

RUTGERS | CODING BOOTCAMP

Session 6.3 - More AJAX and APIs

More AJAX and APIs

(Because they are important)

Objectives

- students will use `$.ajax` to hit the omdb api and display the data onto the page in html elements
- students will use event bubbling to attach events to dynamically created elements via jQuery

Thoughts/Questions?

Form Groups!

Effective Teams



WeKnowMemes

API Recap

Recap Questions

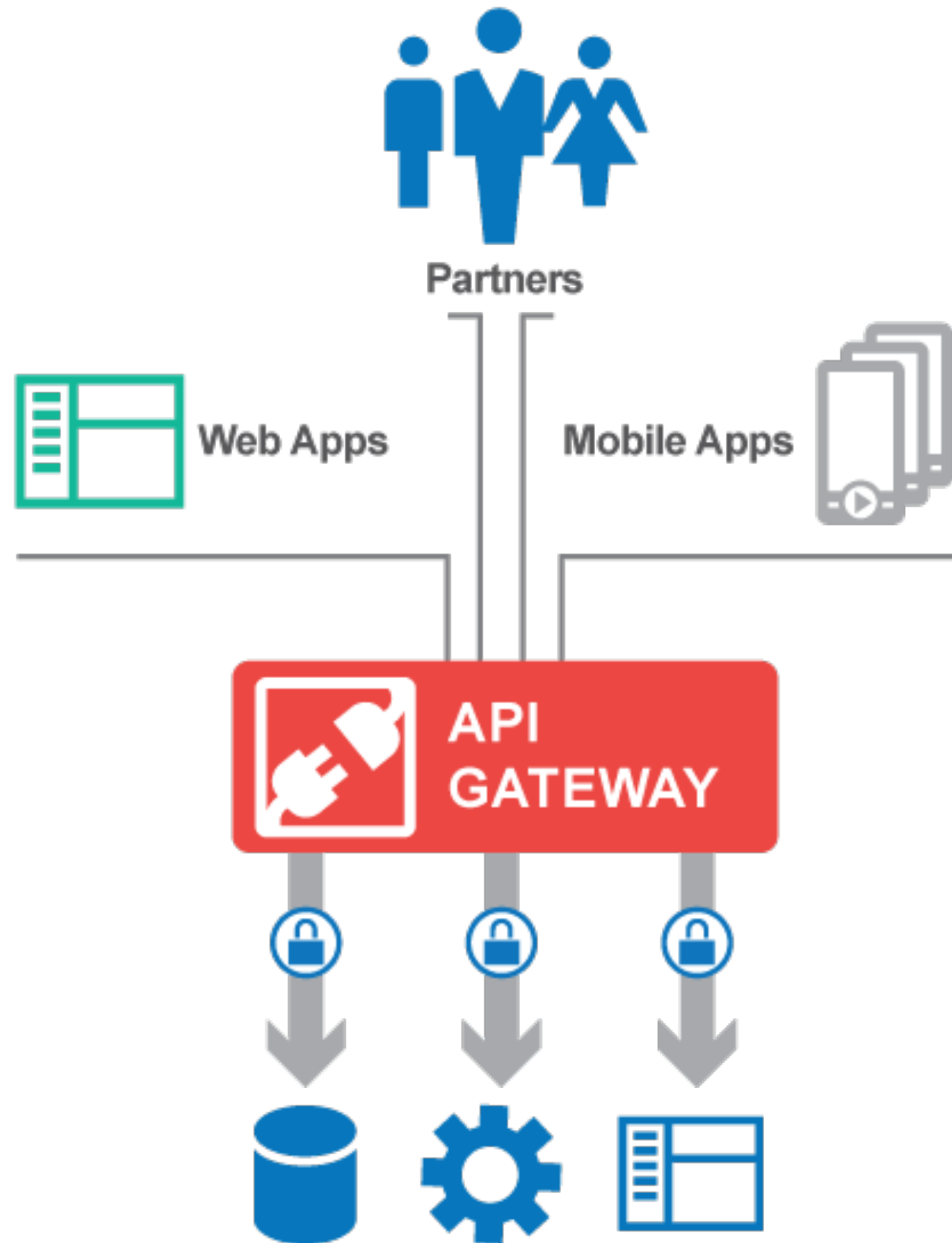
What is an API?

