Lecture6-Twitter

January 29, 2018

```python
In [1]: import pandas as pd
        import numpy as np
        import matplotlib.pyplot as plt

In [2]: # !cat /Users/mikejcarey/desktop/teaching/STATS170ab/TweetSecrets.txt

In [3]: CONSUMER_KEY = "..."
        CONSUMER_SECRET = "..."
        ACCESS_KEY = "..."
        ACCESS_SECRET = "..."

In [4]: import tweepy

        auth = tweepy.OAuthHandler(CONSUMER_KEY, CONSUMER_SECRET)
        auth.set_access_token(ACCESS_KEY, ACCESS_SECRET)

        api = tweepy.API(auth)

In [5]: # let's grab a set of public tweets from my home timeline (Note: I'm "dtabass")
        public_tweets = api.home_timeline(count=5)

In [6]: len(public_tweets)

Out[6]: 5

In [7]: for tweet in public_tweets:
            print('"' + tweet.text + '"')
```

```
"What is it like to be a #QA engineer? What kind of side projects do you get to work on? Check o
"The hot weather will begin to ease Tuesday in San Diego, but temperatures will remain above nor
"#IBMers 30 Jan: Hear me talk about our #blockchain project on #Hyperledger #Fabric See https://
"Thinking about getting involved with #teacher mentorship? Register for the Jan. 31st webinar @
"The @UCBerkeley Data8: Foundations of Data Science course is launching on edX. Even Stanford st
```

```python
In [8]: print (type(public_tweets))
```

```
<class 'tweepy.models.ResultSet'>
```

```
In [9]: print (type(public_tweets[0]))

<class 'tweepy.models.Status'>


In [10]: print (type(public_tweets[0]._json))

<class 'dict'>


In [11]: public_tweets[0]._json

Out[11]: {'contributors': None,
         'coordinates': None,
         'created_at': 'Mon Jan 29 22:59:49 +0000 2018',
         'entities': {'hashtags': [{'indices': [24, 27], 'text': 'QA'}],
          'symbols': [],
          'urls': [{'display_url': 'twitter.com/i/web/status/9',
            'expanded_url': 'https://twitter.com/i/web/status/958112473600675841',
            'indices': [110, 133],
            'url': 'https://t.co/1ZpOpOp1SG'}],
          'user_mentions': []},
         'favorite_count': 1,
         'favorited': False,
         'geo': None,
         'id': 958112473600675841,
         'id_str': '958112473600675841',
         'in_reply_to_screen_name': None,
         'in_reply_to_status_id': None,
         'in_reply_to_status_id_str': None,
         'in_reply_to_user_id': None,
         'in_reply_to_user_id_str': None,
         'is_quote_status': False,
         'lang': 'en',
         'place': None,
         'possibly_sensitive': False,
         'possibly_sensitive_appealable': False,
         'retweet_count': 0,
         'retweeted': False,
         'source': '<a href="http://sproutsocial.com" rel="nofollow">Sprout Social</a>',
         'text': 'What is it like to be a #QA engineer? What kind of side projects do you get t
         'truncated': True,
         'user': {'contributors_enabled': False,
          'created_at': 'Tue Apr 26 23:42:17 +0000 2011',
          'default_profile': False,
          'default_profile_image': False,
          'description': "We break down silos, push boundaries & enable the entire ecosystem to
          'entities': {'description': {'urls': []},
           'url': {'urls': [{'display_url': 'hortonworks.com',
```

```
              'expanded_url': 'http://www.hortonworks.com',
              'indices': [0, 23],
              'url': 'https://t.co/Ev8bA4hen2'}]}},
         'favourites_count': 1200,
         'follow_request_sent': False,
         'followers_count': 129165,
         'following': True,
         'friends_count': 392,
         'geo_enabled': False,
         'has_extended_profile': False,
         'id': 288500051,
         'id_str': '288500051',
         'is_translation_enabled': False,
         'is_translator': False,
         'lang': 'en',
         'listed_count': 1621,
         'location': 'In Motion, At Rest, Everywhere',
         'name': 'Hortonworks',
         'notifications': False,
         'profile_background_color': '69BD28',
         'profile_background_image_url': 'http://pbs.twimg.com/profile_background_images/37880
         'profile_background_image_url_https': 'https://pbs.twimg.com/profile_background_image
         'profile_background_tile': False,
         'profile_banner_url': 'https://pbs.twimg.com/profile_banners/288500051/1456847819',
         'profile_image_url': 'http://pbs.twimg.com/profile_images/913104742888259584/HsqEVWZM
         'profile_image_url_https': 'https://pbs.twimg.com/profile_images/913104742888259584/H
         'profile_link_color': '69BD28',
         'profile_sidebar_border_color': '000000',
         'profile_sidebar_fill_color': 'CCCCCC',
         'profile_text_color': '0A010A',
         'profile_use_background_image': True,
         'protected': False,
         'screen_name': 'hortonworks',
         'statuses_count': 9679,
         'time_zone': 'Pacific Time (US & Canada)',
         'translator_type': 'none',
         'url': 'https://t.co/Ev8bA4hen2',
         'utc_offset': -28800,
         'verified': True}}
```

