

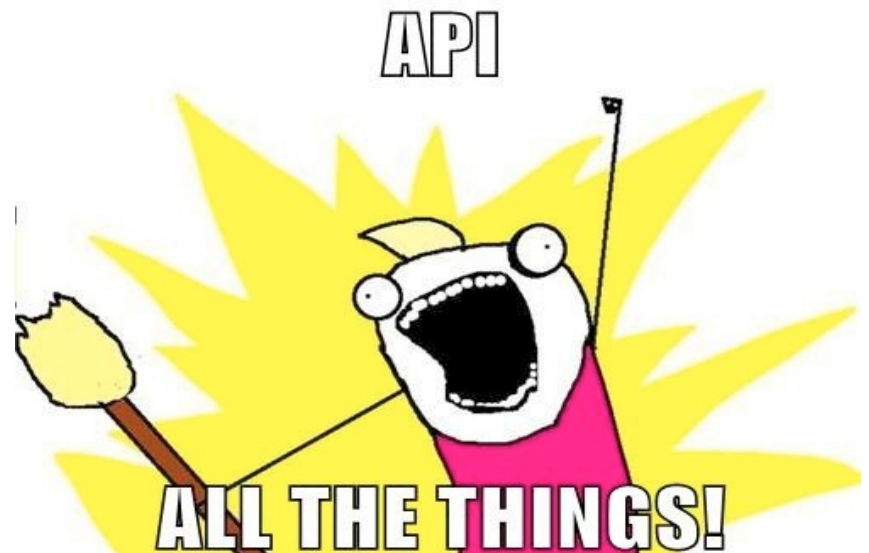
Exploring APIs

A DC Hacks/Hackers API workshop!

Ready to get started? Make sure you've
registered for a Sunlight API key:

<https://sunlightfoundation.com/api/accounts/register/>

- What are APIs?
- Awesome API examples!
- Things made with APIs
- API Exercises



What is an API?

- “Application Programmer Interface”
- A way to interact programmatically with a website or web service
- Get data, or make a website, service or device do something



Getting data

- API provides a continuous feed (as opposed to a one-time dataset/download) – a live copy of whatever's in the database
- API data comes in a structured format
 - XML
 - JSON



What is XML?

```
<library>
```

```
  <book>
```

```
    <title> 1984 </title>
```

```
    <author> George Orwell </author>
```

```
  </book>
```

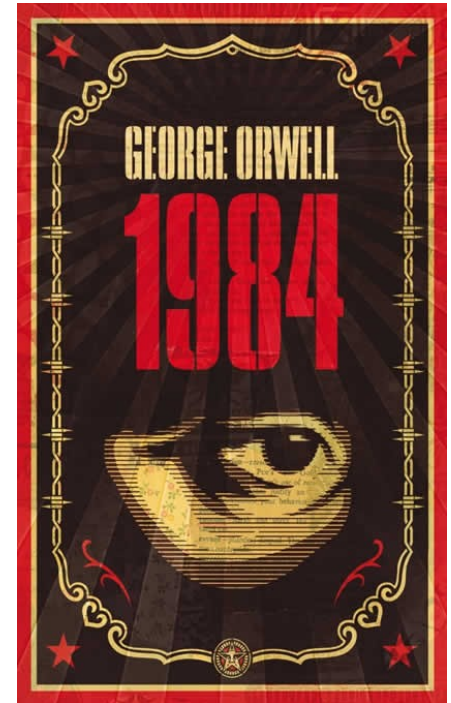
```
  <book>
```

```
    <title> Beloved </title>
```

```
    <author> Toni Morrison </author>
```