Recap Questions

What is an API?

“An Application Programming Interface (API) offers a set of pre-defined routines, code snippets, and tools for building software applications”

Recap Questions



In software development APIs are often the **bridge** between different components

API Use Cases

API Use Cases

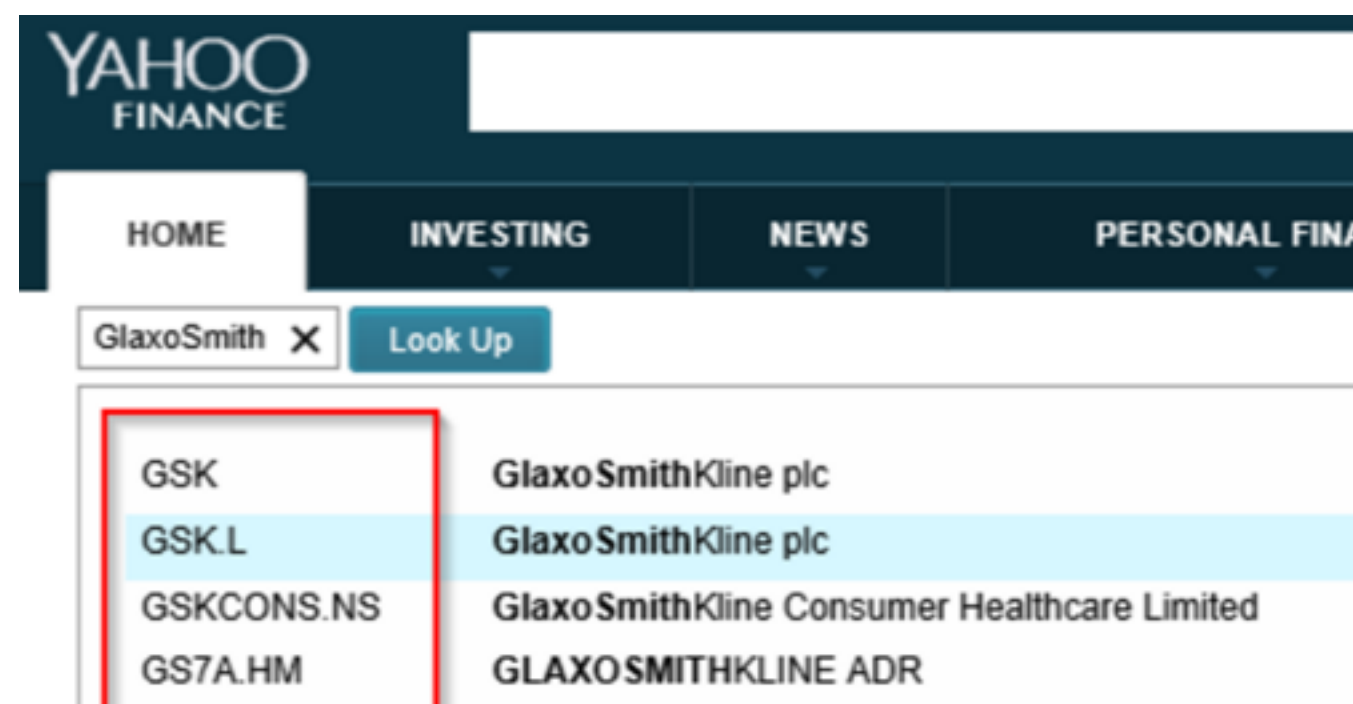
Three Common Use-Cases for APIs:

- 1.To provide pre-built code for getting and sending data to a centralized database (e.g. Weather Data, IMDB Movie Data).
- 2.To provide pre-build code for creating or utilizing other software components (e.g. Google Maps, Spotify Tools).
- 3.To interface with physical sensors or hardware devices. (e.g. Nest Thermostat, Phillips Hue)

