

Introduction to Twitter

Tweets, Retweets, Mentioning, Hashtag

Intro to Twitter Dev

Intro to HCDE user module

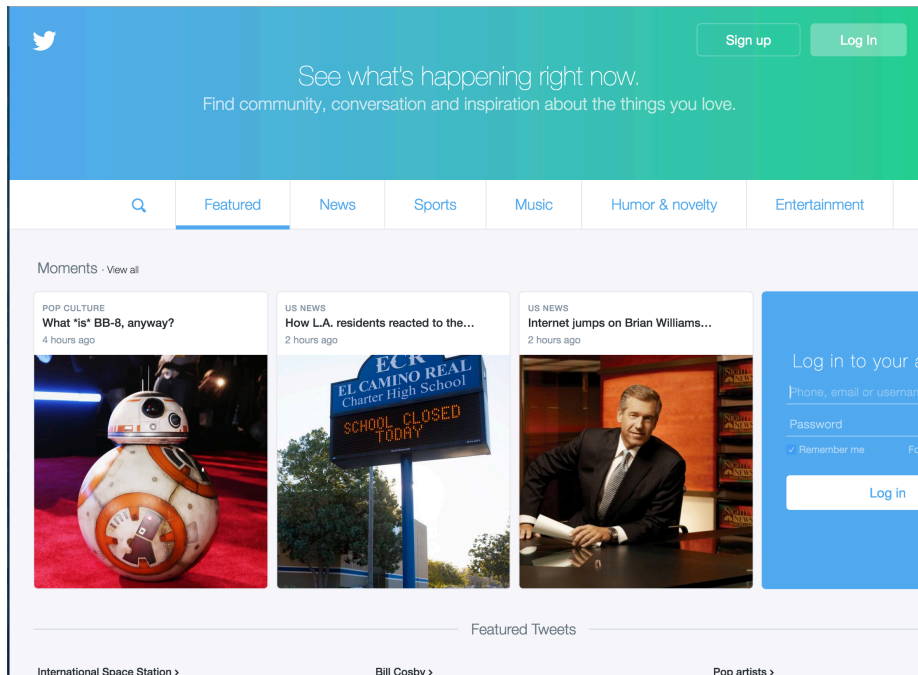
Outline

- What is Twitter?
 - UI and Interactions
 - Twitter Dev
 - Reading the REST API specifications
 - Installing HCDE python user module
-

What is Twitter?

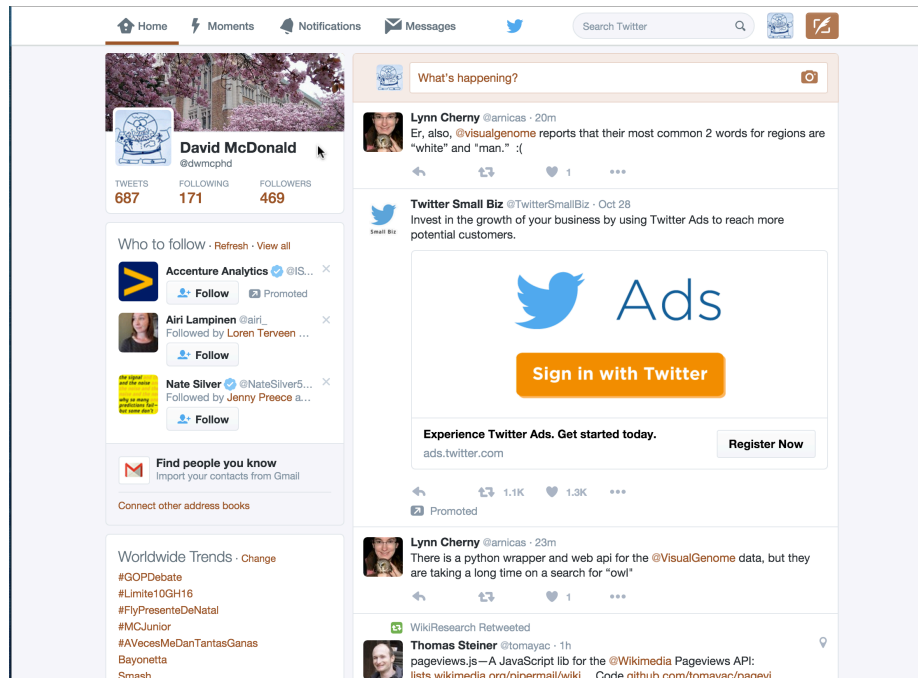
- Micro blog
 - Status messages
 - 140 characters max
 - Links
- Social
 - Follow (be followed)
 - Groups

What is Twitter?



- Login screen
- Create account

What is Twitter?



- Your main page
- “Public Timeline”
 - People you *follow*
 - Promoted content
 - Advertisements
- Trending topics
- Recommendations

What is Twitter?

Home Moments Notifications Messages Search Twitter

David McDonald
@dwmcpd
TWEETS 687 FOLLOWING 4,774 FOLLOWERS 469

Worldwide Trends · Change
#Holidone
Promoted by Verizon
#HandsToMyselfIVideoTODAY
#MinhaFrasedoAnoFoi
#PeopleWhoHaveMadeMy2015
Arsenal
#SeTerminaEIAñoY
#NavidadGigante
Selamat Hari Ibu
Júpiter Maçã
Baila Lali al 13013
Museu da Língua Portuguesa

Who to follow · Refresh · View all

- T-Mobile Careers @tmobile...
Follow Promoted
- Christian Sandvig @nithyc
Followed by Karie Karahello...
Follow
- Haoqi Zhang @hqz
Follow

What's happening?