In [12]: # https://developer.twitter.com/en/docs/tweets/data-dictionary/overview/tweet-object

In [13]: tweets = pd.DataFrame()
         tweets['tweetID'] = [tweet.id for tweet in public_tweets]
         tweets['text'] = [tweet.text for tweet in public_tweets]
         tweets

Out[13]:   tweetID   text
         0 958112473600675841 What is it like to be a #QA engineer? What kin...

```
           1  958102254900293632  The hot weather will begin to ease Tuesday in ...
           2  958100862299136000  #IBMers 30 Jan: Hear me talk about our #blockc...
           3  958095660242239488  Thinking about getting involved with #teacher ...
           4  958089277321101312  The @UCBerkeley Data8: Foundations of Data Sci...
```

```python
In [14]: def getMyFieldSet(tweet):
             trec = {"id":tweet.id, "uname":tweet.user.name, "uscreen":tweet.user.screen_name, "
             return trec

         tweetSet = [getMyFieldSet(pt) for pt in public_tweets]
         tweetSet
```

```
Out[14]: [{'id': 958112473600675841,
           'text': 'What is it like to be a #QA engineer? What kind of side projects do you get
           'uname': 'Hortonworks',
           'uscreen': 'hortonworks'},
          {'id': 958102254900293632,
           'text': 'The hot weather will begin to ease Tuesday in San Diego, but temperatures wi
           'uname': 'grobbins',
           'uscreen': 'grobbins'},
          {'id': 958100862299136000,
           'text': '#IBMers 30 Jan: Hear me talk about our #blockchain project on #Hyperledger #
           'uname': 'C. Mohan',
           'uscreen': 'seemohan'},
          {'id': 958095660242239488,
           'text': 'Thinking about getting involved with #teacher mentorship? Register for the J
           'uname': 'National Science Fdn',
           'uscreen': 'NSF'},
          {'id': 958089277321101312,
           'text': 'The @UCBerkeley Data8: Foundations of Data Science course is launching on ed
           'uname': 'Mike Olson',
           'uscreen': 'mikeolson'}]
```

```python
In [15]: type(tweetSet)
```

```
Out[15]: list
```

```python
In [16]: type(tweetSet[0])
```

```
Out[16]: dict
```

```python
In [17]: # we could also turn our new list of tweets (tweetSet) into a dataframe if we wanted to
         tweets2 = pd.DataFrame(tweetSet)
         tweets2
```

```
Out[17]:                    id                                               text  \
         0  958112473600675841  What is it like to be a #QA engineer? What kin...
         1  958102254900293632  The hot weather will begin to ease Tuesday in ...
         2  958100862299136000  #IBMers 30 Jan: Hear me talk about our #blockc...
```

```
         3  958095660242239488  Thinking about getting involved with #teacher ...
         4  958089277321101312  The @UCBerkeley Data8: Foundations of Data Sci...


                          uname      uscreen
         0          Hortonworks  hortonworks
         1              grobbins      grobbins
         2             C. Mohan     seemohan
         3  National Science Fdn          NSF
         4           Mike Olson     mikeolson
```

