

APIs

Shannon Turner

Twitter: [@svt827](https://twitter.com/svt827)

Github: <http://github.com/shannonturner>

OBJECTIVE

- Review Lesson Four
- Learn what APIs are
- Learn how and when and why we use APIs
- Using everything we've learned so far: strings, slicing, conditionals, lists, loops, file handling, dictionaries, functions

LIGHTNING REVIEW

- Functions are flexible, reusable code
- Functions are shortcuts we can create for ourselves or for others to use
- Functions are made flexible by their parameters/arguments that tell the function **how** or **what**
- Functions give back a return value to let you know how the function ran
- The **return** command ends the function immediately

INSTALLING EASY_INSTALL, PIP

Installation instructions are here: https://github.com/shannonturner/python-lessons/blob/master/installing_pip.md

Don't be afraid to ask for help!

Help a neighbor if you've completed it.

If your **pip install requests** completed, you're set!

INSTALLING REQUESTS

From the terminal:

```
pip install requests
```

Read the documentation on the requests library:

<http://docs.python-requests.org/en/latest/>

Use it: `import requests`

WHAT THE HECK IS AN API

The acronym is meaningless.

APIs are a way for two programs to **share information** or **perform an action**.

Do you get your email on your phone?

Is your calendar synced between Google and your phone? (If so, hug an API)

WHAT THE HECK IS AN API

Think of someone else's information/data:

- Census statistics
- Sunlight's Congress bios, contact info
- IMDB movie ratings, facts
- Brooklyn Museum's artworks

... and so much more ...

WHAT THE HECK IS AN API

Think of someone else's actions/services:

- Twitter! (your very own twitter bot <3)
- OpenStreetMap
- TinEye's image recognition
- Twilio's call / text services

... and so much more ...

APIS VS. DATASETS

Datasets: static (unchanging) files - a .csv, or a database dump

If the info changes, you're out of date.

APIs: a live connection to a resource.

If the information changes, you get the latest.

APIS VS. DATASETS

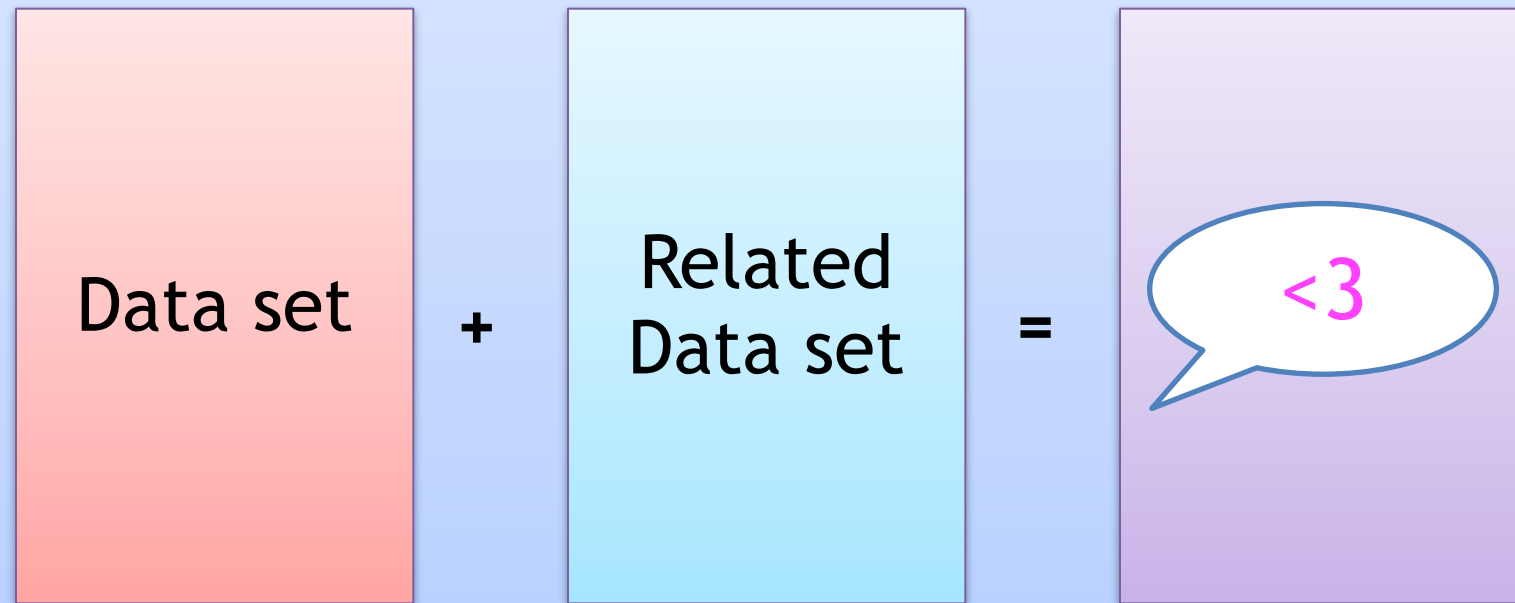
Datasets: static (unchanging) files - a .csv, or a database dump