Gregor McEwan @cursa · 7m
.@MeaveofConnaugh Donovan made a song from Yeat's poem. Also great.
View conversation

Brocade @Brocade · 19m
SAN admins: Master IP storage networking. Start with this free course.
CLICK HERE TO START LEARNING
Free course + accreditation.
info.brocade.com Register Now

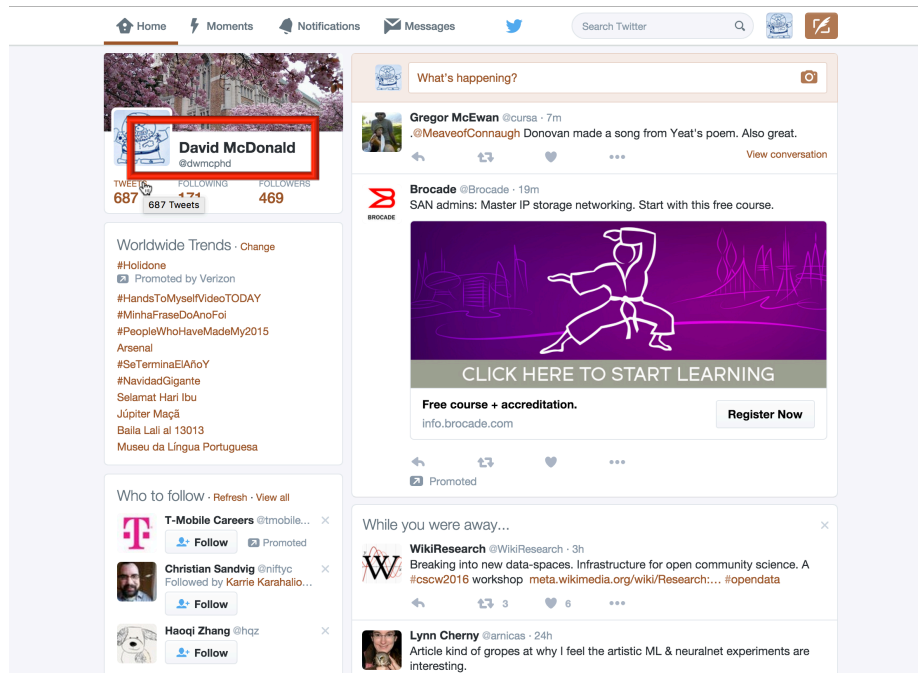
While you were away...

WikiResearch @WikiResearch · 3h
Breaking into new data-spaces. Infrastructure for open community science. A #cscw2016 workshop meta.wikimedia.org/wiki/Research:... #opendata
3 6

Lynn Cherny @arnicas · 24h
Article kind of grapes at why I feel the artistic ML & neuralnet experiments are interesting.

Getting to your tweet history

What is Twitter?



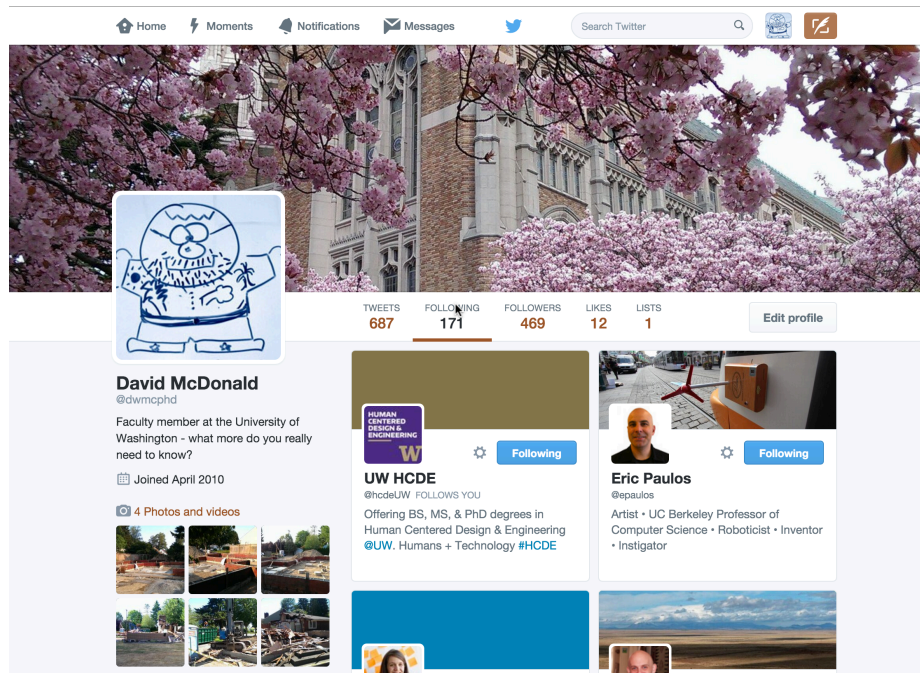
■ Getting to your tweet history

What is Twitter?



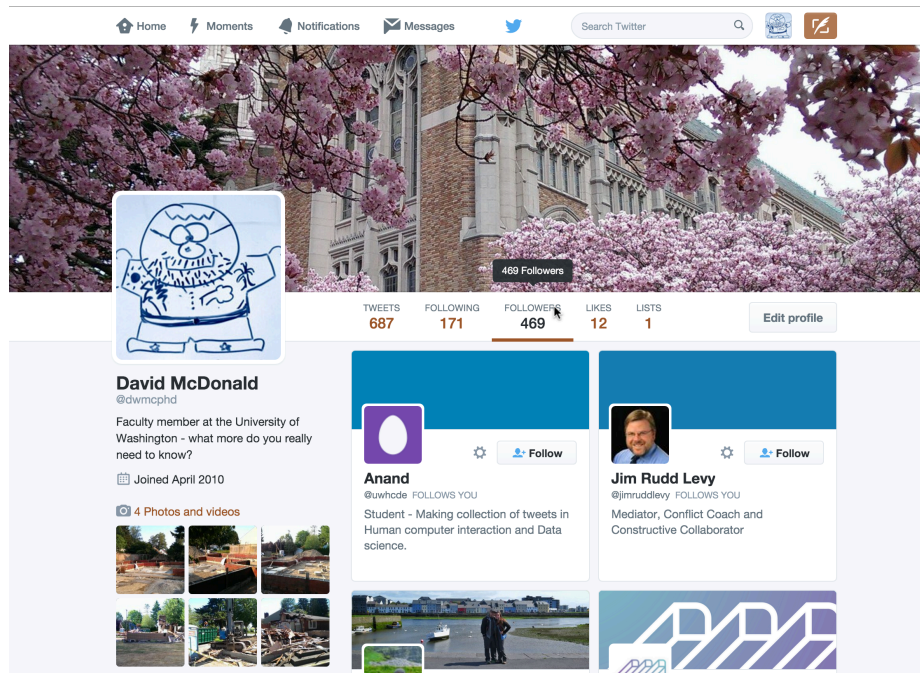
■ Your tweet history

What is Twitter?