In [18]: api.update_status("Today's STATS174A lecture includes how to use the Twitter APIs to ac

Out[18]: Status(_api=<tweepy.api.API object at 0x108f24400>, _json={'created_at': 'Mon Jan 29 23

In [19]: user = api.get_user('NathanEast')
         print(user._json)

{'id': 25057200, 'id_str': '25057200', 'name': 'Nathan East', 'screen_name': 'NathanEast', 'loca

In [28]: results = []
         for i in range(1,10):
             results.append(i)
         print(results)

[1, 2, 3, 4, 5, 6, 7, 8, 9]

In [20]: results = []
         for tweet in tweepy.Cursor(api.search,
                                    q="Trump Mueller",
                                    result_type="recent",
                                    include_entities=True,
                                    wait_on_rate_limit=True,
                                    wait_on_rate_limit_notify=True,
                                    lang="en").items(50):
             results.append(tweet)

In [21]: for tweet in results:
             print("(" + str(tweet.created_at) + ": " + tweet.text + ")")

(2018-01-29 23:17:12: RT @EdKrassen: The Constitutional Crisis has begun. The firing of Andrew M
(2018-01-29 23:17:11: RT @SaysHummingbird: RETWEET if you AGREE that Donald Trump's actions of f
(2018-01-29 23:17:11: RT @kylegriffin1: One source, who knows Trump as well as anyone, tells Axi
(2018-01-29 23:17:10: RT @johncusack: Thats next - and fox trump tv - will present a vast conspi
(2018-01-29 23:17:10: RT @RVAwonk: One of the three FBI officials targeted by Trump's smear camp
(2018-01-29 23:17:10: RT @greenhousenyt: Even more material for Robert Mueller to use in his obs
(2018-01-29 23:17:09: RT @ananavarro: First, he came for Comey, & they didnt speak out b/c t

Then, he came for McCabe, & they didnt s)
(2018-01-29 23:17:09: RT @BanditRandom: BREAKING: #Mueller just blindsided the #Trump and #Kushn
(2018-01-29 23:17:08: RT @EdKrassen: The Constitutional Crisis has begun. The firing of Andrew M
(2018-01-29 23:17:08: RT @JacobAWohl: Trump: Turned over more than 1.4 Million pages of document

Hillar)
(2018-01-29 23:17:08: RT @funder: .@LindseyGrahamSC-With the departure of Andrew McCabe at the F
(2018-01-29 23:17:08: RT @keithboykin: Trump Has Fired or Pressured:
1. Attorney General Jeff Sessions
2. Acting AG Sally Yates
3. Deputy AG Rod Rosenstein
4. US)
(2018-01-29 23:17:08: What will @RepJohnKatko say when #Trump fires Mueller? I wish the Congress
(2018-01-29 23:17:07: RT @ScottPresler: HOLD UP A SECOND:

Deputy AG Rod Rosenstein extended surveillance on Carter Page because of Fusion GPS Russian doss
(2018-01-29 23:17:07: RT @bannerite: #DemForce Trump Could Face Witness Tampering Charges For Ta
(2018-01-29 23:17:07: @TheBeatWithAri Other than Repub/Trump media outrage, what's to stop Muell
(2018-01-29 23:17:06: RT @EdKrassen: The Constitutional Crisis has begun. The firing of Andrew M
(2018-01-29 23:17:06: RT @ProudResister: The REAL State of the Union:

 The President is compromised.