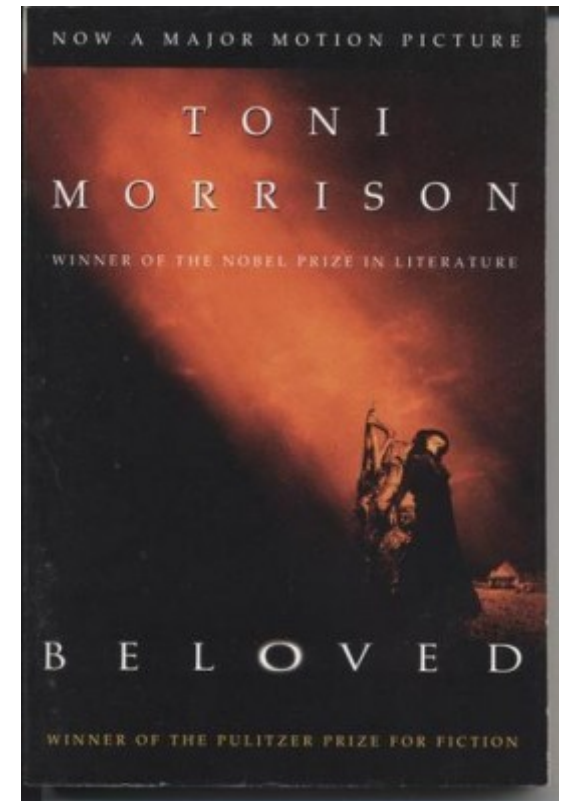
```
  </book>
```

```
</library>
```



What is JSON?

```
{library: [  
  {title: "1984",  
    author: "George Orwell"},  
  {title: "Beloved",  
    author: "Toni Morrison"}  
]
```



JSON

- Stands for JavaScript Object Notation
- Does not require actual javascript knowledge to use...
- ...but plays well with data structures in JS and lots of other languages
- If you're a python user, think of a dictionary of lists of dictionaries of lists

JSON without code

- Rather use a CSV or Excel? Eric Mill fixed that for you!
- <http://konklone.io/json/>
- Paste in JSON. Get back a CSV. Yay!

This is Eric Mill



Why bother?

- Often you can do searches through an interface. Why use the API?

APIs? Websites?

- The easiest way to interact with (many) APIs is through the browser
- You can visit an *endpoint* to get or post data, and use *parameters* to refine what you need

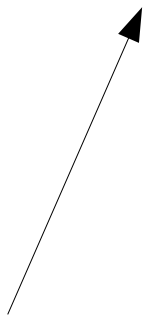
APIs in the browser

Example:

<http://openstates.org/api/v1/legislators>

Main API url


Endpoint




APIs in the browser

Example:

[http://openstates.org/api/v1/legislators?
apikey=blah](http://openstates.org/api/v1/legislators?apikey=blah)



Special parameter: API Key
gives you access



?: tells you that parameters
are coming next

API Keys

- Many APIs require you to get a key in order to use them
- Sometimes you have to pay, but often you just have to agree to terms of service
- Lets the API's owner keep stats about different kinds of users...
- ...or shut you down easily if you start abusing the service

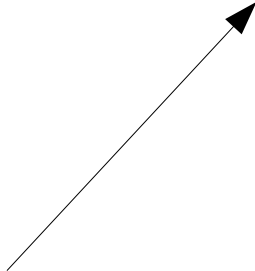


APIs in the browser

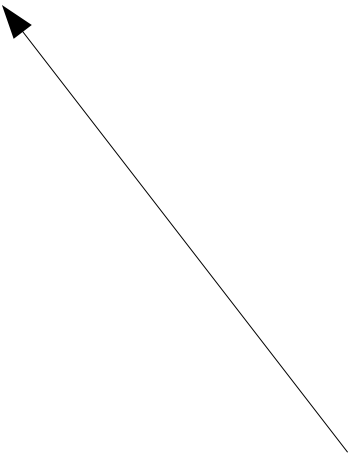
Example:

[http://openstates.org/api/v1/legislators?
apikey=blah&state=WI](http://openstates.org/api/v1/legislators?apikey=blah&state=WI)