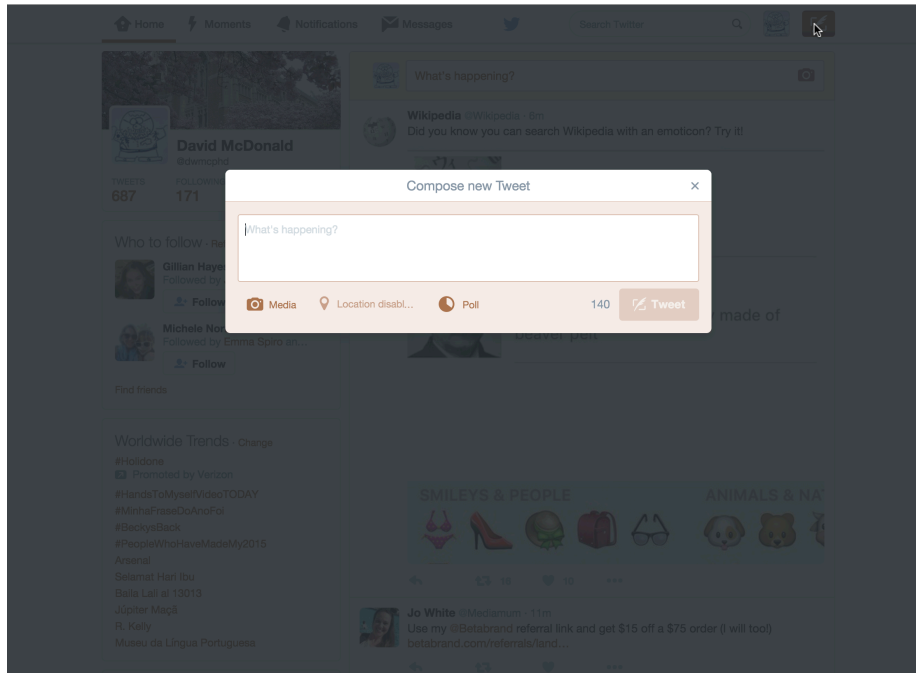
- Your “friends”
- The people who you follow

What is Twitter?



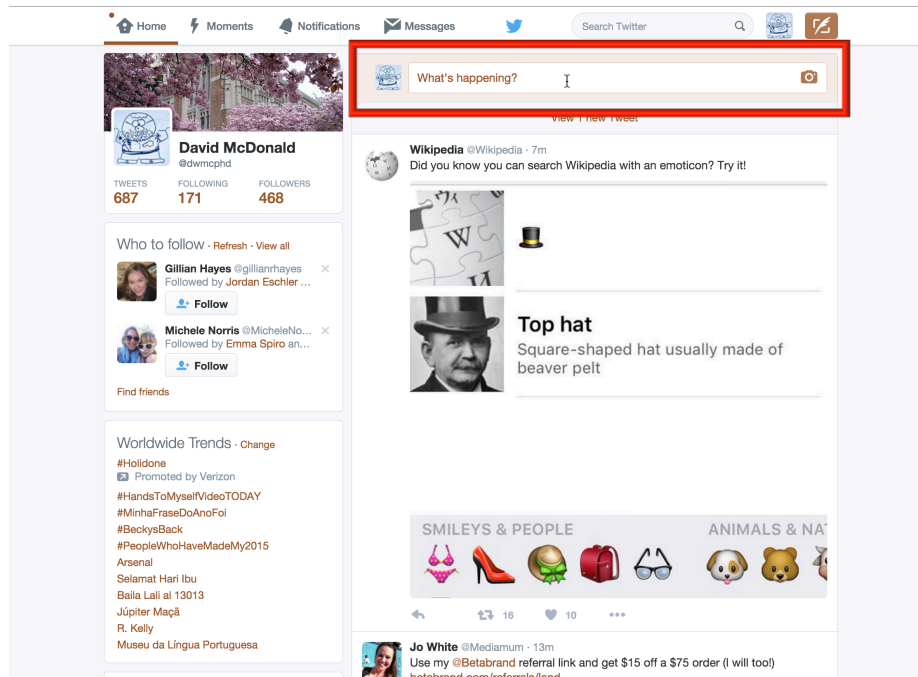
- Your followers
- The people who follow you

What is Twitter?



