Introduction to APIs and JSONs

INTERMEDIATE IMPORTING DATA IN PYTHON



Hugo Bowne-AndersonData Scientist at DataCamp



APIs

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

OMDb API

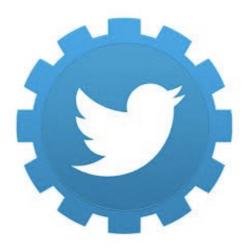
The Open Movie Database

APIs

- Application Programming Interface
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 - Building and interacting with software applications

OMDb API

The Open Movie Database



- JavaScript Object Notation
- Real-time server-to-browser communication
- Douglas Crockford
- Human readable



```
{'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)',
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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!

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APIs and interacting with the world wide web

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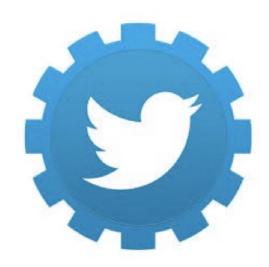


Herein, you'll learn

- What APIs are
- Why APIs are important
- In the exercises:
 - Connecting to APIs
 - Pulling data from APIs
 - Parsing data from APIs

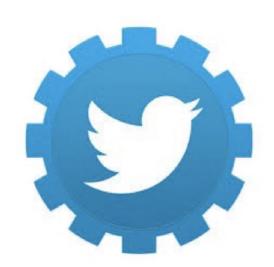
What is an API?

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



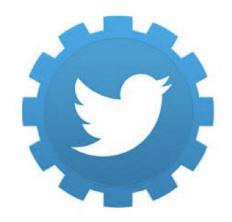
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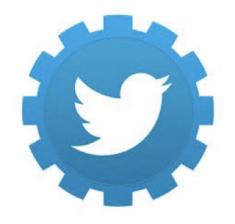


UBER Developers



UBER Developers











Connecting to an API in Python

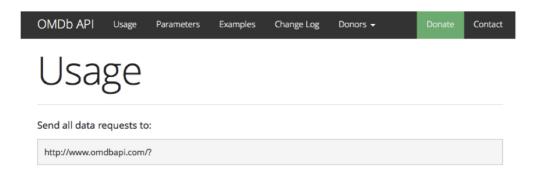
```
import requests
url = 'http://www.omdbapi.com/?t=hackers'
r = requests.get(url)
json_data = r.json()
for key, value in json_data.items():
    print(key + ':', value)
```

What was that URL?

- http making an HTTP request
- www.omdbapi.com querying the OMDB API
- ?t=hackers
 - Query string
 - Return data for a movie with title (t) 'Hackers'

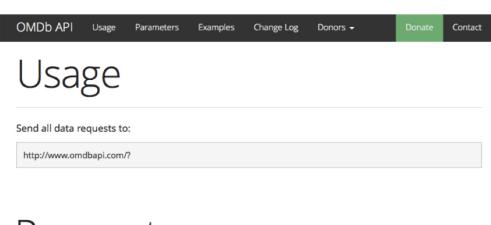
```
'http://www.omdbapi.com/?t=hackers'
```

OMDb API





OMDb API



Parameters

By ID or Title

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



It's a regular URL!

```
www.omdbapi.com/?t=hack ×
     www.omdbapi.com/?t=hackers
                                                                                                                                                       Raw Parsed
"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/MV5BODg0NjQ5ODQ3OF5BM15BanBnXkFtZTcwNjU4MjkzNA@@. V1 SX300.jpg",
"Metascore": "46",
"imdbRating": "6.2",
"imdbVotes": "53,874",
"imdbID": "tt0113243",
"Type": "movie",
"Response": "True"
```



Let's practice!

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