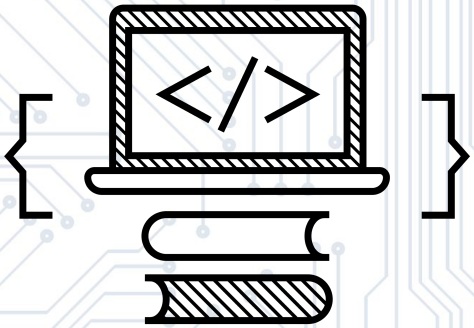
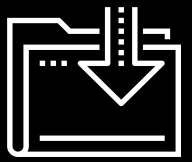


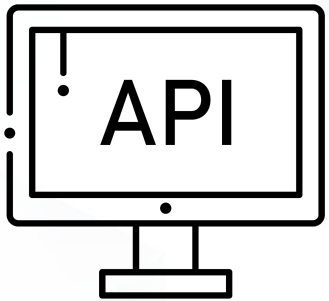
Advanced AJAX

Web Development Boot Camp

Lesson 6.2



API Recap



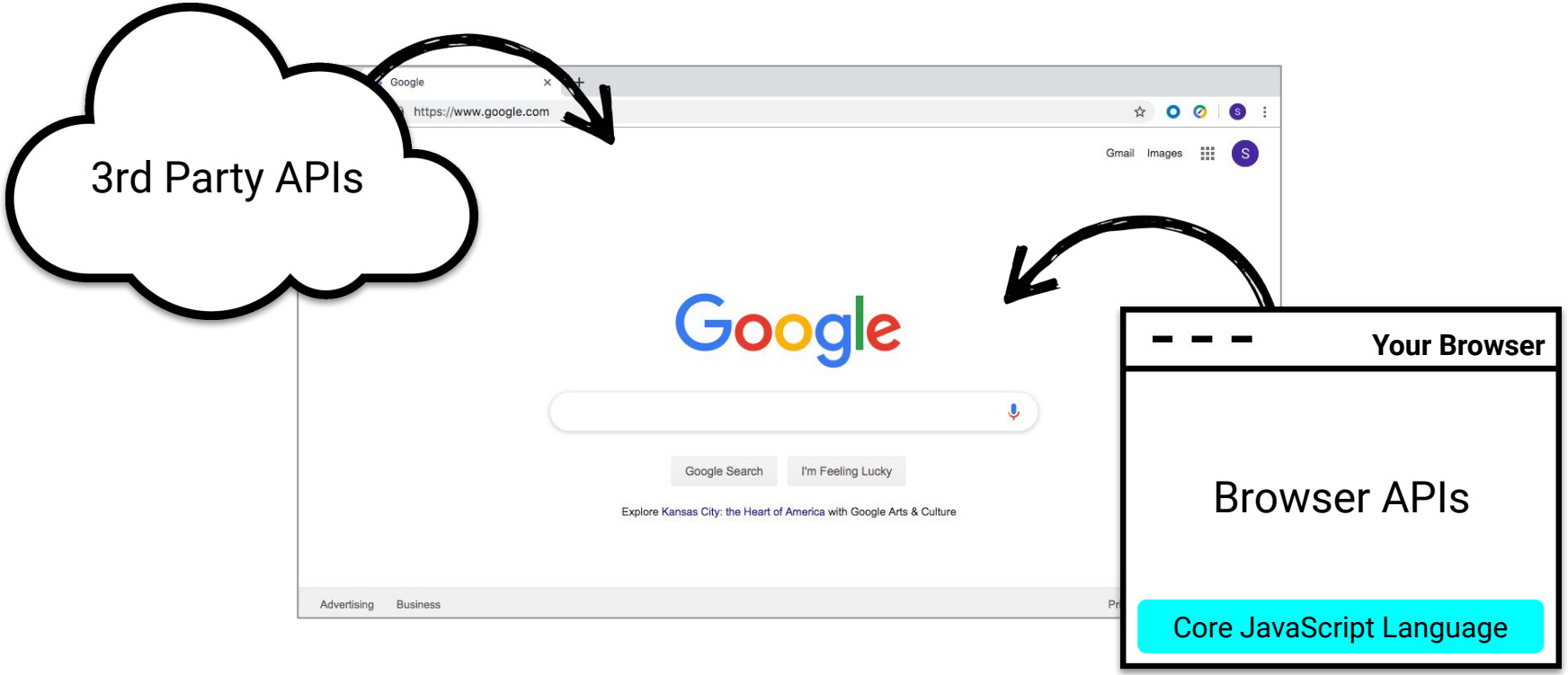
What Is an API?

An **application programming interface (API)** is a set of features and rules that exist inside a software program (the application) enabling interaction with it through software—as opposed to a human user interface.

