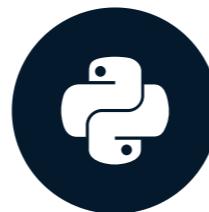


# Introduction to APIs and JSONs

INTERMEDIATE IMPORTING DATA IN PYTHON



**Hugo Bowne-Anderson**  
Data Scientist at DataCamp

# APIs

- Application Programming Interface
- Protocols and routines
  - Building and interacting with software applications

## OMDb API

The Open Movie Database

# APIs

- Application Programming Interface
- Protocols and routines
  - Building and interacting with software applications

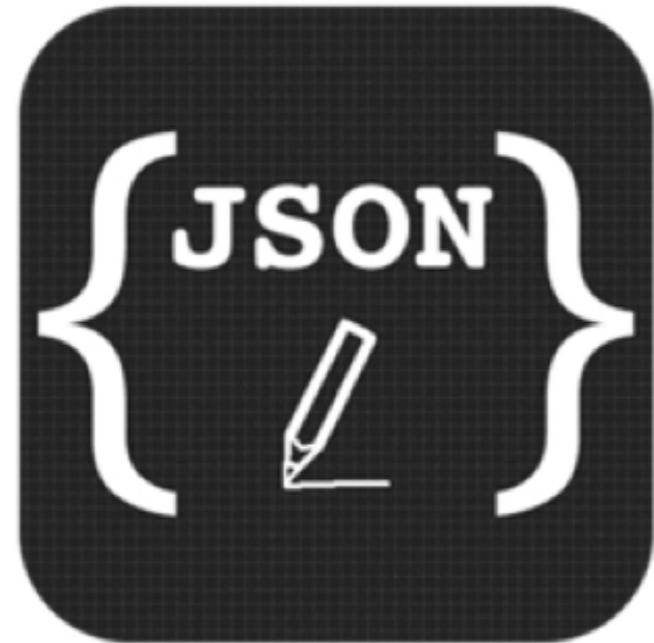
# OMDb API

The Open Movie Database



# 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'}
```

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```

# Loading JSONs in Python

```
import json  
with open('snakes.json', 'r') as json_file:  
    json_data = json.load(json_file)
```

```
type(json_data)
```

```
dict
```

# Exploring JSONs in Python

```
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

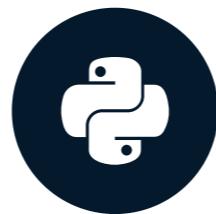
# **Let's practice!**

**INTERMEDIATE IMPORTING DATA IN PYTHON**

# APIs and interacting with the world wide web

INTERMEDIATE IMPORTING DATA IN PYTHON

Hugo Bowne-Anderson  
Data Scientist at DataCamp



# 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

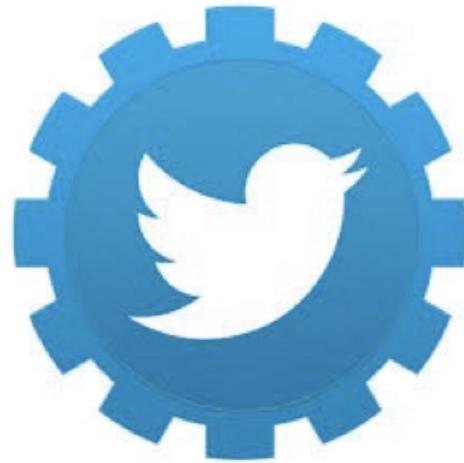
# What is an API?

- Set of protocols and routines
- Bunch of code
  - Allows two software programs to communicate with each other

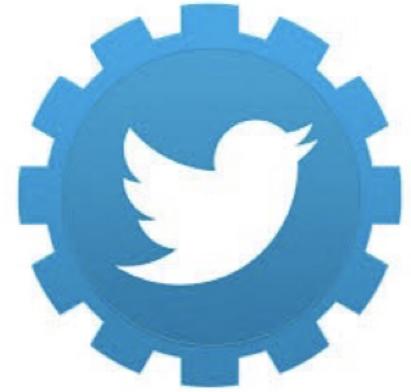


# What is an API?

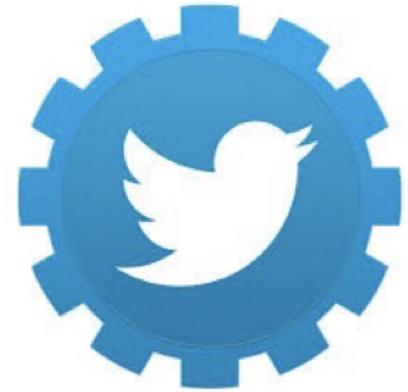
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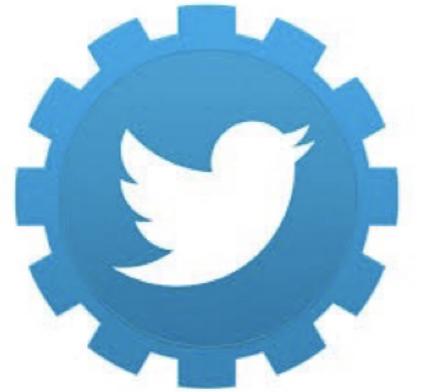
# APIs are everywhere



