API Basics

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SLIDES URL: https://ter.ps/bhapi

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Tools

Json Formatter: https://jsonformatter.org/

Python: https://repl.it/languages/python3

Optional:

Postman: https://www.getpostman.com/

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What are API's

- Application Programming Interface
- Allow for multiple applications to work/interface with each other
- For this workshop we will be using web api's

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What is a Web API?

- Come in many different forms such as REST and SOAP
- Used over the web with URL like commands
- We are going to look at REST API's today

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API Commands

- The main three commands are **GET**, **POST**, and **DELETE**
- All API's allow **GET**, some also allow **POST** and **DELETE**

Endpoints

A unique URL that calls a function or represents a collection of objects

Each API has its own documentation on what endpoints are available for use with it

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Example

https://projects.propublica.org/nonprofits/search

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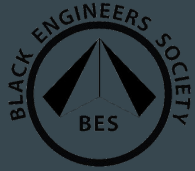
Example

http://projects.propublica.org/nonprofits/api/v2/search.json?q=animal



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JSON

- How most web API data is transmitted
- Consists of {key, value} pairs

```
{ "name":"Chris", "gender":'M',"car":"Subaru" }
```

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API Calls

http://projects.propublica.org/nonprofits/api/v2/search.json?q=animal

Asking the api to do a search for a keyword

http://projects.propublica.org/nonprofits/api/v2/organizations/731663130.json

Asking for a specific record

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API's with Python

```python
#import requests library
import requests

# Make a get request to get the latest position of the international space
# station from the opennotify api.
response = requests.get("http://api.open-notify.org/iss-now.json")

# Print the status code of the response.
print(response.status_code)

#print the content that it responded with
print(response.content)
```

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Working with JSON in Python

- Json library
- **dumps** - converts python object to string
- **load** - converts json object to python

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Working with JSON in Python

```
# Import the json library
import json

# Make a list of fast food chains.
best_food_chains = ["Taco Bell", "Shake Shack", "Chipotle"]

# This is a list.
print(type(best_food_chains))

# Use json.dumps to convert best_food_chains to a string.
best_food_chains_string = json.dumps(best_food_chains)

# We've successfully converted our list to a string.
print(type(best_food_chains_string))
```

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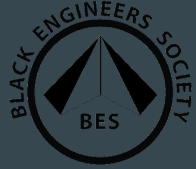
Getting JSON with Python

```
import requests

# Make the same request we did earlier, but with the coordinates of
# San Francisco instead.
parameters = {"lat": 37.78, "lon": -122.41}
response = requests.get("http://api.open-notify.org/iss-pass.json",
                        params=parameters)

# Get the response data as a python object.  Verify that it's a dictionary.
data = response.json()
print(type(data))
print(data)
```



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Try it Out

Using Python and the docs from the api we were just using (http://open-notify.org/Open-Notify-API/). Make a program that displays the current number of people in space.

Using Python make a program that converts on currency to another currency.

Hint: Here's an api that gives you exchange rates https://exchangeratesapi.io/