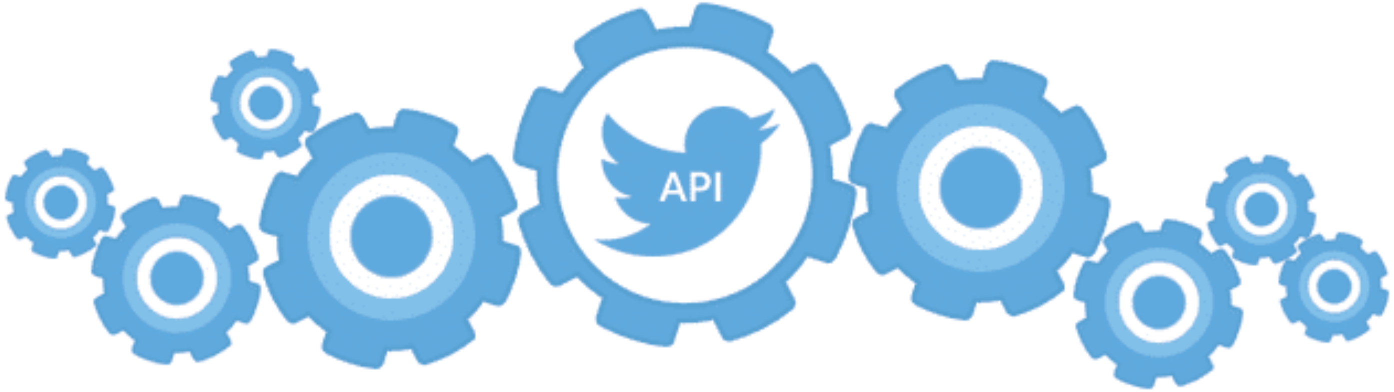
Extracting Twitter data by API



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Objectives

01

Using API to extract timeline and stream twitter data

02

Searching tweets by hash tags

03

Extracting metadata such as a number of retweets

04

Discussing the limitations of Twitter APIs and its alternatives

Background

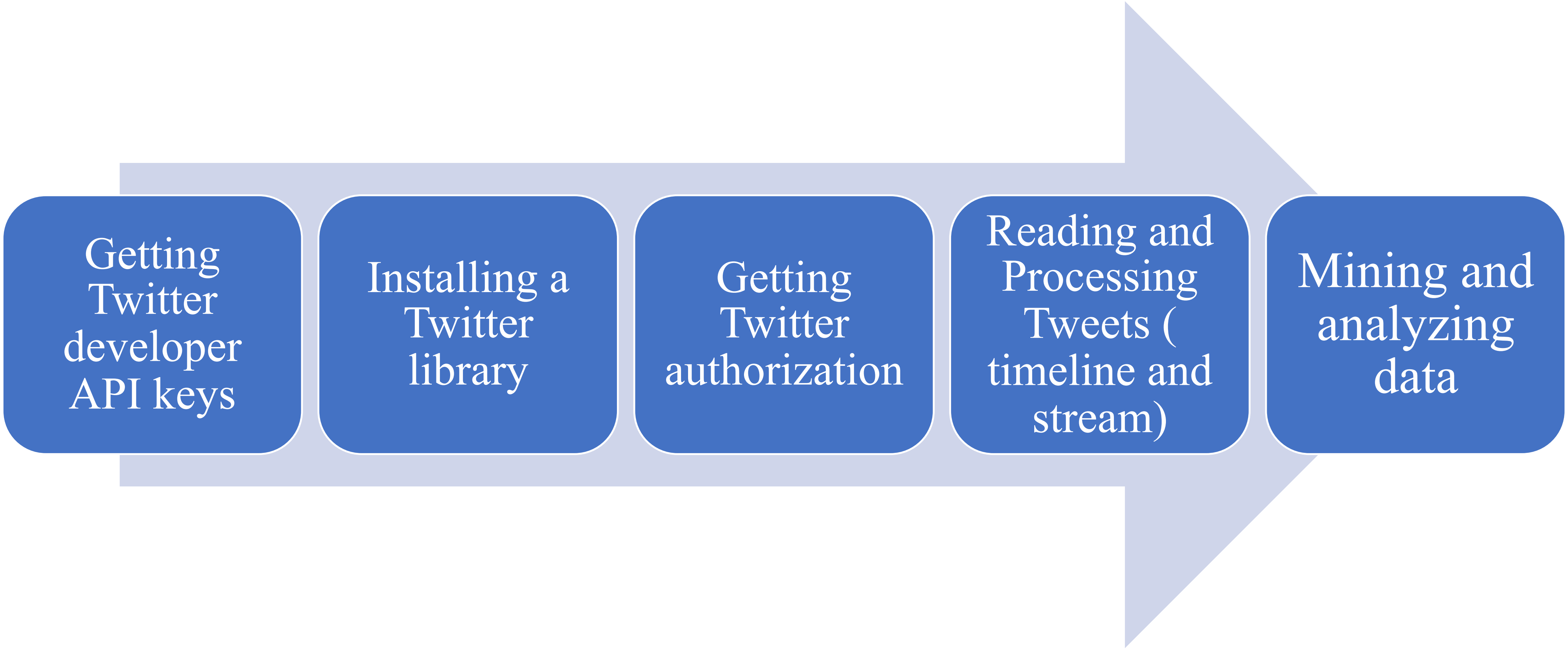
- API(application programming interfaces): using endpoints to link specific types of information
- Twitter API platform provides broad access to public Twitter data and users' own non-public information under authorization
- The Twitter APIs can be looked up by