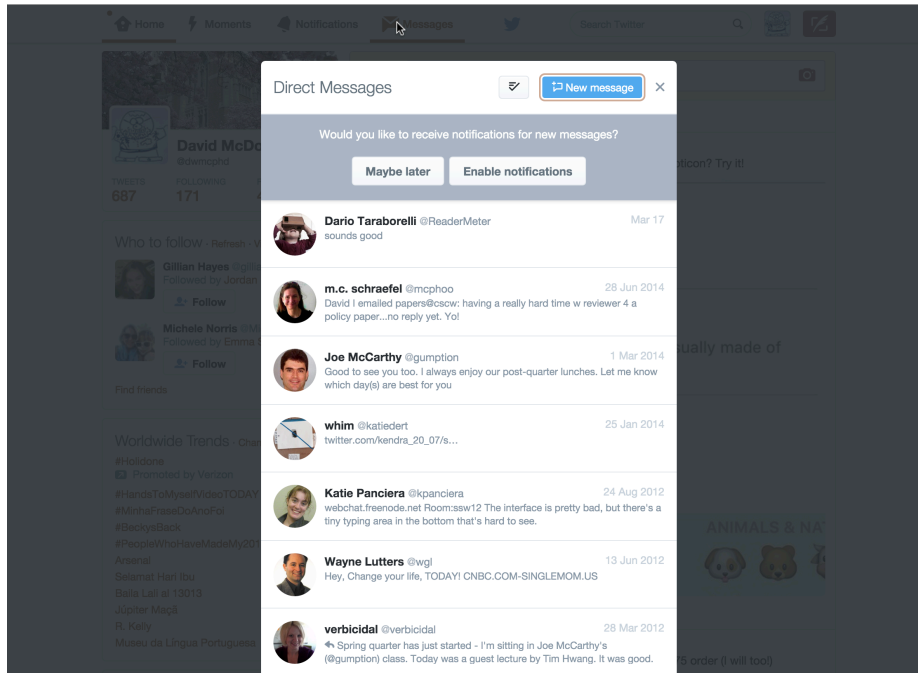
- Compose, write a tweet
- Write a status update

What is Twitter?



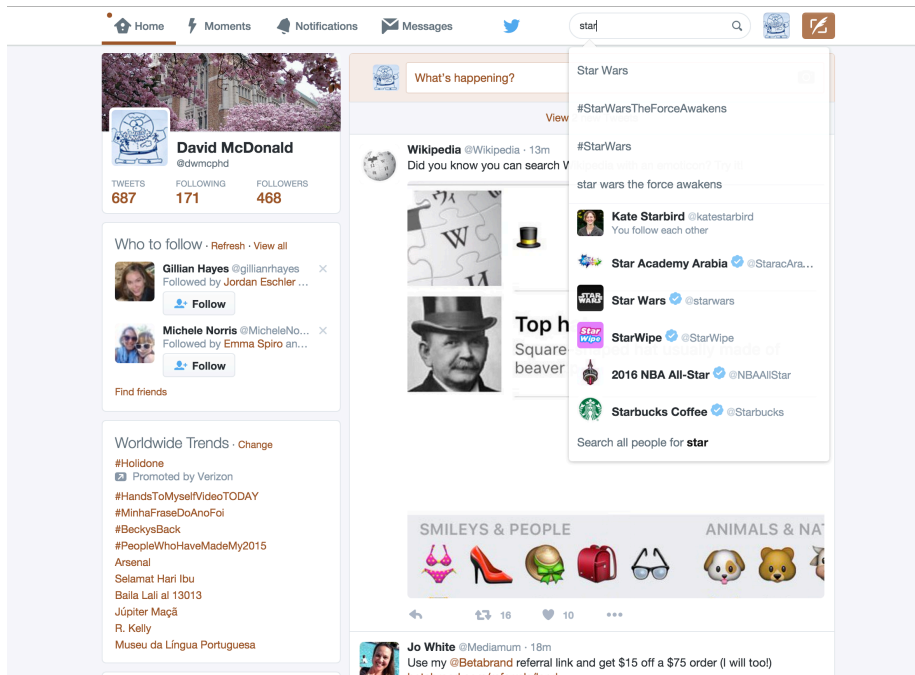
■ Compose, write a tweet

What is Twitter?



- You can direct message people who follow you
- To have a direct message conversation you need to have a reciprocal follow!

What is Twitter?



- Yes, you can search
 - Tweet content
 - People
 - Organizations
 - Lists

Twitter Conventions

- A “mention” or a directed tweet
 - @username

Twitter Conventions

- A “mention” or a directed tweet
 - @username
- A re-tweet
 - RT @username (or) rt @username
 - via @username
 - Old style – almost never see this
 - More and more tools automate this,
 - Now part of the metadata

Twitter Conventions

- Categorization, tagging
 - #category
- URL Shortening
 - URLs are long, too many characters
 - Services like bitly.com, tinyurl.com, ...
 - Twitter has t.co

Intro to Twitter Development

How to read the specifications

Goals

- Set up things to develop Twitter Applications
 - How to read and understand the specification
 - REST – REpresentational State Transfer
 - Web model, where the state of the communication or the state of the communication/application is transferred each time a client interacts with a host
 - API – Application Programming Interface
-