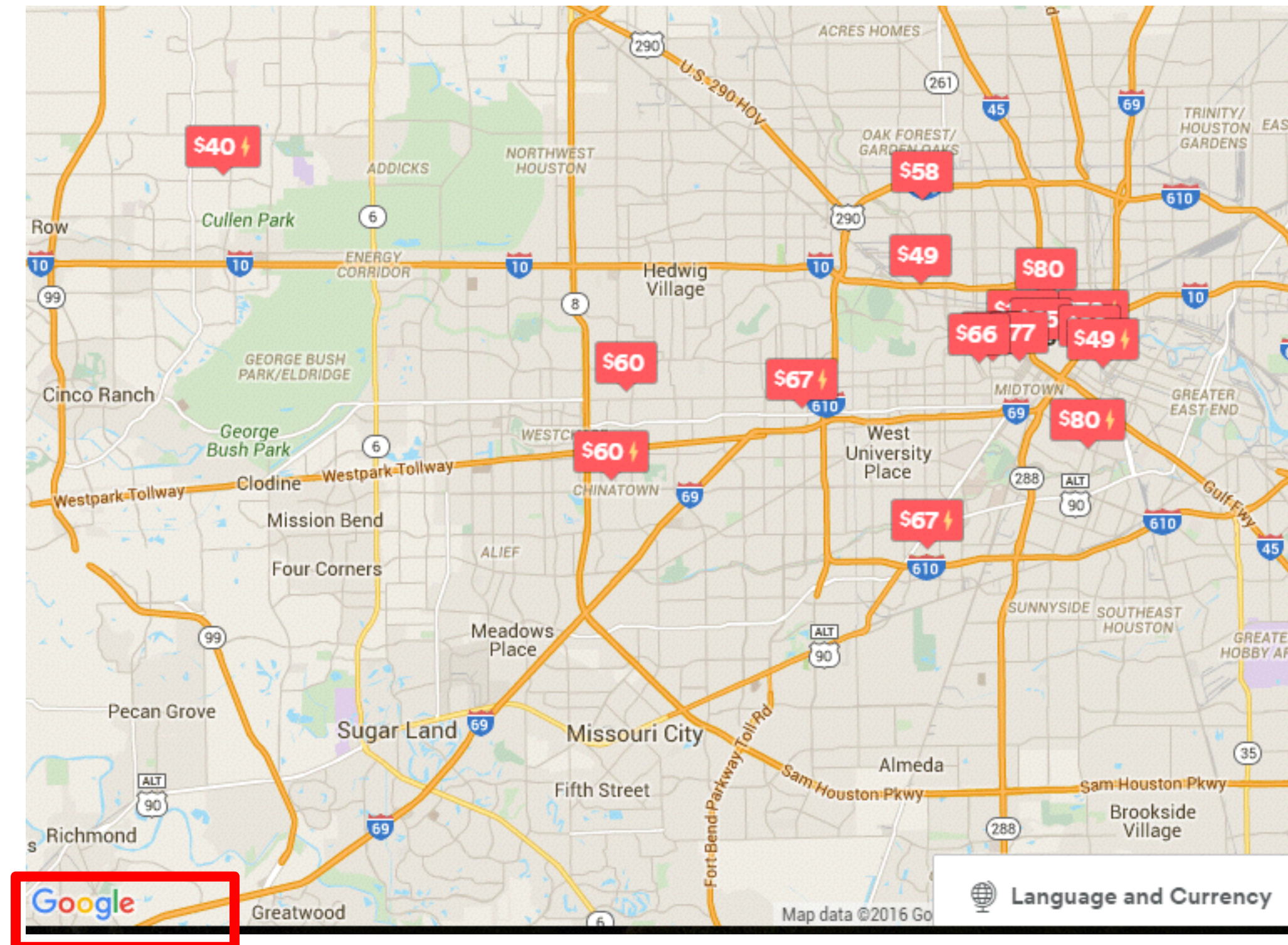
Use Case #1 – Accessing and Sending Data