https://developer.twitter.com/en/docs/api-reference-index

There are many possibilities with the Twitter APIs

- **Tweets**: searching, posting, filtering, engagement, streaming etc.
- **Ads:** campaign and audience management, analytics.
- **Direct messages**: sending and receiving, direct replies, welcome messages etc.
- **Accounts and users** :account management, user interactions.
- **Media**: uploading and accessing photos, videos and animated GIFs.
- **Trends**: trending topics in a given location.
- **Geo**: information about known places or places near a location.

Important Steps of Getting Data



Getting Twitter developer API keys

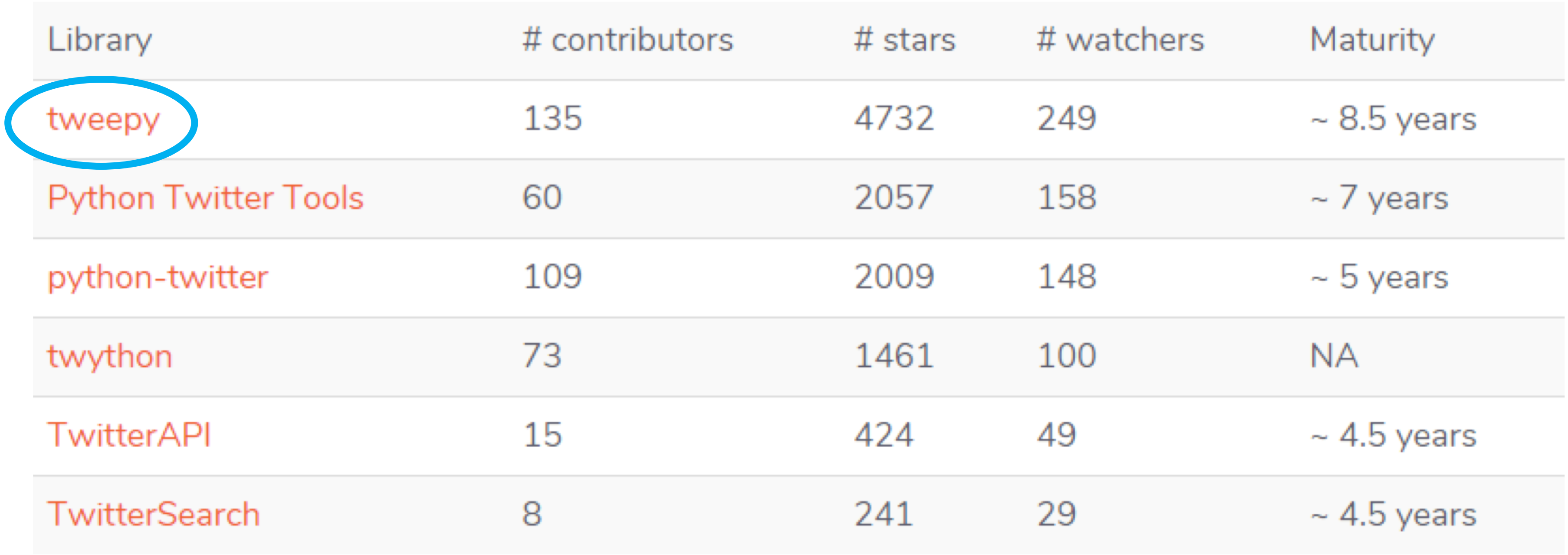
Installing a Twitter library

Getting Twitter authorization

Reading and Processing Tweets (timeline and stream)

Mining and analyzing data

Accessing the Twitter API with Python



Library	# contributors	# stars	# watchers	Maturity
tweepy	135	4732	249	~ 8.5 years
Python Twitter Tools	60	2057	158	~ 7 years
python-twitter	109	2009	148	~ 5 years
twython	73	1461	100	NA
TwitterAPI	15	424	49	~ 4.5 years
TwitterSearch	8	241	29	~ 4.5 years

Tweepy is the most popular **open-source** library for python.