— MDN Web Docs, developer.mozilla.org

API Recap

In software development, APIs are often the bridge between different components.



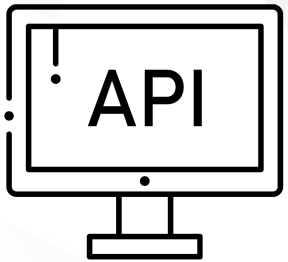
API Use Cases

Three Common Use Cases for APIs

01 Provide pre-built code for accessing and sending data to a centralized database (e.g., weather data, movie data from IMDB).

02 Provide pre-built code for creating or utilizing other software components (e.g., Google Maps, Spotify tools).

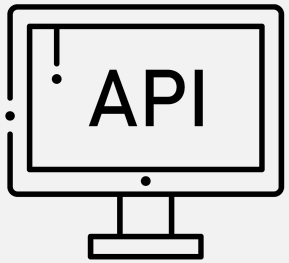
03 Interface with physical sensors or hardware devices (e.g., Nest thermostats, Philips Hue).

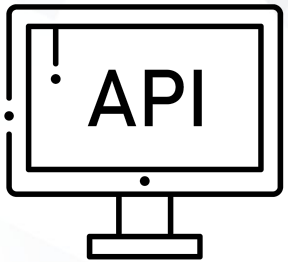


Use Case #1:
Accessing and Sending Data

Example:

Airbnb utilizes the Google Maps API to power its entire mapping service.





Use Case #2:
Utilizing Pre-Built Code

Use Case #2: Utilizing Pre-Built Code

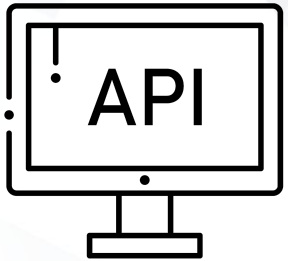
```
var context;
  var request;
  var source;

  try {
    context = new AudioContext();
    request = new XMLHttpRequest();
    request.open("GET","http://jplayer.org/audio/mp3/RioMez-01-Sleep_together.mp3",true);
    request.responseType = "arraybuffer";

    request.onload = function() {
      context.decodeAudioData(request.response, function(buffer) {
        source = context.createBufferSource();
        source.buffer = buffer;
        source.connect(context.destination);
        // auto play
        source.start(0); // start was previously noteOn
      });
    };

    request.send();

  } catch(e) {
    alert('web audio api not supported');
  }
```

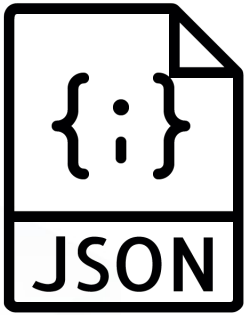


Use Case #3:

Controlling Physical Hardware

Nest Smart Thermostat API: developer.nest.com
Philips Hue API: developers.meethue.com
NodeBots (Cylon.js) API: cylonjs.com

JSON Recap



What Is JSON?

JSON stands for **JavaScript Object Notation** and is nothing more than simple JavaScript objects used as a **data interchange format.**

JSON Recap

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

```
"apiVersion":"2.0",
 "data":{
    "updated":"2010-01-07T19:58:42.949Z",
    "totalItems":800,
    "startIndex":1,
    "items":[
        {"id":"hYB0mn5zh2c",
         "uploaded":"2007-06-05T22:07:03.000Z",
         "updated":"2010-01-07T13:26:50.000Z",
         "uploader":"GoogleDeveloperDay",
         "category":"News",
         "title":"Google Developers Day US - Maps API Introduction",
         "description":"Google Maps API Introduction ...",
         "tags":["GDD07","GDD07US","Maps"],
         "duration":2840,
         "rating":4.63,
         "viewCount":220101,
         "favoriteCount":201,
         "commentCount":22
        }
    ]
 }
```

Getting Data

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


AJAX

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

AJAX

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

```
<script src='http://code.jquery.com/jquery-2.1.3.min.js'></script>
<script type="text/javascript">
    var type = 'the+matrix';
    var queryURL = "http://www.omdbapi.com/?t=" + type + "&y=&plot=short&r=json";

    $.ajax({url: queryURL, method: 'GET'})
     .done(function(response) {
         console.log(response);
    });

</script>
```