OMDb API

The Open Movie Database

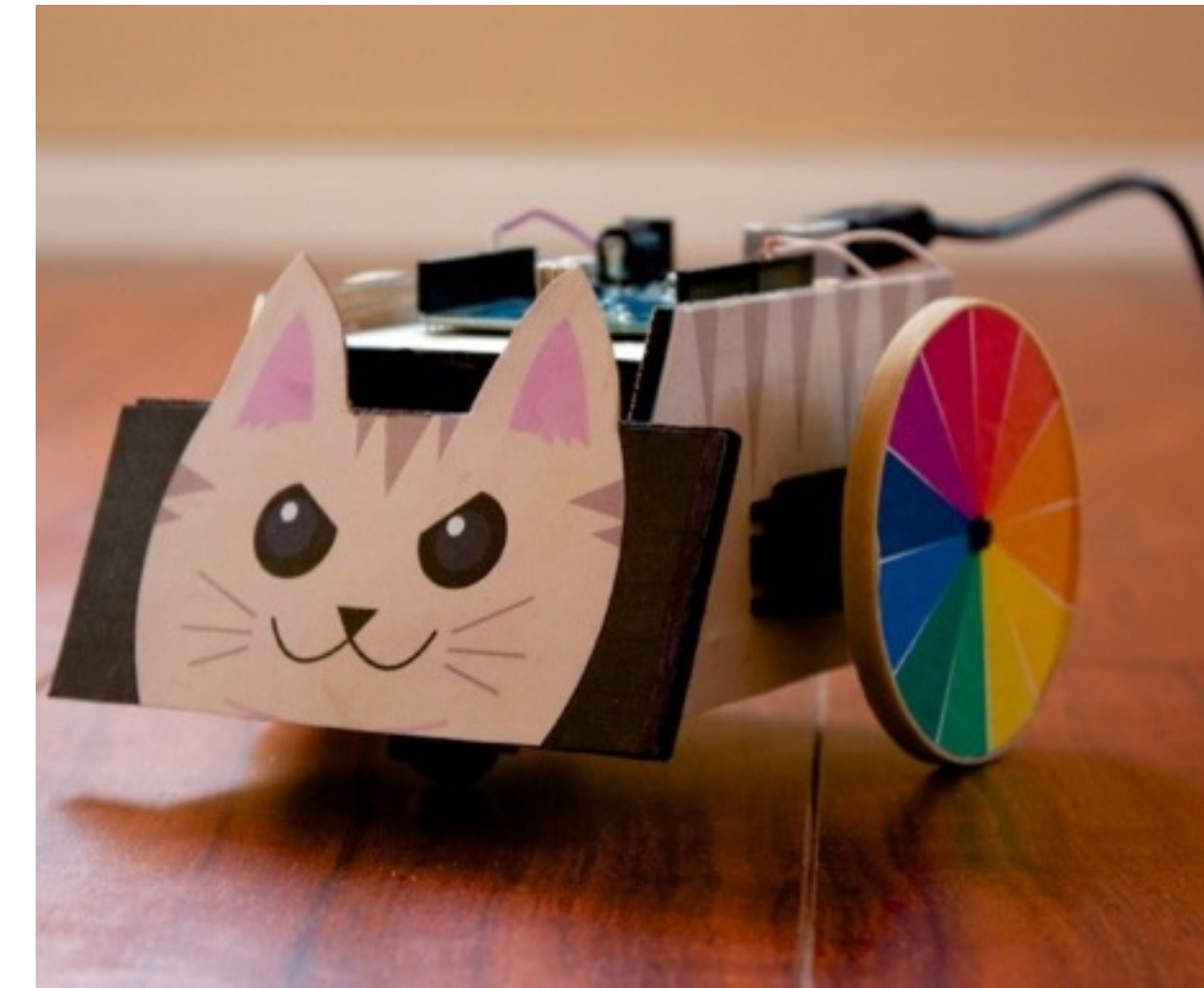


Use Case #2 – Utilizing Pre-Built Code



Example: AirBNB utilizes the Google Maps API to power its entire mapping service

Use Case #3 – Controlling Physical Hardware



Nest Smart Thermostat API: <https://developer.nest.com/>

Phillips Hue API: <http://www.developers.meethue.com/>

NodeBots (Ceylon) API: <https://cylonjs.com/>

Use Case #3 – Controlling Physical Hardware



HueCraft: <https://www.youtube.com/watch?v=ovYORLkO5bQ>

JSON Recap

Recap Questions

What is a JSON?

Recap Questions

What is a JSON?

JSON stands for Javascript Object Notation and is nothing more than simple Javascript Objects used as a “data interchange format”.