&: separates parameters
from each other



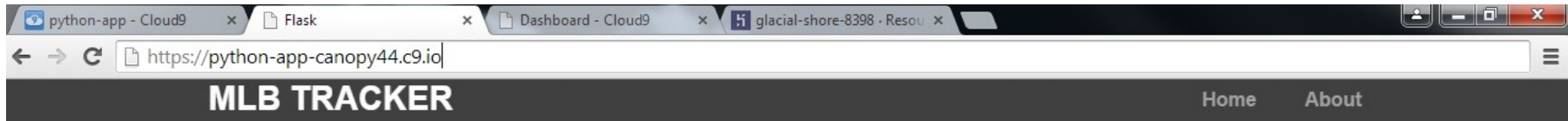
Search parameters narrow the
information you get back



So many parameters

- APIs usually have documentation. It is usually correct. Read it.
 - Terms of service – don't get yourself shut off!
 - Parameters and allowable search terms
 - Multiple endpoints for different needs
 - Examples!
- If you make an API, please please PLEASE write good documentation

Things made with APIs

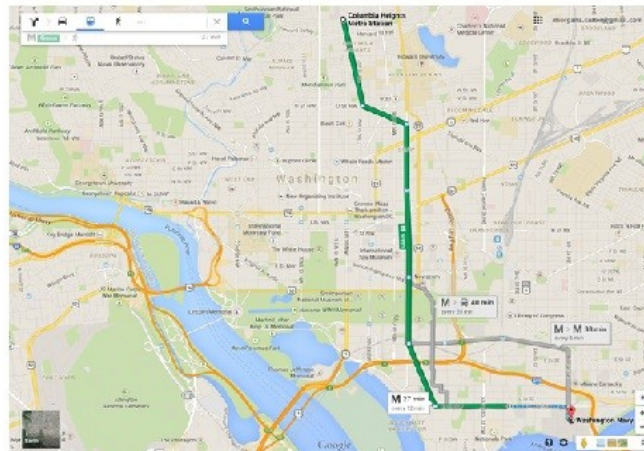


MLB Tracker: The Scheduler

Great news, there is a Nationals home game! Here is some information: The game starts at 01:05 PM and it is the Braves at Nationals. **Click here** to purchase tickets.

The current temperature is 45.36 degrees and the expected forecast is few clouds.

The next train to Nats Yard will arrive at the Columbia Heights station in 1 minute:

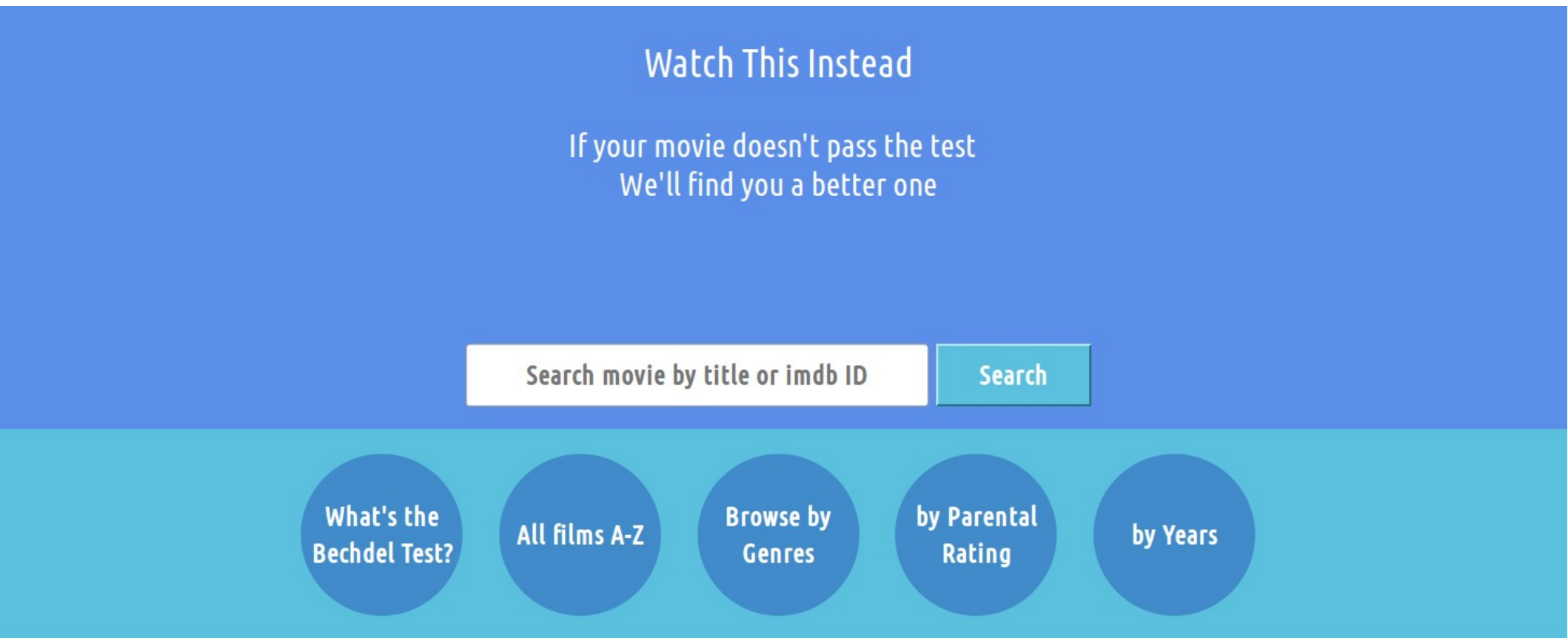


Based on your interest in a romantic day, we suggest a meal at **Rose's Luxury** or **Osteria Morini**

Would you like to **make a reservation**?

The Scheduler, Morgana Carter

Things made with APIs



Things made with APIs



'Boy Scouts' appeared in the congressional record 84 times in the past year.

'Girl Scouts' appeared 14 times in the same period.

Want to see that change?

Enter your zipcode to contact your congressperson.

What is the congressional record?

According to the Government Publishing Office, the Congressional Record contains both words spoken on the floor of the House and Senate, and words inserted or appended by Senators or Members of Congress. Find out more [here](#).

Things made with APIs



Find Nicki's Verse

@findnickisverse

Tweet @ me w/ the title of your favorite Nicki feature & get a link straight to the good part. Can't decide? Try SHUFFLE. @chriszee made me.



Stealth Mountain

@StealthMountain

I alert twitter users that they typed sneak peak when they meant sneak peek. I live a sad life. [twitter.com/#!/StealthMoun...](https://twitter.com/#!/StealthMountain)



congress-edits

@congressedits

I'm a bot that tweets anonymous Wikipedia edits that are made from IP addresses in the US Congress. You can find the code at github.com/edsu/anon

ALL THE TWITTERBOTS, all the people

Example API: Github!

- You can access public information on github via their API!
- For example, I want to know what issues have been closed recently on a project I've been working on.
- I can see that information in my browser by going to this link:

<https://api.github.com/repos/sunlightlabs/openstates/issues?state=closed>

Fun APIs to play with

- Wikipedia:
http://www.mediawiki.org/wiki/API:Main_page
- Twitter: <https://dev.twitter.com/>
- Census:
<http://www.census.gov/data/developers/data-sets.html>
- Yelp:
<http://www.yelp.com/developers/documentation>

APIs to play with

- Talk like a pirate API:
<http://isithackday.com/arrpi.php>
- My little pony images:
<http://www.programmableweb.com/api/ponyfaces>
- Lorem Ipsum generator:
<https://www.mashape.com/montanaflynn/lorem-text-generator>

Exercises

Write code or convert to CSV and use excel

- What are the first names of the people in congress? How many congresspeople have the same first name? (opencongress)
- List the movie titles that contain your first name, and the years those movies came out. (Movies, NOT TV episodes!) (imdb)
- Find all contributions from a github repo and find out the most common day of the week for commits to be submitted (github)

Exercise answers (in python)

In python, on github:

<https://github.com/rshorey/api-sample-code>