('Received on whatsapp but true\nIndiaFightsCorona \nIndiaFightsCoronavirus \natam
('Ourgreatpmmodiji, our nation proud of you and we all with you, \natamnirbharbhar
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(' Dnt spread fake news .. we are under control, every thing open now.. we r free
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('The patience with which the Prime Minister of India handled the situation. With
(' NewsAlert Now 100%', 'Positive')
('Lesson from covid19\n1. Life is short\n2. Job are temporary\n3. health is wealth
(' NewsAlert Now 100%', 'Positive')

```

```

import pandas as pd
df = pd.read_excel('tweets.xls')
df.head(10)

```



	Tweets	Sentiment_Type
0	In this difficult time, PM still enjoys the o...	Positive
1	Slowly and steadily nearing completion of all...	Positive
2	SamajikSamarasta Atamnirbharbharat\nProtection...	Positive
3	Slowly and steadily nearing completion of all...	Positive
4	No words \nNarendermodi ABPnews TimesofIndia h...	Positive
5	We dont believe in freebies Sir, 1.3 billion ...	Positive
6	We dont believe in freebies Sir, 1.3 billion ...	Positive
7	Increased tax on Indian good what ever it ma...	Negative
8	One Swadeshi Movement was started in 1905 for ...	Positive
9	Today the trust with which the people of India...	Positive

```

(' AS PM of India said to build a Atamnirbharbharat. We are working for the same f
df.tail(10)

```



	Tweets	Sentiment_Type
190	There is a lot more coming on your way \nWe ha...	Negative
191	RBIsay NoToPMCBank YesToYesbank\n Narendermod...	Positive
192	atamnirbharbharat by opening arms, ammunition ...	Negative
193	All that MLA and MP do is make money for the...	Positive
194	There is huge compromise on Make In India , a...	Positive
195	India was ruled and enslaved by Britain for 20...	Positive
196	The patience with which the Prime Minister of ...	Positive
197	All that MLA and MP do is make money for them...	Positive
198	RBIsay NoToPMCBank YesToYesbank\n Narendermod...	Positive
199	RBISAYS NoToPMCBank YesToYesbank\n Narendermo...	Positive

▼ Final Code

```
#credential file with keys
import credential
import oauth2 as oauth
import json
import re
from textblob import TextBlob
from textblob.sentiments import NaiveBayesAnalyzer
import xlwt
from xlwt import Workbook

# credential can be stored as config file, or in a database, or in environemt variable
CONSUMER_API_KEY = credential.consumer_key
API_SECRET_KEY = credential.consumer_secret
ACCESS_TOKEN = credential.access_token
ACCESS_TOKEN_SECRET= credential.access_token_secret

class OauthClient():
    def __init__(self):
        self.consumer = oauth.Consumer(CONSUMER_API_KEY, API_SECRET_KEY)
        self.access_token = oauth.Token(ACCESS_TOKEN, ACCESS_TOKEN_SECRET)
        self.client = oauth.Client(self.consumer, self.access_token)

    def get_tweets(self, query='%23atamnirbharbharat', count=100, lang='en', result_type=
search_endpoint = "https://api.twitter.com/1.1/search/tweets.json?q={}&result_type=
response, data = self.client.request(search_endpoint)
tweets = json.loads(data)
tweets_list = []
for tweet in tweets['statuses']:
    tweets_list.append(tweet['full_text'])
    #print(tweet['full text'])
```