Recap Questions

```
1  "apiVersion":"2.0",
2  "data":{
3    "updated":"2010-01-07T19:58:42.949Z",
4    "totalItems":800,
5    "startIndex":1,
6    "items":[
7      {"id":"hYB0mn5zh2c",
8        "uploaded":"2007-06-05T22:07:03.000Z",
9        "updated":"2010-01-07T13:26:50.000Z",
10       "uploader":"GoogleDeveloperDay",
11       "category":"News",
12       "title":"Google Developers Day US - Maps API Introduction",
13       "description":"Google Maps API Introduction ...",
14       "tags":["GDD07","GDD07US","Maps"],
15       "duration":2840,
16       "rating":4.63,
17       "viewCount":220101,
18       "favoriteCount":201,
19       "commentCount":22
20     }
21   ]
22 }
```

JSON is a lightweight data-interchange format used to correlate keys with values

Recap Questions

What jQuery method do we use to retrieve data from a URL database?

Recap Questions

What jQuery method do we use to retrieve data from a URL database?

AJAX!!!!



Recap Questions

What two parameters do we pass into AJAX to retrieve data from online?

Recap Questions

What two parameters do we pass into AJAX to retrieve data from online?

```
7 <script src='http://code.jquery.com/jquery-2.1.3.min.js'></script>
8 <script type="text/javascript">
9   var type = 'the+matrix';
10  var queryURL = "http://www.omdbapi.com/?t=" + type + "&y=&plot=short&r=json";
11
12  $.ajax({url: queryURL, method: 'GET'})
13    .done(function(response) {
14      console.log(response);
15    });
16
17 </script>
```

Url and method: 'get'

Recap Questions

At this point, you should...

1. Understand what an API is.
2. Understand what JSON means.
3. Realize that AJAX Methods are used for retrieving data in databases.
4. Know how to create a basic AJAX GET Request using jQuery. (i.e. include URL and “GET”)

Questions?

New York Times Article Search

New York Times Article Search

New York Times Search

Search Parameters

Search Term:

Number of Records to Retrieve:

Start Year (Optional):

End Year (Optional):

Top Articles

1	Grounding a Pandemic By Barack Obama and Richard Lugar Section: Opinion 2005-06-06T00:00:00Z http://www.nytimes.com/2005/06/06/opinion/06obama.html
2	A Leap Of Faith By BOB HERBERT Section: Opinion 2004-06-04T00:00:00Z http://www.nytimes.com/2004/06/04/opinion/a-leap-of-faith.html

Today, we'll be building this:
<http://nytarticle-search.herokuapp.com/>

NYT Article Searcher

Overview:

- This is a relatively hard activity to do completely right.
- It will require you to code quickly, to efficiently divide tasks, and to deal with bugs in retrospect.
- It's also a really great activity for gaining mastery

Suggestions

- Take honest stock of your own abilities and skillsets. Work on what you feel comfortable doing.
- For each sub-pair, have one person code and the other help research.
- Ask for help from teammates when you need it.
- Consider using Git Collaboration if you feel comfortable!

Phase 1 – Design and API (20 mins)

Front-End Team:

- Create the layout for the design above. Feel free to use Bootstrap or to do something more customized of your own.
- Make sure to organize your code has the necessary IDs.
- Incorporate text boxes for capturing User Input. Then research how to retrieve the input values in Javascript

Back-End Team:

- Do preliminary research on the API.
- Register for an API Key.
- Understand what format the URL should look like to make an Article Call. (Hint: Use the API Console!!)
- Experiment with console logging various fields.

Phase 2 – Coding the Logic (40 mins)

Feel Free to Mix Up the Teams at this Point!!!

Front-End Team:

- Begin creating basic click events. Register the submit button
- Create working transfers of data between the text-boxes and the backend.
- Experiment with creating content regions for where the article will go.

Back-End Team:

- Create the AJAX call needed to retrieve data then console.log all of the relevant fields.
- Incorporate various “optional parameters” (hard code these in initially).
- Take note of various “bugs” that appear with certain searches.

All-Together:

- Display the HTML content!!

Phase 3 – Dealing with Bug Cases (20 minutes)

Front-End Team:

- Continue polishing the display of content in the HTML.
- Consider adding styling or other jQuery tricks.
- Consider using Bootswatch and/or Font Awesome to add more visual appeal

Back-End Team:

- Put in a hard-effort to deal with bugs. How can you handle missing fields?

Phase 4 – Refinement and Deployment (10 Minutes)

All:

Deploy your app to GitHub and Heroku!