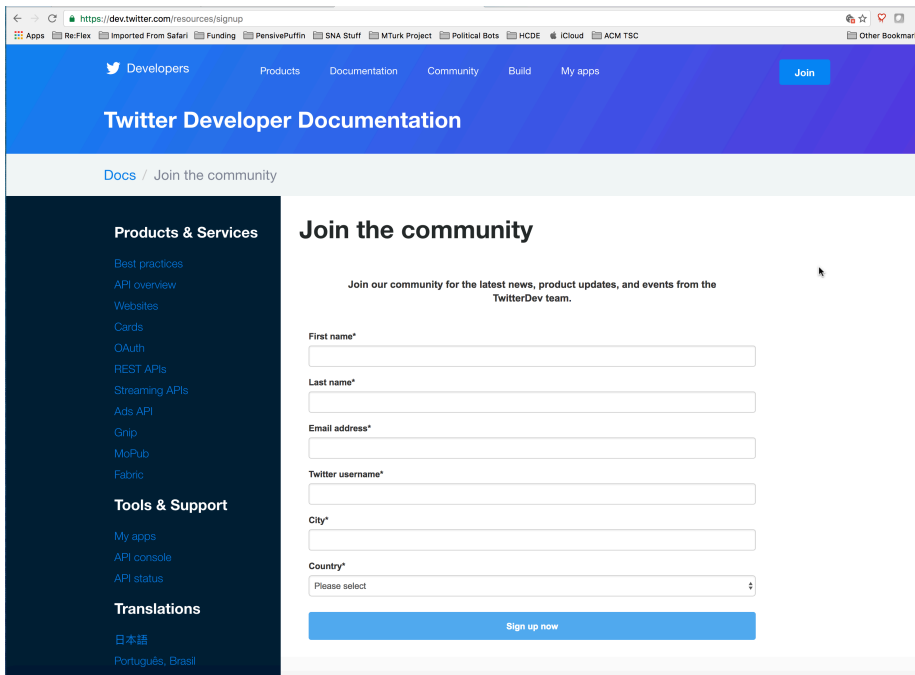
Twitter Dev

The screenshot shows the Twitter Dev website interface. At the top, there is a navigation bar with links for Developers, Products, Documentation, Community, Build, and My apps, along with a 'Join' button. Below the navigation is a large banner featuring the Twitter logo, the text '#HelloWorld 2016', and the subtitle 'Learn how to build with the Twitter Platform'. A 'Watch event interviews' button is positioned at the bottom of the banner. To the right of the banner, a vertical list of links includes 'Welcome to the Twitter Platform', 'Twitter Developer Communities', '#HelloWorld 2016', 'Mobile app playbook', 'Customer service', and 'Learn more about Fabric'. Below the banner is a section titled 'Explore our products' which contains five product cards:

- Mobile apps**: Build better apps, understand users, and grow your business. [Learn about Fabric](#)
- Publisher platform**: The power of Twitter in your website or app. [Learn about discovering and embedding Tweets](#)
- Enterprise data**: Real-time and historical Twitter data to power your business. [Learn about Gnip](#)
- APIs**: Programmatic access to read and write Twitter data. [Learn about APIs](#)
- Advertising**: Drive more mobile ad revenue and measure mobile campaigns. [Learn about MoPub and the Ads API](#)

 <https://dev.twitter.com/>

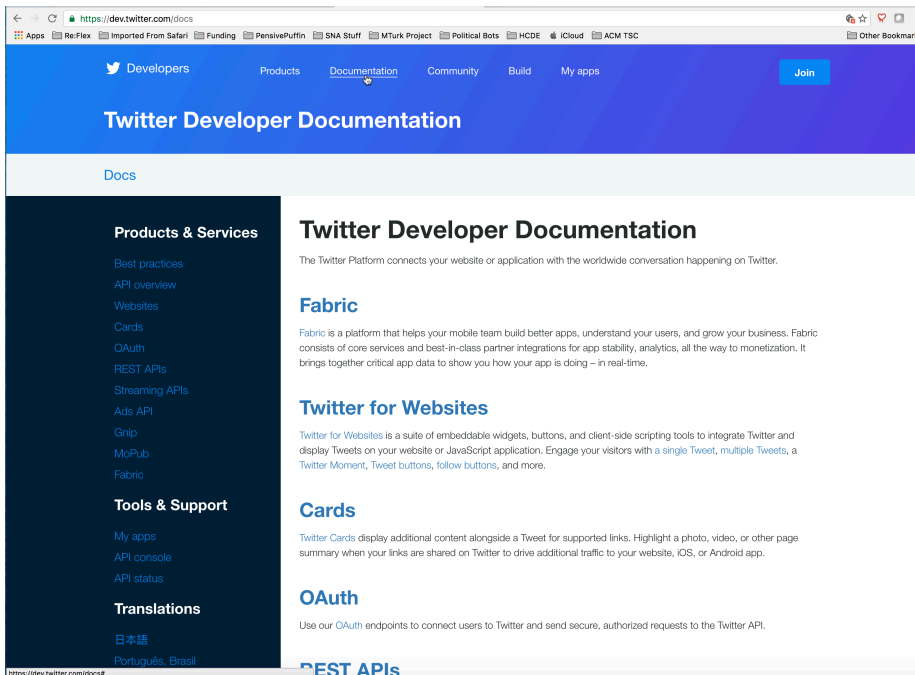
Twitter Dev



The screenshot shows the Twitter Developer Documentation website. The main navigation bar includes 'Developers', 'Products', 'Documentation', 'Community', 'Build', and 'My apps', with a 'Join' button. The page title is 'Twitter Developer Documentation' and the breadcrumb is 'Docs / Join the community'. The main content area is titled 'Join the community' and includes the text: 'Join our community for the latest news, product updates, and events from the TwitterDev team.' Below this is a registration form with the following fields: 'First name*', 'Last name*', 'Email address*', 'Twitter username*', 'City*', and 'Country*' (a dropdown menu with 'Please select' as the current selection). A blue 'Sign up now' button is at the bottom of the form. A left sidebar contains sections for 'Products & Services', 'Tools & Support', and 'Translations'.

- Create a Developer account using your own twitter account
- Allows you to create new twitter applications
- Read the documentation