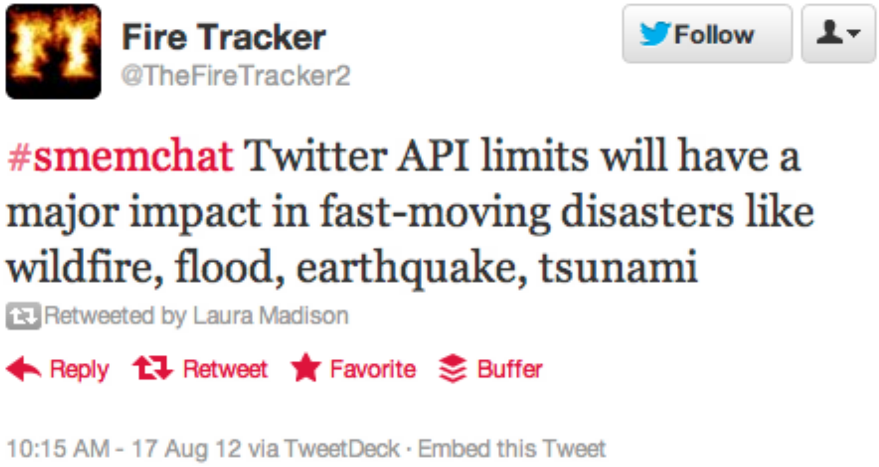
Limitation of Twitter API

- Rate limit
  Standard API: 30 requests/min
  Premium API: 60 requests/min

- Costly

- Too many connection tries are not allowed as well and will result in a user being blocked.

- Biased data
  1% ~ 40% of the entire volume of all tweets sent within a particular interval will be provided.
  Not choose randomly! Not a uniform sample!



Fire Tracker
@TheFireTracker2

Follow

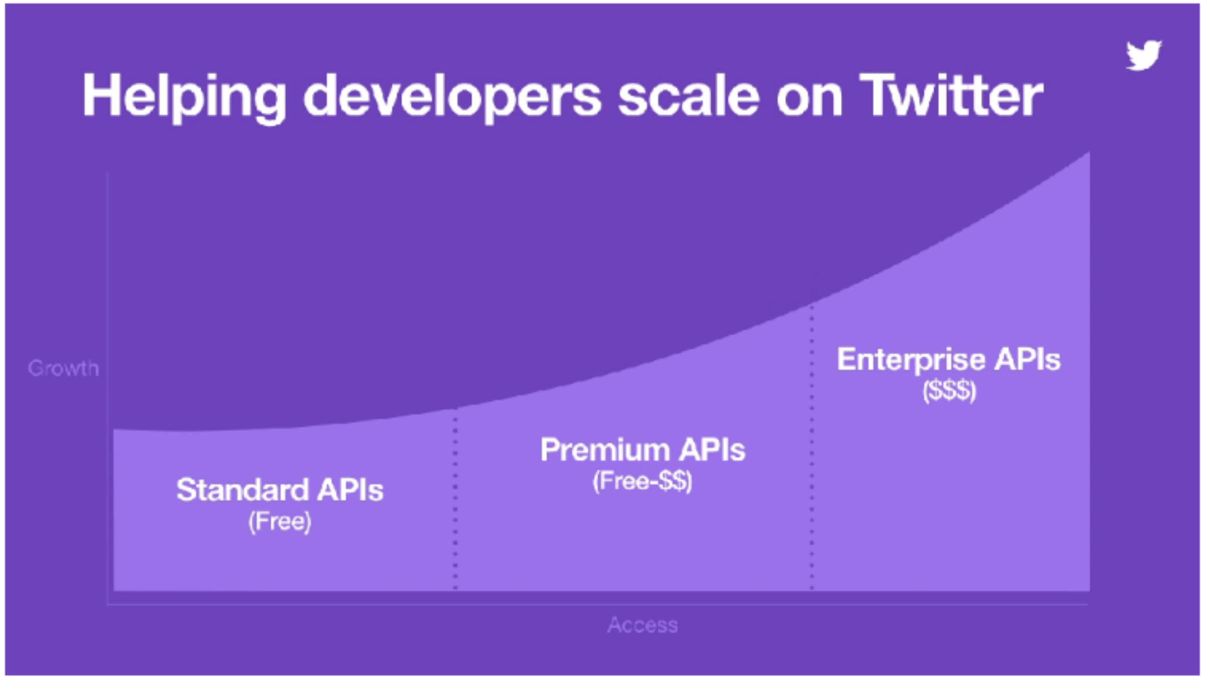
#smemchat Twitter API limits will have a major impact in fast-moving disasters like wildfire, flood, earthquake, tsunami