Then submit the links to the Homework Submission form.

Podcast of the Week



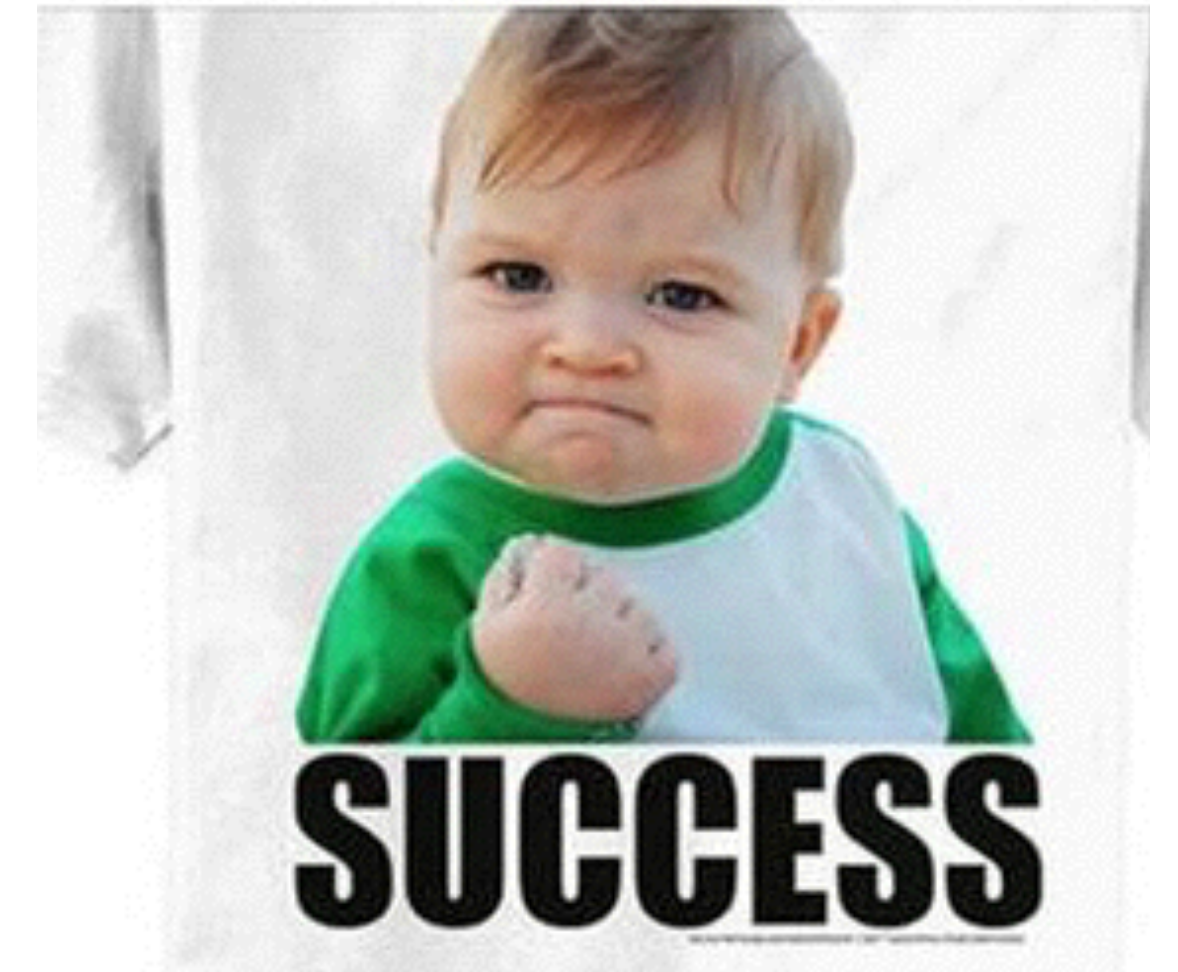
Adventures in Angular

A weekly show dedicated to the
AngularJS framework.

<https://devchat.tv/adventures-in-angular>

Coding Tips

- Create a Real Programming Environment
- Make Programs From Scratch
- Start Small
- Write Lots of Code
- Ask for Help
- Ask for Help the Right Way



http://www.programmingforbeginnersbook.com/blog/when_you_know_the_basics_but_you_still_cant_code/