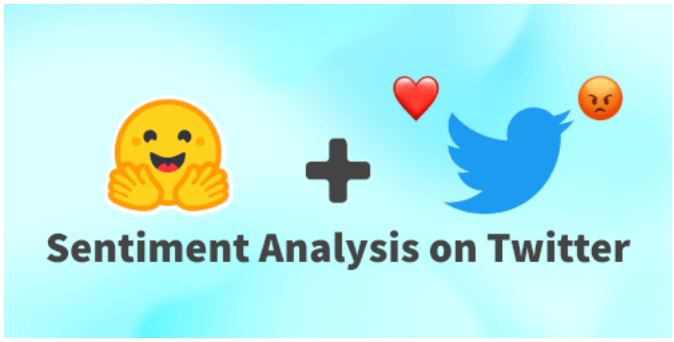
Getting Started with Sentiment Analysis on Twitter



1. Install dependencies

```
!pip install -q tweepy matplotlib wordcloud
```

2. Set up Twitter API credentials

```
import tweepy

# Add Twitter API key and secret
consumer_key = "XXXXX"
consumer_secret = "XXXXX"

# Handling authentication with Twitter
auth = tweepy.AppAuthHandler(consumer_key, consumer_secret)

# Create a wrapper for the Twitter API
api = tweepy.API(auth, wait_on_rate_limit=True, wait_on_rate_limit_notify=True)
```

3. Search for tweets using Tweepy

```
# Helper function for handling pagination in our search and handle rate limits
def limit_handled(cursor):
    while True:
        try:
            yield cursor.next()
        except tweepy.RateLimitError:
            print('Reached rate limite. Sleeping for >15 minutes')
            time.sleep(15 * 61)
        except StopIteration:
            break

# Define the term we will be using for searching tweets
query = '@notionhq'
query = query + ' -filter:retweets'

# Define how many tweets to get from the Twitter API
count = 1000

# Search for tweets using Tweepy
search = limit_handled(tweepy.Cursor(api.search,
                       q=query,
                       tweet_mode='extended',
                       lang='en',
                       result_type="recent").items(count))

# Process the results from the search using Tweepy
tweets = []
for result in search:
    tweet_content = result.full_text
    # Only saving the tweet content.
    # You could also save other attributes for each tweet like date or # of RTs.
    tweets.append(tweet_content)
```

4. Run sentiment analysis on the tweets

```
import requests
import time

# Set up the API call to the Inference API to do sentiment analysis
model = "cardiffnlp/twitter-roberta-base-sentiment-latest"
hf_token = "XXXXX"
API_URL = "https://api-inference.huggingface.co/models/" + model
headers = {"Authorization": "Bearer %s" % (hf_token)}

def analysis(data):
    payload = dict(inputs=data, options=dict(wait_for_model=True))
    response = requests.post(API_URL, headers=headers, json=payload)
    return response.json()

# Let's run the sentiment analysis on each tweet
tweets_analysis = []
for tweet in tweets:
    try:
        sentiment_result = analysis(tweet)[0]
        top_sentiment = max(sentiment_result, key=lambda x: x['score']) # Get the sentiment with the higher score
        tweets_analysis.append({'tweet': tweet, 'sentiment': top_sentiment['label']})

    except Exception as e:
        print(e)
```

5.Explore the results of sentiment analysis

```
import pandas as pd

# Load the data in a dataframe
pd.set_option('max_colwidth', None)
pd.set_option('display.width', 3000)
df = pd.DataFrame(tweets_analysis)

# Show a tweet for each sentiment
display(df[df["sentiment"] == 'Positive'].head(1))
display(df[df["sentiment"] == 'Neutral'].head(1))
display(df[df["sentiment"] == 'Negative'].head(1))
```

	tweet	sentiment
0	@jameygannon @NotionHQ A regression imo, I think it’s great to have both the previous way and current way implemented if done right. Because the new way has benefits, there’s just way more friction to get there.	Positive

	tweet	sentiment
3	@FlowRadarcom @TemplarDesign @mmduarte @airtable @RowsHQ @NotionHQ @coda_hq @softr_io @webflow @AdaloHQ @glideapps @bubble @WordPress Database limitation is the red glad holding me back from going full scale with WF	Neutral

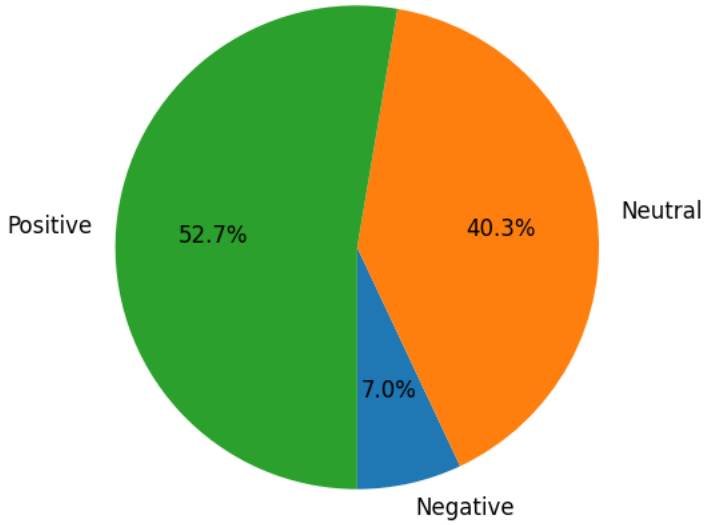
	tweet	sentiment
	@TemplarDesign @FlowRadarcom @mmduarte @airtable @RowsHQ @NotionHQ	

```
import matplotlib.pyplot as plt

# Let's count the number of tweets by sentiments
sentiment_counts = df.groupby(['sentiment']).size()
print(sentiment_counts)

# Let's visualize the sentiments
fig = plt.figure(figsize=(6,6), dpi=100)
ax = plt.subplot(111)
sentiment_counts.plot.pie(ax=ax, autopct='%1.1f%%', startangle=270, fontsize=12, label="")
```

```
sentiment
Negative     21
Neutral     121
Positive    158
dtype: int64
<matplotlib.axes._subplots.AxesSubplot at 0x7f848d12d810>
```




```
from wordcloud import WordCloud
from wordcloud import STOPWORDS

# Wordcloud with positive tweets
positive_tweets = df['tweet'][df["sentiment"] == 'Positive']
stop_words = ["https", "co", "RT"] + list(STOPWORDS)
positive_wordcloud = WordCloud(max_font_size=50, max_words=50, background_color="white", stopwords = stop_words).generate(st
plt.figure()
plt.title("Positive Tweets - Wordcloud")
plt.imshow(positive_wordcloud, interpolation="bilinear")
plt.axis("off")
plt.show()

# Wordcloud with negative tweets
negative_tweets = df['tweet'][df["sentiment"] == 'Negative']
stop_words = ["https", "co", "RT"] + list(STOPWORDS)
negative_wordcloud = WordCloud(max_font_size=50, max_words=50, background_color="white", stopwords = stop_words).generate(st
plt.figure()
plt.title("Negative Tweets - Wordcloud")
plt.imshow(negative_wordcloud, interpolation="bilinear")
plt.axis("off")
plt.show()
```