Introduction to APIs and JSONs
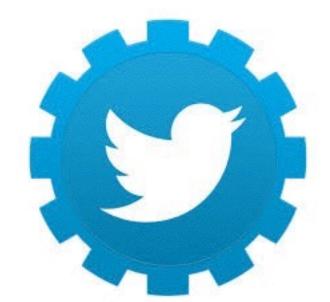
APIs

- Application Programming Interface

- Protocols and routines

    - Building and interacting with
      software applications

JSONs

- JavaScript Object Notation

- Real-time server-to-browser communication

- Douglas Crockford

- Human readable

JSONs

{'Actors': 'Samuel L. Jackson, Julianna Margulies, Nathan
Phillips, Rachel Blanchard',
 'Awards': '3 wins & 7 nominations.',
 'Country': 'Germany, USA, Canada',
 'Director': 'David R. Ellis',
 'Genre': 'Action, Adventure, Crime',
 'Language': 'English',
 'Rated': 'R',
 'Released': '18 Aug 2006',
 'Runtime': '105 min',
 'Title': 'Snakes on a Plane',
 'Type': 'movie',
 'Writer': 'John Heffernan (screenplay), Sebastian Gutierrez
(screenplay), David Dalessandro (story), John Heffernan (story)',
 'Year': '2006',
 'imdbID': 'tt0417148',
 'imdbRating': '5.6',
 'imdbVotes': '114,668'}

Loading JSONs in Python

```
In [1]: import json

In [2]: with open('snakes.json', 'r') as json_file:
   ...:       json_data = json.load(json_file)

In [3]: type(json_data)
Out[3]: dict
```

Exploring JSONs in Python

```
In [4]: for key, value in json_data.items():
    ...:     print(key + ':', value)

Title: Snakes on a Plane
Country: Germany, USA, Canada
Response: True
Language: English
Awards: 3 wins & 7 nominations.
Year: 2006
Actors: Samuel L. Jackson, Julianna Margulies
Runtime: 105 min
Genre: Action, Adventure, Crime
imdbID: tt0417148
Director: David R. Ellis
imdbRating: 5.6
Rated: R
Released: 18 Aug 2006
```

Let's practice!

APIs and interacting with the world wide web

Herein, you'll learn
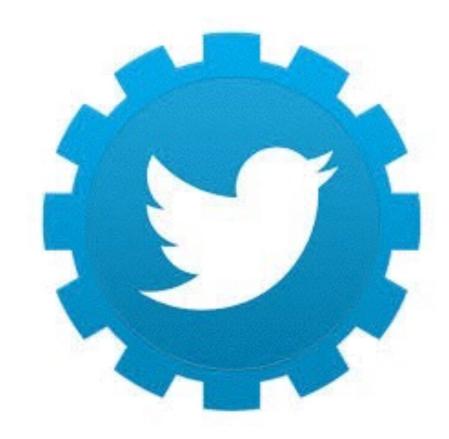
- What APIs are

- Why APIs are important

- In the exercises:

    - Connecting to APIs

    - Pulling data from APIs

    - Parsing data from APIs

What is an API?

- Set of protocols and routines

- Bunch of code

  - Allows two software programs to communicate with each other

APIs are everywhere

Connecting to an API in Python

```
In [1]: import requests

In [2]: url = 'http://www.omdbapi.com/?t=hackers'

In [3]: r = requests.get(url)

In [4]: json_data = r.json()

In [5]: for key, value in json_data.items():
   ...:     print(key + ':', value)
```
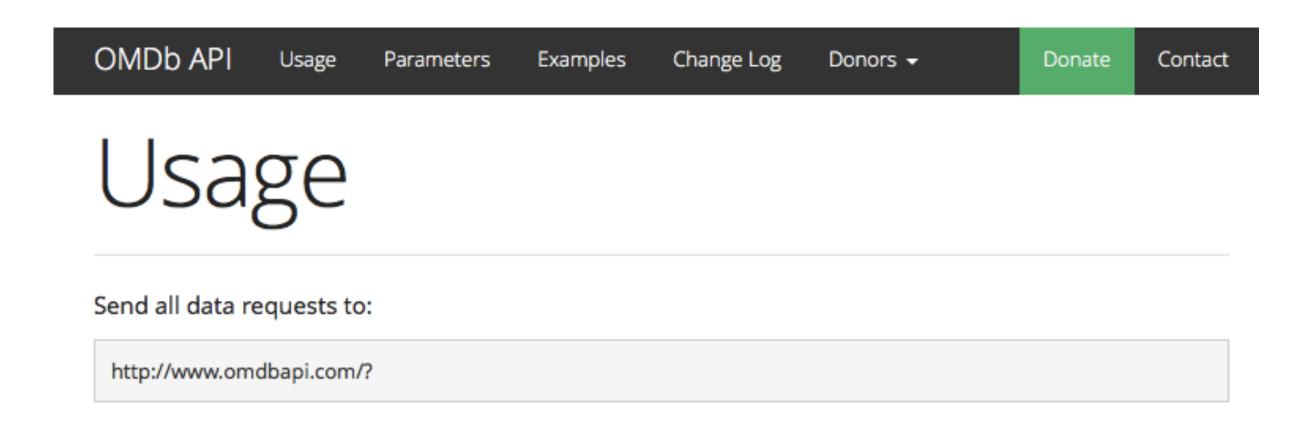
What was that URL?

- http - making an HTTP request

- www.omdbapi.com - querying the OMDB API

- ?t=hackers

  - Query string

  - Return data for a movie with title (t) 'Hackers'

```
'http://www.omdbapi.com/?t=hackers'
```

OMDb API

Usage

Send all data requests to:

http://www.omdbapi.com/?

Parameters

By ID or Title

Parameter	Required	Valid Options	Default Value	Description
i	Optional*		<empty>	A valid IMDb ID (e.g. tt1285016)
t	Optional*		<empty>	Movie title to search for.
type	No	movie, series, episode	<empty>	Type of result to return.

It's a regular URL!

IMPORTING DATA IN PYTHON II

Let's practice!