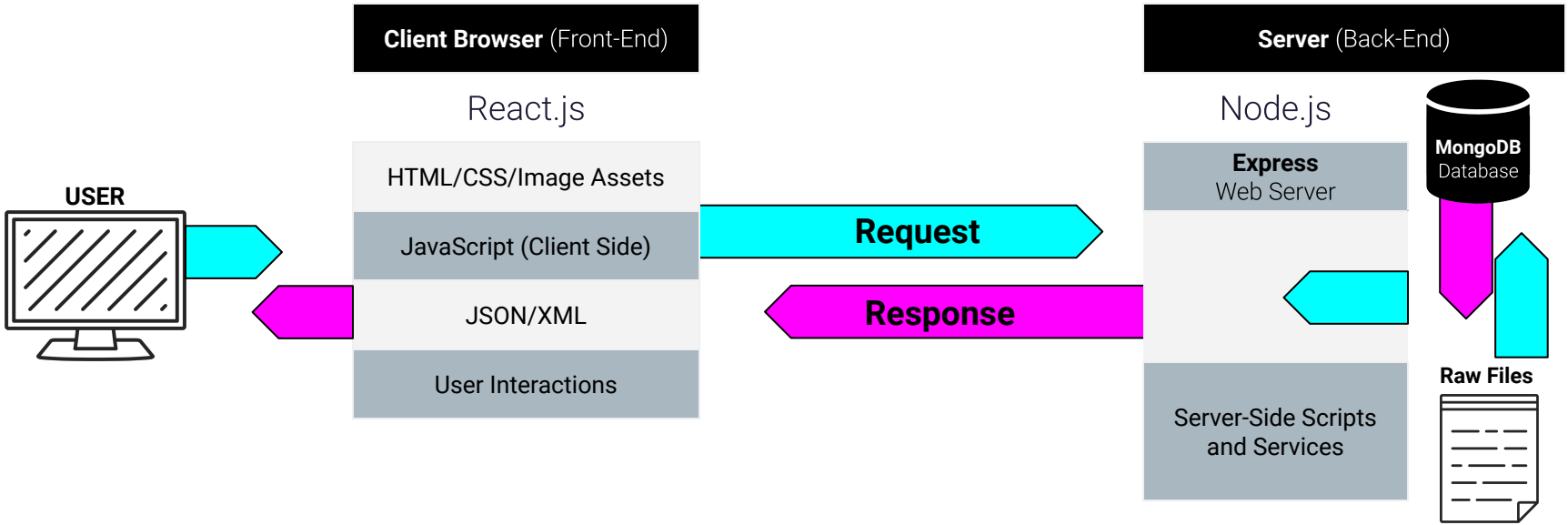
url

'GET' method

Knowledge Is Power

Welcome to Full-Stack Development

Full-stack development refers to the development of *every* aspect of the web application, from visuals and interactions to data transfer and processing.



AJAX and API Overview

At this point, you should know:

01 The definition of API

02 The definition of JSON

03 Why AJAX methods are used (i.e., retrieving data in databases).

04 How to create a basic AJAX get request using jQuery (i.e., include URL and '`GET`').

Students Do: The Weather in Bujumbura

Using either bujumbura-easier.html or bujumbura-harder.html

- Query the OpenWeatherMap API for the current weather data on Bujumbura, Burundi.
- Log the retrieved data from this query to console.
- Parse the retrieved data to display wind speed, humidity, and temperature information into the HTML.
- **HINT: You will need to request an API key from the website.**

Suggested Time: 15 minutes

Students Do: Movie App JSON Dump

07-MovieButtonLayout

- Using movie-json-dump.html in 06-MovieJSONDump as starter code
- Add functionality such that clicking Movie Search triggers an AJAX call to the OMDb database
- The JSON “stringified” response to be appended onto the page. (In the “#movie-view” div)

Suggested Time: 15 minutes

Students Do: Dynamic Movie Button Layout

Using either movie-button-layout-easier.html or movie-button-layout-harder.html as a starting-point, replicate the functionality of the application just demonstrated to you.

- HINT: No AJAX in this Activity, Just creating buttons
- Dynamically generate the initial buttons using jQuery
- Allow users to create new buttons upon entering text in the textbox and clicking Add a Movie Yo.
- If you finish early, begin reading about the Bands In Town API. Try to understand how to search for a specific artist.

Suggested Time: 15 minutes

Students Do: Log Movie JSON & Click JSON Data Attribute

8-LogMovieName/log-movie-name.html 09-ClickJSON/click-json.html

Using the starter code provided, create the missing code snippets inside the **alertMovieName function** necessary to capture the movie name for both the original and new buttons. (Function just needs to alert the Movie Name)

Using the Starter code provided, create the missing code snippets inside the displayMovieInfo() function necessary to display JSON data about each movie.

HINT: You should use HTML data- attributes.

HINT: You will need to request an API key from the website.

Suggested Time: 15 minutes

Students Do: Complete Working Movie App

10-WorkingMovieApp

- Using either version of the starter code provided to you, complete the application so that various snippets of information about your movie are displayed underneath.

- As a suggestion, display at least each of the following:
  Movie Poster, Rating, Release Date, Plot

Suggested Time: 25 minutes

Questions?