Retweeted by Laura Madison

Reply Retweet Favorite Buffer

10:15 AM - 17 Aug 12 via TweetDeck · Embed this Tweet

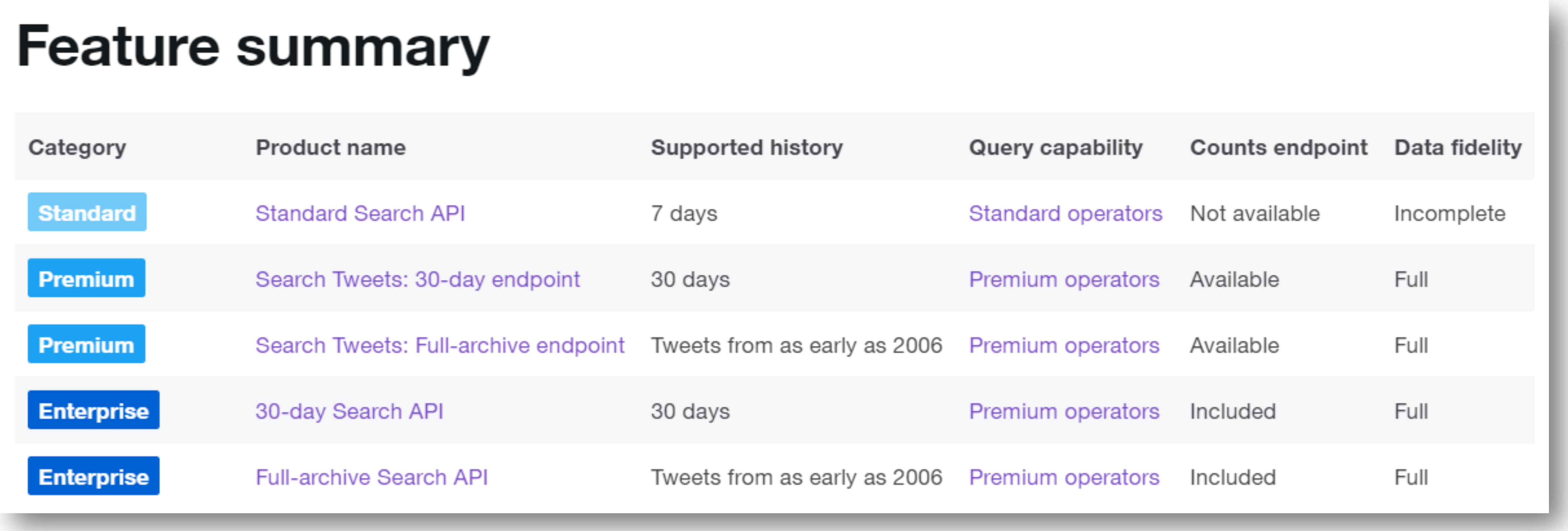
Ref [1]



Ref [2]

