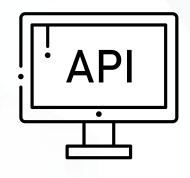


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What Is an API?

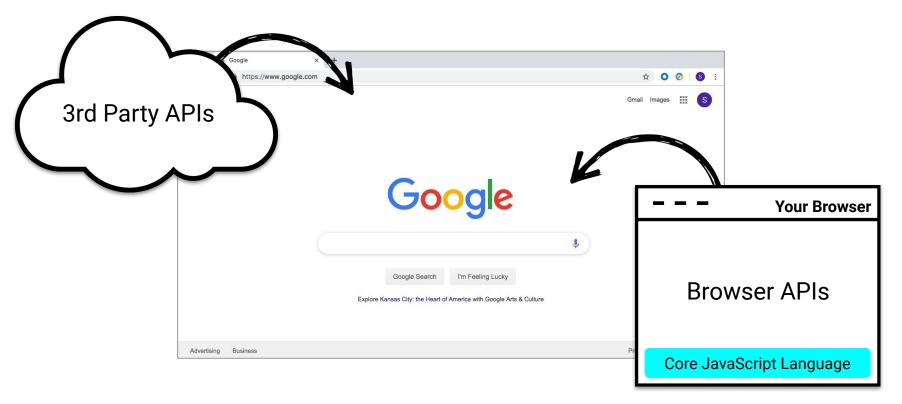


An application programming interface (API) is a set of features and rules that exist inside a software program (the application) enabling interaction with it through software—as opposed to a human user interface.

- MDN Web Docs, developer.mozilla.org

API Recap

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





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).

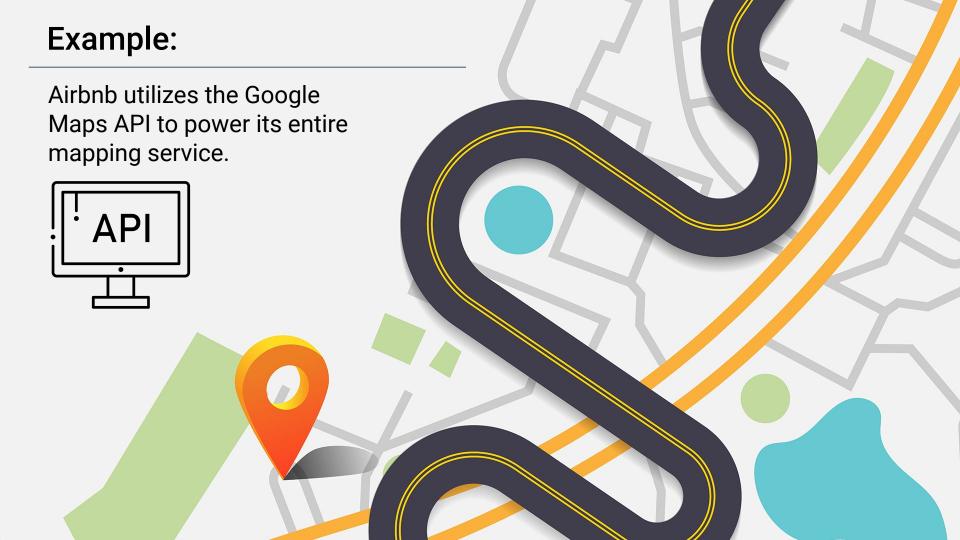


Interface with physical sensors or hardware devices (e.g., Nest thermostats, Philips Hue).



Use Case #1:

Accessing and Sending Data





Use Case #2:Utilizing Pre-Built Code

Use Case #2: Utilizing Pre-Built Code

```
var context:
      var request;
      var source;
 4
 5
      try {
 6
        context = new AudioContext();
        request = new XMLHttpRequest();
        request.open("GET", "http://jplayer.org/audio/mp3/RioMez-01-Sleep_together.mp3", true);
        request.responseType = "arraybuffer";
 9
10
11
        request.onload = function() {
          context.decodeAudioData(request.response, function(buffer) {
12
13
            source = context.createBufferSource();
14
            source.buffer = buffer;
            source.connect(context.destination);
15
16
            // auto play
17
            source.start(0); // start was previously noteOn
          3);
18
19
        1:
20
21
        request.send();
22
23
      } catch(e) {
24
        alert('web audio api not supported');
25
```

developer.mozilla.org



Use Case #3:

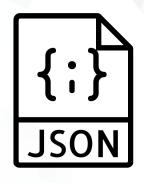
Controlling Physical Hardware

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

Philips Hue API: <u>developers.meethue.com</u>

NodeBots (Cylon.js) API: cylonjs.com





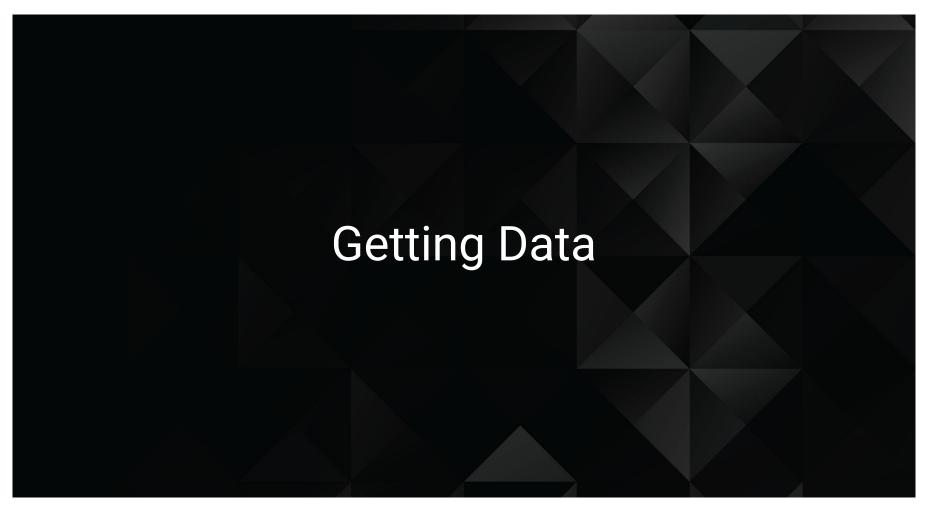
What Is JSON?

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",
10
             "uploader": "GoogleDeveloperDay",
             "category": "News",
             "title": "Google Developers Day US - Maps API Introduction",
13
             "description": "Google Maps API Introduction ...",
             "tags":["GDD07","GDD07US","Maps"],
14
             "duration": 2840.
15
             "rating": 4.63,
16
             "viewCount": 220101.
             "favoriteCount": 201,
18
             "commentCount":22
19
20
21
```





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





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?

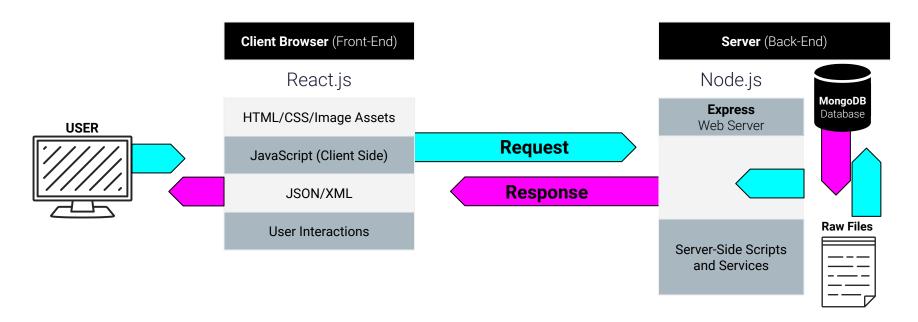
```
<script src='http://code.jquery.com/jquery-2.1.3.min.js'></script>
 8 ▼ ⟨script type="text/javascript"⟩
       var type = 'the+matrix';
       var queryURL = "http://www.omdbapi.com/?t=" + type + "&y=&plot=short&r=json";
10
11
12 ▼
       $.ajax({url: queryURL, method: 'GET'})
         .done(function(response)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

AJAX and API Overview

At this point, you should know:



The definition of API

02

The definition of JSON

(03)

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

 $\left(04\right)$

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