Twitter Dev

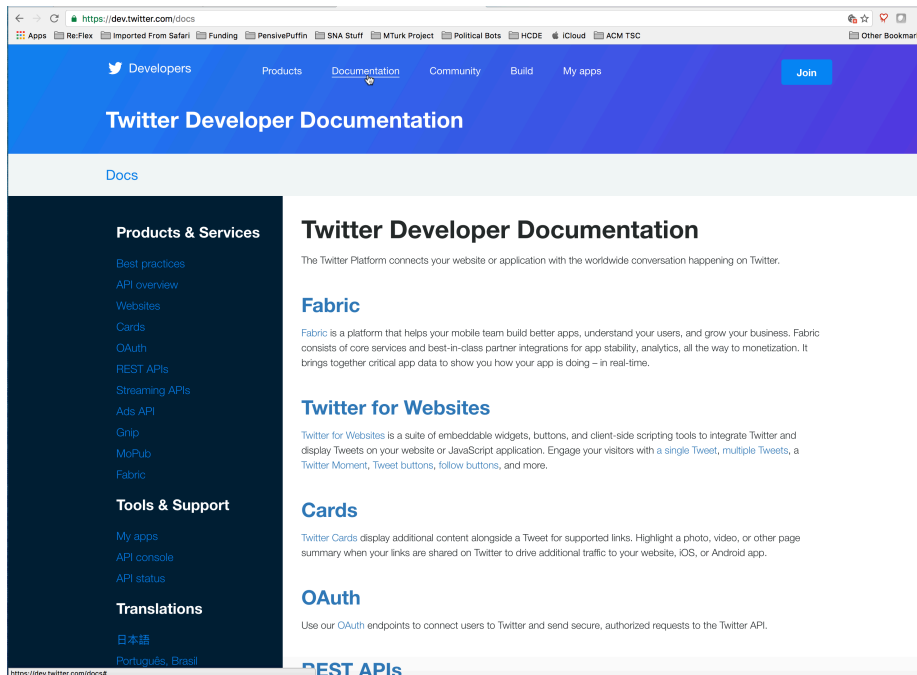


- Create a Developer account using your own twitter account
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Twitter API Documentation

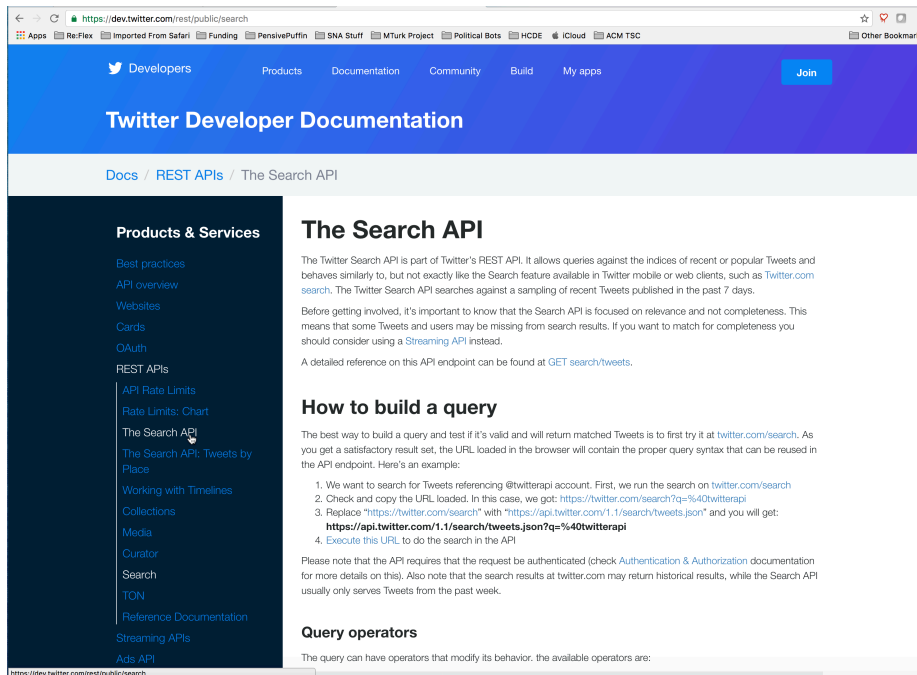
- This course focuses on the REST API
 - Documentation: <https://dev.twitter.com/rest/public>
 - Data that you want to get is a “Resource”
 - Tweets, user profiles, friends, followers
 - You access a "resource" through a URL
 - Almost like requesting a web page
 - All twitter resources require authentication (OAuth2)
 - The URL query string includes special parameters
-

Twitter API Documentation



■ List of documentation topics

Twitter API Documentation



The screenshot shows a web browser window displaying the Twitter Developer Documentation page for the Search API. The browser's address bar shows the URL `https://dev.twitter.com/rest/public/search`. The page has a blue header with the Twitter logo and navigation links: Developers, Products, Documentation, Community, Build, My apps, and a Join button. Below the header, the page title is "Twitter Developer Documentation". The breadcrumb trail is "Docs / REST APIs / The Search API". On the left side, there is a dark blue sidebar with a "Products & Services" section containing links for Best practices, API overview, Websites, Cards, OAuth, REST APIs, API Rate Limits, Rate Limits: Chart, The Search API (highlighted), The Search API: Tweets by Place, Working with Timelines, Collections, Media, Curator, Search, TON, Reference Documentation, Streaming APIs, and Ads API. The main content area is titled "The Search API" and contains the following text:

The Twitter Search API is part of Twitter's REST API. It allows queries against the indices of recent or popular Tweets and behaves similarly to, but not exactly like the Search feature available in Twitter mobile or web clients, such as [Twitter.com search](#). The Twitter Search API searches against a sampling of recent Tweets published in the past 7 days.

Before getting involved, it's important to know that the Search API is focused on relevance and not completeness. This means that some Tweets and users may be missing from search results. If you want to match for completeness you should consider using a [Streaming API](#) instead.

A detailed reference on this API endpoint can be found at [GET search/tweets](#).

How to build a query

The best way to build a query and test if it's valid and will return matched Tweets is to first try it at [twitter.com/search](#). As you get a satisfactory result set, the URL loaded in the browser will contain the proper query syntax that can be reused in the API endpoint. Here's an example:

1. We want to search for Tweets referencing @twitterapi account. First, we run the search on [twitter.com/search](#)
2. Check and copy the URL loaded. In this case, we got: `https://twitter.com/search?q=%40twitterapi`
3. Replace "https://twitter.com/search" with "https://api.twitter.com/1.1/search/tweets.json" and you will get:
`https://api.twitter.com/1.1/search/tweets.json?q=%40twitterapi`
4. Execute this URL to do the search in the API