Perfect for historical data or other information that won't change. Once you have a copy, it's yours.

APIs: a live connection to a resource.

Perfect for data that might change or need updates. Also fine for historical data, but is dependent on a live connection!

SHANNON'S SECRET RECIPE FOR A COOL* PROJECT



* according to me

SO WHAT'S IT LOOK LIKE?



Toy Story (1995) 👤 ⏮

Toy Story has a Bechdel rating of 1/3. That means this movie has two women in it, but they don't even talk to one another.

Watch these instead

Movie	Imdb Rating	Parental Rating	Genre
The Land Before Time (1988) 🗨️ ♀	7.3	G	Adventure, Animation, Family
The Cat Returns (2002) 🗨️ ♀	7.3	G	Adventure, Animation, Comedy
Toy Story 3 (2010) 🗨️ ♀	8.4	G	Adventure, Animation, Comedy
Mulan (1998) 🗨️ ♀	7.5	G	Adventure, Animation, Family

SO WHAT'S IT LOOK LIKE?




Todd Akin

"If it's a legitimate rape, the female body has ways to shut that whole thing down."

- Todd Akin

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SOMETIMES SIMPLE IS BEST

18 out of 60

Get a job in data analysis.

What's your #digitalresolution? Text yours to 202-796-####

THE HARD PART

Finding the right API(s) for your project

- Does it exist?
- Does it offer what you're looking for in the format you need it?
- Ask people
- Google it
- Read the documentation
- Read the terms of service

TERMS OF SERVICE

Rules for how you can use the API

- Everyone has their own rules
- Some make you sign up for an API key so they can see usage statistics
- Some APIs (businesses) are not free
- Some are for noncommercial use only
- Read it all carefully to make sure you comply!

APIS, THE JARGON

JSON: Information returned in a format that has dictionaries, lists, strings, and numbers.

Visualize JSON as a CSV: <http://konklone.io/json/>

REST: You can create the URL and see the resulting JSON in a web browser.

APIS, THE JARGON

Endpoints: A piece of a URL you'll use to form your question to the API.

Some APIs will only have one endpoint; others might have several!

It depends on how many different types of information the API makes available.

A GOOD START

Some APIs from the US Government

http://18f.github.io/API-All-the-X/pages/individual_apis

<http://data.gov>

Public directory of APIs

<http://www.programmableweb.com/apis/directory>

START SMALL

<http://bechdeltest.com/api/v1/doc>

Sample query (copy this in your browser): <http://bechdeltest.com/api/v1/getMovieByImdbId?imdbid=0367631>

/getMovieByImdbID: the endpoint

imdbid=0367631: the parameter and its value

EXERCISE

Go to https://github.com/shannonturner/python-lessons/blob/master/playtime/lesson05_firstapi.py

If you finish, let's chat about your long-term goals and project ideas.

MAP EVERYTHING

Go to <http://www.ed.gov/news/press-releases/us-department-education-releases-list-higher-education-institutions-open-title-i>

and to

<https://github.com/shannonturner/education-compliance-reports/blob/master/investigations.json>

Also click on '**Raw**' to see the JSON

MAP EVERYTHING

That's the same way I made all of the maps here:

<https://github.com/shannonturner/survivor-resources>

<https://github.com/shannonturner/education-compliance-reports>