Limitation of Twitter API

- Take Search API as an example



Feature summary

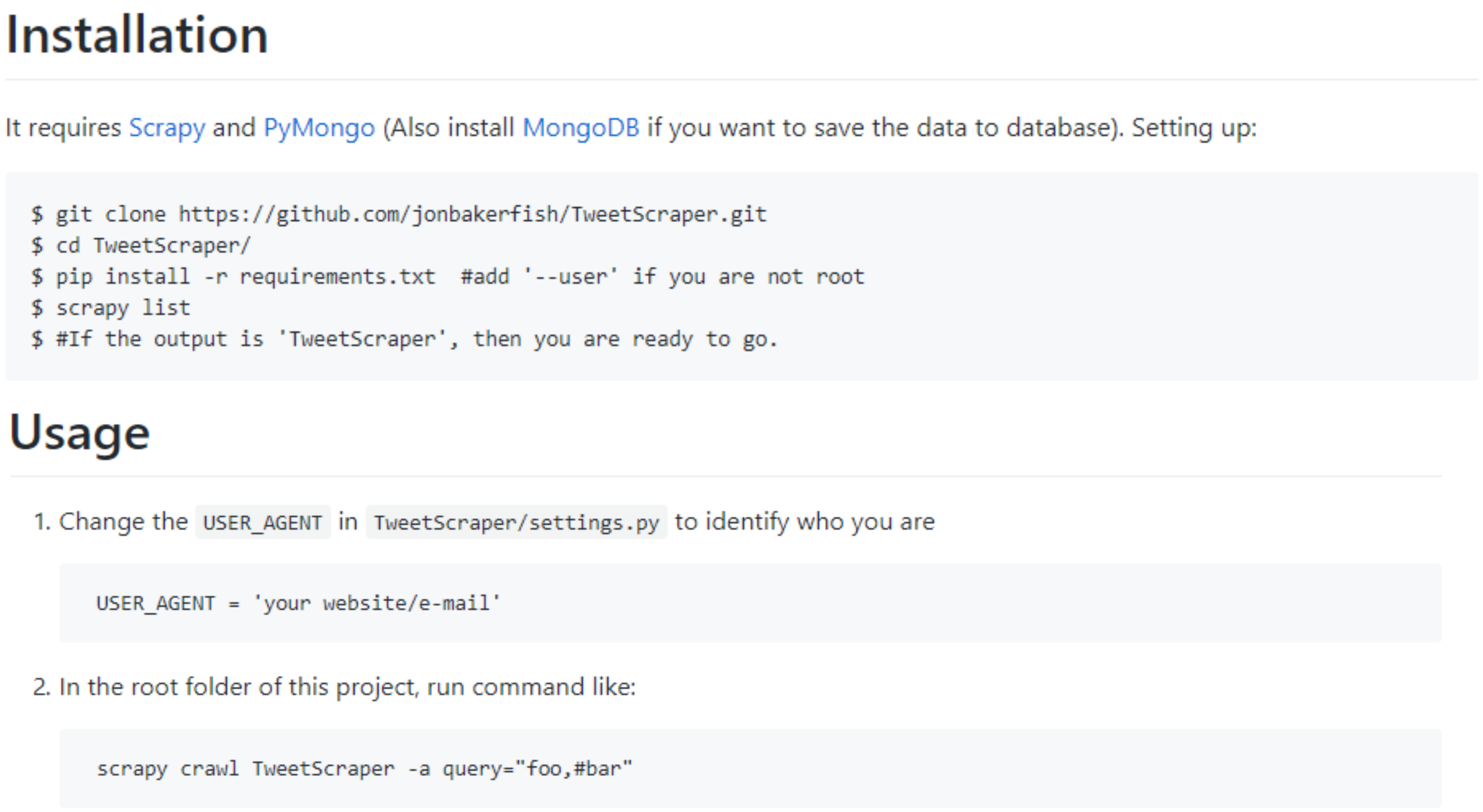
Category	Product name	Supported history	Query capability	Counts endpoint	Data fidelity
Standard	Standard Search API	7 days	Standard operators	Not available	Incomplete
Premium	Search Tweets: 30-day endpoint	30 days	Premium operators	Available	Full
Premium	Search Tweets: Full-archive endpoint	Tweets from as early as 2006	Premium operators	Available	Full
Enterprise	30-day Search API	30 days	Premium operators	Included	Full
Enterprise	Full-archive Search API	Tweets from as early as 2006	Premium operators	Included	Full

Ref [3]

Alternative Ways of Extracting Data

- **Find an existing Twitter dataset**
- **Purchase from Twitter (Historical Power Track enterprise)**
- **Access or purchase from a Twitter service provider**
- **Scrape tweets without using the API by python**

Scrape tweets without using the API by python



Installation

It requires Scrapy and PyMongo (Also install MongoDB if you want to save the data to database). Setting up:

```
$ git clone https://github.com/jonbakerfish/TweetScraper.git
$ cd TweetScraper/
$ pip install -r requirements.txt  #add '--user' if you are not root
$ scrapy list
$ #If the output is 'TweetScraper', then you are ready to go.
```

Usage

1. Change the `USER_AGENT` in `TweetScraper/settings.py` to identify who you are

   ```
   USER_AGENT = 'your website/e-mail'
   ```

2. In the root folder of this project, run command like:

   ```
   scrapy crawl TweetScraper -a query="foo,#bar"
   ```

References

- https://developer.twitter.com/en/docs/basics/rate-limiting.html
- https://stackabuse.com/accessing-the-twitter-api-with-python/
- https://developer.twitter.com/en/docs/tweets/search/overview
- https://twittercommunity.com/t/what-is-the-rate-limit-for-the-premium-search-api/97314
- https://pdfs.semanticscholar.org/df22/cca197ea12fc2cd5c30b4647802fd6c37536.pdf
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- http://www.simonlindgren.com/stuff/2017/11/7/scrape-tweets-without-using-the-api