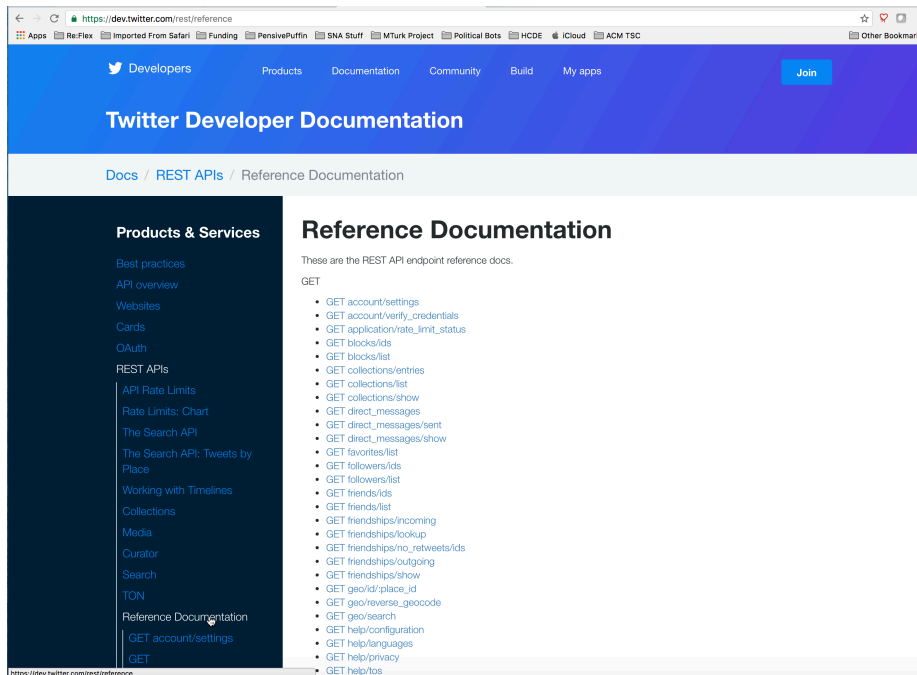
Please note that the API requires that the request be authenticated (check [Authentication & Authorization](#) documentation for more details on this). Also note that the search results at [twitter.com](#) may return historical results, while the Search API usually only serves Tweets from the past week.

Query operators

The query can have operators that modify its behavior. the available operators are:

 High-level explanations

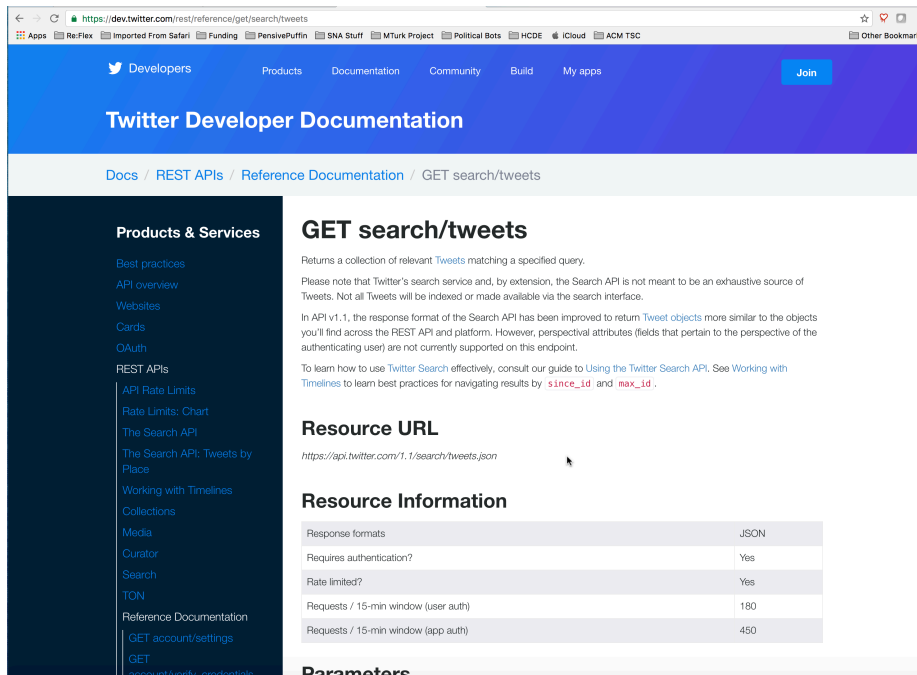
Twitter API Documentation



Reference Documentation provides the low-level details

Let's look at Search

Twitter API Documentation



The screenshot shows the Twitter Developer Documentation page for the `GET search/tweets` endpoint. The page is titled "GET search/tweets" and includes a description of the endpoint, a resource URL, and a table of resource information.

GET search/tweets

Returns a collection of relevant [Tweets](#) matching a specified query.

Please note that Twitter's search service and, by extension, the Search API is not meant to be an exhaustive source of Tweets. Not all Tweets will be indexed or made available via the search interface.

In API v1.1, the response format of the Search API has been improved to return [Tweet](#) objects more similar to the objects you'll find across the REST API and platform. However, [perspective](#) attributes (fields that pertain to the perspective of the authenticating user) are not currently supported on this endpoint.

To learn how to use [Twitter Search](#) effectively, consult our guide to [Using the Twitter Search API](#). See [Working with Timelines](#) to learn best practices for navigating results by [since_id](#) and [max_id](#).

