



CS55.11 JavaScript

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Week 8



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The History of AJAX

1. Ajax is not a technology, but a group of technologies.
2. JavaScript and the XMLHttpRequest object provide a method for exchanging data asynchronously between browser and server to avoid full page reloads.
3. The DOM is accessed with JavaScript to dynamically display – and allow the user to interact with – the information loaded.
4. HTML and CSS can be used in combination to mark up and style information.

The History of AJAX

5. The term “Ajax” was publicly stated on Feb 18, 2005 by Jesse James Garrett in an article titled “Ajax: A New Approach to Web Applications”.
6. On April 5, 2006, the World Wide Web Consortium (W3C) released the first draft specification for the *XMLHttpRequest* object in an attempt to create an official Web standard.
7. The latest draft of the XMLHttpRequest object was published on January 30, 2014.

What Goes Inside Curly Braces in JavaScript

1. Blocks of code

```
function x() {  
    document.write( 'Hello' );  
}
```

2. Objects (property lists)

```
{  
    position : mapCoords,  
    map : map1,  
    title : "Marker location"  
}
```

Objects in JavaScript

- 1. You can declare an object value for any variable.**

```
var car = {  
  type : "Fiat",  
  model : "500",  
  color : "white"  
};
```

Objects in JavaScript

2. Access property values of objects with dot notation.

```
var car = {  
  type : "Fiat",  
  model : "500",  
  color : "white"  
};  
console.log( car.color );
```

JavaScript Object Notation

JSON

1. JSON is short for JavaScript Object Notation.
2. JSON is a way to store information in an organized, easy-to-access manner.
3. JSON gives us a human-readable collection of data that we can access in a logical manner.
4. JSON uses the object notation of JavaScript, but with quoted names.

JavaScript Object Notation

JSON

➔ JSON uses quoted property names.

```
var car = {  
  "type" : "Fiat",  
  "model" : "500",  
  "color" : "white"  
};  
console.log( car.color );
```


JavaScript Object Notation

JSON

1. Question: Why not allow the name in the name/value pairs to be unquoted identifiers?

The design philosophy of JSON is “Keep it simple.”

Quote names with "".

This rule is just simpler than...

You may quote names with " or ' but you don't have to, unless they contain certain characters (or combinations of characters that would make it a keyword) and ' or " may need to be quoted depending on what delimiter you selected.

JavaScript Object Notation

JSON

```
var car = {  
  type : "Fiat",  
  model : "500",  
  color : "white"  
};
```

```
var car = {  
  "type" : "Fiat",  
  "model" : "500",  
  "color" : "white"  
};
```

2. Question: Is there a semantic difference between the two representations above, when evaluated in Javascript?

No. In JavaScript they are identical.

JavaScript Object Notation

JSON

- ➔ Inside the object, we can declare any number of properties using a "name": "value" pairing, separated by commas.

```
var car = {  
  "type": "Fiat",  
  "model": "500",  
  "color": "white"  
};  
console.log( car.color );
```

JavaScript Object Notation

JSON

- ➔ We may also store an array of JSON Data.
Take an example involving storage of two cars' info in one variable.

```
var cars = [  
  {  
    "type" : "Ford",  
    "model" : "C Max",  
    "color" : "red"  
  },  
  {  
    "type" : "Honda",  
    "model" : "Civic",  
    "color" : "white"  
  }  
];
```

JavaScript Object Notation

JSON

- We can use array and dot notation together to access property values for individual array items.

```
var cars = [ {  
    "type" : "Ford",  
    "model" : "C Max",  
    "color" : "red"  
},  
{  
    "type" : "Honda",  
    "model" : "Civic",  
    "color" : "white"  
} ];  
console.log( cars[0].type );
```

JavaScript Object Notation

JSON

➔ **How Do We Load JSON into a Project?**

One of the easiest ways to load JSON data into our web applications is to use the the jQuery library.

A number of built-in methods exist including `$.ajax()` and `$.getJSON()`.

JavaScript Object Notation

JSON

➔ **Steps to load external JSON from a file.**

- **invoke jQuery getJSON() method...**

- 1. provide a URL for JSON file**

- 2. provide a block of code to run when JSON is loaded.**

✓ **Browser security may prevent loading JSON from local file:// protocol - UPLOAD!**

JavaScript Object Notation

JSON

➔ Disabling security on Chrome for testing

```
ons/Google\ Chrome.app/Contents/MacOS/Google\ Chrome --user-data-dir="/tmp/chrome_dev_session" --disable-web-security
```

- run from command prompt / line

You are using an unsupported command-line flag: --disable-web-security. Stability and security will suffer.

- ✓ See <http://superuser.com/questions/593726/is-it-possible-to-run-chrome-with-and-without-web-security-at-the-same-time>

JavaScript Object Notation

JSON

➔ **How Do We Create JSON Easily?**

Multiple browser-based visual editing tools exist to help you create JSON-structured data.

Or you may find a code editor easier.


<http://www.jsoneditoronline.org/>

Steps for Dynamic Mapping

1. **Load the Google Maps API JavaScript library file (after getting API key).**
2. **Provide an HTML element as map container.**
3. **Prepare map options.**
4. **Call Google Map API library to create Map object in HTML container.**
5. **Create and add markers from JSON data in a loop.**

<https://developers.google.com/maps/documentation/javascript/get-api-key>

Basic Steps to Create a Map




```
<!-- Load the Google Maps API library -->  
<script type="text/javascript"  
src="https://maps.google.com/maps/api/js?key=AIzaSyANwuVysbRlA9s-4mgKvkdxL0ODklj-Hhg"></script>
```

1. Load Google Maps API Library.

Note: You must get a free API key first!


Basic Steps to Create a Map



```
<div id="map-container" style="height:400px;width:600px;">  
</div>
```

2. Provide HTML element as map container.

Basic Steps to Create a Map



```
var mapOptions = {  
  zoom: 10,  
  center: mapCoords  
};
```

3. Prepare map options.

Basic Steps to Create a Map

```
var map1 = new google.maps.Map(document.getElementById("map-container"), mapOptions);
```

4. Call Google Maps API library to create map within HTML container.