 The GOP Congress is complicit.

 Mueller is investigat)
(2018-01-29 23:17:06: Opinion: It's now likely Mueller thinks Trump obstructed justice https://t
(2018-01-29 23:17:06: RT @funder: Congress needs to take immediate action to protect Robert Muel
(2018-01-29 23:17:05: RT @RVAwonk: One of the three FBI officials targeted by Trump's smear camp
(2018-01-29 23:17:05: RT @ThirdWayTweet: .@ThirdWayKessler tells @FWhitfield that Republicans mu
(2018-01-29 23:17:05: RT @ananavarro: First, he came for Comey, & they didnt speak out b/c t

Then, he came for McCabe, & they didnt s)
(2018-01-29 23:17:05: RT @EdKrassen: The Constitutional Crisis has begun. The firing of Andrew M
(2018-01-29 23:17:04: RT @ananavarro: First, he came for Comey, & they didnt speak out b/c t

Then, he came for McCabe, & they didnt s)
(2018-01-29 23:17:04: RT @SethAbramson: BREAKING: Top Republican Senator Says If Trump Fires Mue
(2018-01-29 23:17:04: RT @ananavarro: First, he came for Comey, & they didnt speak out b/c t

Then, he came for McCabe, & they didnt s)
(2018-01-29 23:17:04: RT @ananavarro: First, he came for Comey, & they didnt speak out b/c t

Then, he came for McCabe, & they didnt s)
(2018-01-29 23:17:04: RT @seanhannity: Mueller Probing Trumps LEGAL USE of Executive Authority
https://t.co/vbg1tiS16H)
(2018-01-29 23:17:03: RT @EdKrassen: The Constitutional Crisis has begun. The firing of Andrew M
(2018-01-29 23:17:03: RT @TomSteyer: Donald Trump has already committed 8 impeachable offenses,

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(2018-01-29 23:17:02: RT @funder: Trumps plan for tomorrow:

Tweet nonsense
Drink Diet Coke
Piss off Dems &amp; GOP
Fight with someone famous
Say somethin)
(2018-01-29 23:17:02: RT @EdKrassen: BREAKING:  FBI deputy director Andrew McCabe is stepping do
(2018-01-29 23:17:02: RT @ananavarro: First, he came for Comey, &amp; they didnt speak out b/c t

Then, he came for McCabe, &amp; they didnt s)
(2018-01-29 23:17:01: RT @ananavarro: First, he came for Comey, &amp; they didnt speak out b/c t

Then, he came for McCabe, &amp; they didnt s)
(2018-01-29 23:17:01: RT @seanhannity: Mueller Probing Trumps LEGAL USE of Executive Authority
https://t.co/vbg1tiS16H)
(2018-01-29 23:17:00: RT @RVAwonk: Reminder: Last wk we found out Trump demanded that his aides
(2018-01-29 23:17:00: RT @SethAbramson: Trump fired Comey. Trump tried to fire Mueller. Trump sa
(2018-01-29 23:17:00: RT @ananavarro: First, he came for Comey, &amp; they didnt speak out b/c t

Then, he came for McCabe, &amp; they didnt s)
(2018-01-29 23:17:00: RT @ananavarro: First, he came for Comey, &amp; they didnt speak out b/c t

Then, he came for McCabe, &amp; they didnt s)
(2018-01-29 23:16:59: RT @ananavarro: First, he came for Comey, &amp; they didnt speak out b/c t

Then, he came for McCabe, &amp; they didnt s)
(2018-01-29 23:16:59: RT @SafetyPinDaily: Grounds for impeachment if Trump lied about trying to
(2018-01-29 23:16:58: RT @funder: .@LindseyGrahamSC-With the departure of Andrew McCabe at the F
(2018-01-29 23:16:57: Check out this article! Starr says Mueller should investigate whether Trum
(2018-01-29 23:16:56: RT @funder: Republican Hill staffer just told me Trump is thrilled about t
(2018-01-29 23:16:56: RT @ProudResister: James Comey: Fired.
Robert Mueller: Tried to fire.
Andrew McCabe: Forced out.
Rod Rosenstein: Next target.