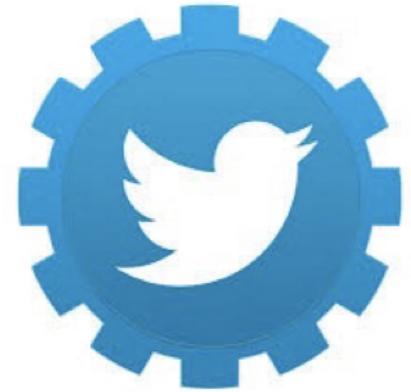
# APIs are everywhere



# APIs are everywhere



# APIs are everywhere



# Connecting to an API in Python

```
import requests  
  
url = 'http://www.omdbapi.com/?t=hackers'  
r = requests.get(url)  
json_data = r.json()  
  
for key, value in json_data.items():  
    print(key + ':', value)
```

# What was that URL?

- http - making an HTTP request
- [www.omdbapi.com](http://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

[OMDb API](#) [Usage](#) [Parameters](#) [Examples](#) [Change Log](#) [Donors ▾](#) [Donate](#) [Contact](#)

## Usage

Send all data requests to:

`http://www.omdbapi.com/?`

# OMDb API

OMDb API Usage Parameters Examples Change Log Donors ▾ [Donate](#) Contact

## Usage

Send all data requests to:

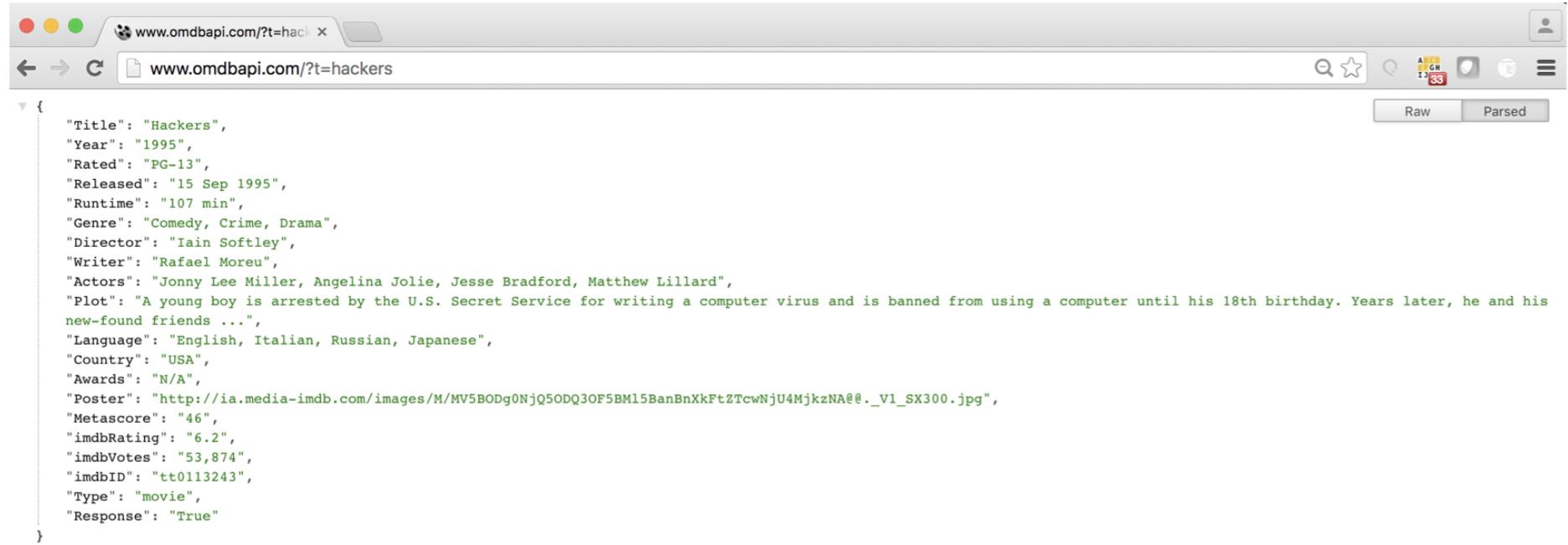
<http://www.omdbapi.com/?>

## 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!



A screenshot of a web browser window displaying a JSON response. The URL in the address bar is `www.omdbapi.com/?t=hackers`. The browser interface includes standard controls like back, forward, and search, along with a tab labeled `www.omdbapi.com/?t=hackers`. Below the address bar, there are two buttons: `Raw` and `Parsed`. The `Parsed` button is selected, and the content area shows a JSON object representing the movie 'Hackers'. The JSON structure includes fields such as Title, Year, Rated, Released, Runtime, Genre, Director, Writer, Actors, Plot, Language, Country, Awards, Poster, Metascore, imdbRating, imdbVotes, imdbID, Type, and Response.

```
{  
    "Title": "Hackers",  
    "Year": "1995",  
    "Rated": "PG-13",  
    "Released": "15 Sep 1995",  
    "Runtime": "107 min",  
    "Genre": "Comedy, Crime, Drama",  
    "Director": "Iain Softley",  
    "Writer": "Rafael Moreu",  
    "Actors": "Jonny Lee Miller, Angelina Jolie, Jesse Bradford, Matthew Lillard",  
    "Plot": "A young boy is arrested by the U.S. Secret Service for writing a computer virus and is banned from using a computer until his 18th birthday. Years later, he and his new-found friends ...",  
    "Language": "English, Italian, Russian, Japanese",  
    "Country": "USA",  
    "Awards": "N/A",  
    "Poster": "http://ia.media-imdb.com/images/M/MV5BODg0NjQ5ODQ3OF5BMl5BanBnXkFtZTcwNjU4MjkzNA@@._V1_SX300.jpg",  
    "Metascore": "46",  
    "imdbRating": "6.2",  
    "imdbVotes": "53,874",  
    "imdbID": "tt0113243",  
    "Type": "movie",  
    "Response": "True"  
}
```

# **Let's practice!**

**INTERMEDIATE IMPORTING DATA IN PYTHON**