



IMPORTING DATA IN PYTHON II

Introduction to APIs and JSONs



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'}
```

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
```



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Let's practice!



IMPORTING DATA IN PYTHON II

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



UBER Developers



Instagram
API



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

[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!

The screenshot shows a web browser window with the URL `www.omdbapi.com/?t=hackers` in the address bar. The page displays a JSON response from the OMDb API. The response is a dictionary with various movie details. The browser's developer tools are open, showing the JSON data. On the right side of the JSON viewer, there are tabs for 'Raw' and 'Parsed', with 'Parsed' being the active tab.

```
{
  "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"
}
```



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Let's practice!