Innocent peo)
(2018-01-29 23:16:55: RT @ananavarro: First, he came for Comey, &amp; they didnt speak out b/c t

Then, he came for McCabe, &amp; they didnt s)
(2018-01-29 23:16:55: RT @kylegriffin1: One source, who knows Trump as well as anyone, tells Axi
(2018-01-29 23:16:55: RT @EdKrassen: The Constitutional Crisis has begun. The firing of Andrew M
(2018-01-29 23:16:55: RT @SethAbramson: Trump fired Comey. Trump tried to fire Mueller. Trump sa
```

```
In [22]: usertweets = api.user_timeline(screen_name = 'NathanEast', count = 20, include_rts = Tr
         len(usertweets)

Out[22]: 19
```

```
In [23]: for utws in usertweets:
             # print(utws.text)
             print("(" + str(utws.created_at) + ": " + utws.text + ")")
```

(2018-01-28 17:29:54: RT @64audio: Nathan East Introduces the N8t Signature In-Ear Monitors from
(2018-01-28 17:25:47: At NAMM? Introducing my NEW N8t Signature In-Ear Monitors by 64 Audio! Che
(2018-01-28 10:56:26: Nathan East: TC Electronic Bass Combo Amp BG250 Family https://t.co/DIArjR
(2018-01-21 06:52:55: RT @genesiseditions: Thank you @nathaneast for taking part in the signing
(2018-01-21 06:51:27: RT @crossroads_03: Eric Clapton - Can't Find My Way Home (Featuring Nathan
(2018-01-21 06:48:46: RT @crossroads_03: Nathan East & Band of Brother ''REVERNCE'' Tour in
(2018-01-21 06:46:08: RT @crossroads_03: unplugged, signe (i Don't want no meke up! GET OFF!)t
(2018-01-21 06:43:53: RT @crossroads_03: Fourplay - 101 Eastbound
https://t.co/1nixvEg9pp
hapi sunDay, N8 @NathanEast https://t.co/keYiHwXJ8k)
(2018-01-21 06:37:40: Alan Parsons - All Our Yesterdays https://t.co/FavcqezhYg)
(2018-01-20 05:52:08: RT @SteveWinwood: Happy belated Birthday to Laurens Hammond, inventor of t
(2018-01-20 05:42:38: RT @mcbridesworld: George Duke would have been 72 years old today. We miss
(2018-01-19 02:54:23: RT @crossroads_03: Fourplay - Westchester Lady
https://t.co/0YQWAgCDb3
hapi thursDay! @NathanEast https://t.co/JMuxRAVIjl)
(2018-01-19 02:53:55: RT @ChadNovell: Learning to play a bass line by the great @NathanEast this
(2018-01-19 02:52:53: RT @gruvjunky: It like a family reunion for the entire music community. @N
(2018-01-17 21:09:01: RT @crossroads_03: Fourplay - Fortune Teller (Blue Note Tokyo) https://t.c
thank u always, hav a nice W.end! N8 @NathanEast htt)
(2018-01-17 21:07:12: RT @crossroads_03: Nathan East Band - Get Lucky
https://t.co/G2NUHSEJMp
hapi tuesDay, N8 @NathanEast https://t.co/OOPVJYAHIq)
(2018-01-16 02:50:41: https://t.co/ZNh7WYgCwh)
(2018-01-16 02:46:06: RT @smoothjazznola: #nowplaying @NathanEast - https://t.co/jSVEejXExf - Li
(2018-01-15 05:17:16: RT @crossroads_03: Nathan East Jams with Michael Thompson & JR Robinso
hapi sunDay, N8 @Nat)