Social Media & Text Analysis
lecture 2 - Twitter and Twitter API Tutorial

Instructor: Wei Xu
Website: socialmedia-class.org
Twitter API Tutorial: [socialmedia-class.org](http://socialmedia-class.org)

Twitter API tutorial
by Wei Xu (July 1, 2015)

1. Getting Twitter API keys

To start with, you will need to have a Twitter account and obtain credentials from the Twitter developer site to access the Twitter API, following these steps:

- Create a Twitter user account if you do not already have one.
- Go to [https://apps.twitter.com/](https://apps.twitter.com/) and log in with your Twitter user account.
- Click “Create New App”
Twitter is over capacity.
Please wait a moment and try again. For more information, check out Twitter Status »
Todder had a long night.
Too many drinks! Please wait for the Tylenol to kick in and try again.
Twitter History

• Jack Dorsey’s idea (a NYU undergraduate then)
• 1st tweet on March 21, 2006
• exploded at SXSW 2007 (20k → 60k tweets/day)
• 100m tweets/quarter in 2008, 50m tweets/day in 2010, 400m tweets/day in 2013
• Huge API usage was unexpected as was the rise of the @ sign for replies

Twitter staff received the festival's Web Award prize with the remark "we'd like to thank you in 140 characters or less. And we just did!"
Twitter History

• IPO in 2013 Q4
• market value $24b, revenue $435m, net loss $162m in 2015 Q1
• CEO Dick Costolo resigned July 1st, 2015
Twitter Data
Tweets

July 4 we celebrate freedom & liberty that started w/ the greatest document ever written, the Declaration of Independence. SO have a happy Independence Day. #PARADE
ReTweets

a re-posting of someone else’s Tweet
Disclaimer:

I am going to use many of my own tweets as examples in the slides ...
Retweets

- not an official Twitter feature
- often signifies quoting another user
- sometimes creates problems for data analytics
Embedded Links

- shortened for display
Embedded Links

- can provide extra external information for text processing
Mentions

- user’s @username anywhere in the body of the Tweet
Replies/Conversations

- Tweet starts with a @username
Replies/Conversations

- can have multi-round conversations
Images

I wrote an ultimate Twitter API tutorial: socialmedia-class.org/twittertutoria... #datascience #nlproc @twitterapi

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RETWEETS  FAVORITES
27  53
Hashtags

I wrote an ultimate Twitter API tutorial: socialmedia-class.org/twittertutorial...

#datascience #nlproc @twitterapi
hashtags are powerful
Cashtags

Now you can click on ticker symbols like $GE on twitter.com to see search results about stocks and companies.

8:34 PM - 30 Jul 2012

1,167 retweets, 295 favorites
Twitter’s Social Graph

Source: Volkova, Van Durme, Yarowsky, Bachrach
“Tutorial on Social Media Predictive Analytics” NAACL 2015
Twitter API
What is an API?

**Application Programming Interface**

API is a set of protocols that specify how software programs comment with each other.
What is an API?

**Without API:**
An app finds the current weather in London by opening http://www.weather.com/ and reading the webpage like a human does, interpreting the content.

**With API:**
An app finds the current weather in London by sending a message to the weather.com API (in a structured format like XML). The weather.com API then replies with a structured response.
Two Most Popular APIs

<table>
<thead>
<tr>
<th>Streaming API</th>
<th>REST API</th>
</tr>
</thead>
</table>
| a sample of public tweets and events as they published on Twitter (can specify search terms or users) | - search  
- trends  
- read author profile and follower data  
- post / modify |
| **only** real-time data                                                        | historical data up to a week                                           |
| continuous net connection                                                     | one-time request                                                       |
| no limit                                                                      | rate limit (varies for different requests)                             |
OAuth

• Twitter uses OAuth to provide authorized access to its API.

• which means, to start with needs:
  • a Twitter account
  • OAuth access tokens from apps.twitter.com
Python Twitter Tools

twitter 1.17.0

An API and command-line toolset for Twitter (twitter.com)

Python Twitter Tools
=====================


The Minimalist Twitter API for Python is a Python API for Twitter, everyone's favorite Web 2.0 Facebook-style status updater for people on the go.
Streaming API

```python
# Import the necessary package to process data in JSON format
try:
    import json
except ImportError:
    import simplejson as json

# Import the necessary methods from "twitter" library
from twitter import Twitter, OAuth, TwitterHTTPError, TwitterStream

# Variables that contains the user credentials to access Twitter API
ACCESS_TOKEN = 'YOUR ACCESS TOKEN'
ACCESS_SECRET = 'YOUR ACCESS TOKEN SECRET'
CONSUMER_KEY = 'YOUR API KEY'
CONSUMER_SECRET = 'ENTER YOUR API SECRET'

oauth = OAuth(ACCESS_TOKEN, ACCESS_SECRET, CONSUMER_KEY, CONSUMER_SECRET)

# Initiate the connection to Twitter Streaming API
twitter_stream = TwitterStream(auth=oauth)

# Get a sample of the public data following through Twitter
iterator = twitter_stream.statuses.sample()
```
JSON

JavaScript Object Notation

JSON is a minimal, readable format for structuring data.
A Tweet in JSON

```json
{
    "favorited": false,
    "contributors": null,
    "truncated": false,
    "possibly_sensitive": false,
    "in_reply_to_status_id": null,
    "user": {
        "follow_request_sent": null,
        "profile_use_background_image": true,
        "default_profile_image": false,
        "id": 237918251,
        "verified": false,
        "profile_image_url_https": "https://pbs.twimg.com/profile_images/527088456967544832/Dn"
    }
}
```
Search
Search API

```python
# Initiate the connection to Twitter REST API
twitter = Twitter(auth=oauth)

# Search for latest tweets about "#nlproc"
twitter.search.tweets(q='#nlproc')

twitter.search.tweets(q='#nlproc', result_type='recent', lang='en', count=10)
```
Trends
trending topics are determined by an unpublished algorithm, which finds words, phrases and hashtags that have had a sharp increase in popularity, as opposed to overall volume.
Trends API

```python
# Get all (it's always 10) trending topics in San Francisco (its WOEID is 2487956)
sfo_trends = twitter.trends.place(_id = 2487956)
```

```json
{
  "created_at": "2015-07-01T22:09:55Z",
  "trends": [
    {
      "url": "http://twitter.com/search?q=%23LiesIveToldMyParents",
      "query": "%23LiesIveToldMyParents",
      "name": "#LiesIveToldMyParents",
      "promoted_content": null
    },
    {
      "url": "http://twitter.com/search?q=%22Kevin+Love%22",
      "query": "%22Kevin+Love%22",
      "name": "Kevin Love",
      "promoted_content": null
    },
    ...
  ]
}
```

Where On Earth ID
Homework #1

• Become a Twitter User (if you haven’t)
• Learn to program in Python (if you haven’t)
• Learn to use Twitter API

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Thank You!

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www.cis.upenn.edu/~xwe/

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