Resource URL

<https://api.twitter.com/1.1/search/tweets.json>

Resource Information

Response formats	JSON
Requires authentication?	Yes
Rate limited?	Yes
Requests / 15-min window (user auth)	180
Requests / 15-min window (app auth)	450

Parameters

 GET search/tweets

Twitter API Caveat

- All Resources have to be authenticated
 - In the best case this is just annoying
 - In the worst case this is frustrating to newcomers
- Open Authentication version 2 (OAuth2)
 - Great idea – in principle
 - Different implementations (versions) of the same specification

Twitter API Caveat

- Twitter provides an "API Console Tool" for testing API calls
 - <https://dev.twitter.com/rest/tools/console>
 - You can 'test' a resource request by typing
- Never seems to work for me
 - doesn't load right in Chrome – probably some configuration issue for me

GET search/tweets Resource

- Resource access point
 - <https://api.twitter.com/1.1/search/tweets.json>

GET search/tweets Resource

- Resource access point
 - <https://api.twitter.com/1.1/search/tweets.json>
 - domain

GET search/tweets Resource

- Resource access point
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 - domain
 - version

GET search/tweets Resource

- Resource access point
 - <https://api.twitter.com/1.1/search/tweets.json>
 - domain
 - version
 - resource

GET search/tweets Resource

- Resource access point
 - <https://api.twitter.com/1.1/search/tweets.json>
 - domain
 - version
 - resource
 - data return type

GET search/tweets Resource

- Digression – Return Type JSON
 - JavaScript Object Notation (JSON)
 - Simple text based data structure
 - Collection of Key:Value pairs (like a python dictionary)
 - Lists (like a python list)
 - Keys are text (words)
 - Values are strings, int, real, collection, list
 - Python has a json module – “slow”
 - There are several other json implementations - ultrajson
-

GET search/tweets Resource

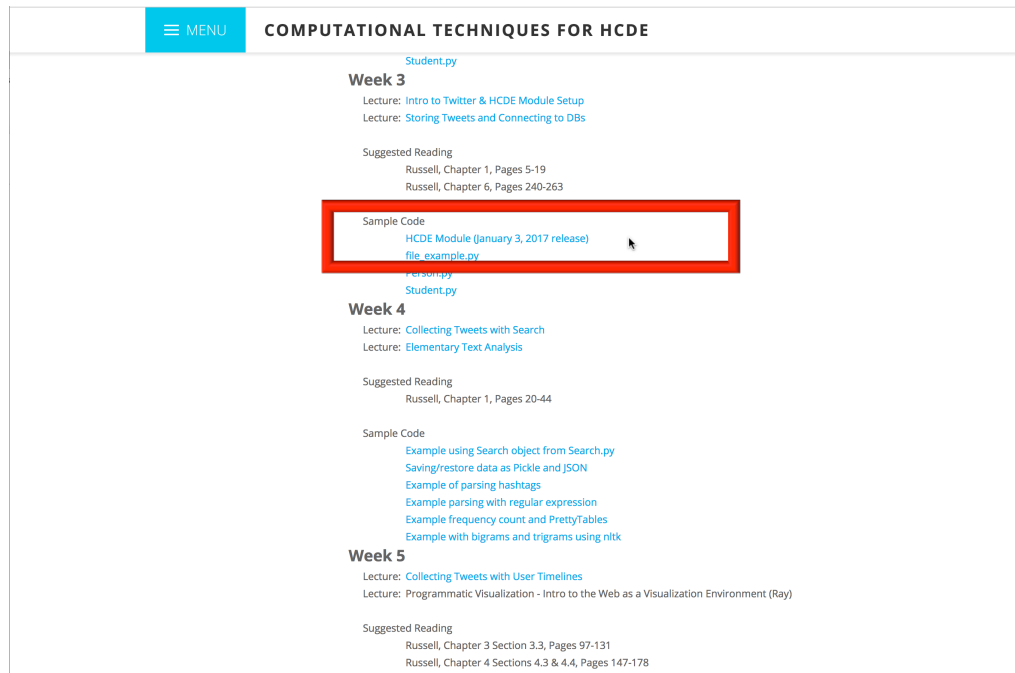
- Resource access point
 - <https://api.twitter.com/1.1/search/tweets.json>
 - Parameters of the request
 - q – query parameter, term phrase
 - count – number of tweets to return
 - lang – restrict tweets to the indicated ISO 2 character code
 - result_type – popular, recent, mixed
 - since_id – return tweets more recent than the one given
 - max_id – return tweets older than the one given
-

Intro to HCDE User Module

Basic Steps

1. Install distribution modules:
 - ▣ pymysql, requests, oauthlib, request_oauthlib
2. Download the HCDE python user module
3. Unzip
4. Copy into your python directory
 - ▣ The PYTHONPATH directory
5. Start using code
 - ▣ Authenticate both HCDE applications with your twitter user
 - ▣ Try some samples

Download the HCDE user module



COMPUTATIONAL TECHNIQUES FOR HCDE

Student.py

Week 3

Lecture: Intro to Twitter & HCDE Module Setup
Lecture: Storing Tweets and Connecting to DBs

Suggested Reading
Russell, Chapter 1, Pages 5-19
Russell, Chapter 6, Pages 240-263

Sample Code
HCDE Module (January 3, 2017 release)
file_example.py
Person.py
Student.py

Week 4

Lecture: Collecting Tweets with Search
Lecture: Elementary Text Analysis

Suggested Reading
Russell, Chapter 1, Pages 20-44

Sample Code
Example using Search object from Search.py
Saving/restore data as Pickle and JSON
Example of parsing hashtags
Example parsing with regular expression
Example frequency count and PrettyTables
Example with bigrams and trigrams using nltk

Week 5

Lecture: Collecting Tweets with User Timelines
Lecture: Programmatic Visualization - Intro to the Web as a Visualization Environment (Ray)

Suggested Reading
Russell, Chapter 3 Section 3.3, Pages 97-131
Russell, Chapter 4 Sections 4.3 & 4.4, Pages 147-178

- Visit the course web page
- Click on the "Meeting Schedule" menus
- In Week 3, Sample Code is a link to a zip file for the HCDE user module

Examples

- Authenticate Apps with Login.py

- `python Login.py -auth HCDE530Test01 -user <your_twitter_user>`

- Finding Trending Topics with Trend.py

- `python Trends.py -auth HCDE530Test01 -user <your_twitter_user> -place seattle`

- `python Trends.py -auth HCDE530Test01 -user <your_twitter_user> -woeid 2514815`
