JSON: The Basics

BUILT IN FAIRFIELD COUNTY:
FRONT END DEVELOPERS MEETUP
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About Jeff Fox (@jfox015)

- 16 year web development professional
- (Almost) entirely self taught
- Has used various Ajax-esque data technologies since 2000, including XML, MS data islands and AMF for Flash
- Develops JavaScript based web apps that rely on JSON for data workflow

Overview

- What is JSON?
- Comparisons with XML
- Syntax
- Data Types
- Usage
- Live Examples

What is JSON?

JSON is…

- A lightweight text based data-interchange format
- Completely language independent
- Based on a subset of the JavaScript Programming Language
- Easy to understand, manipulate and generate

JSON is NOT…

- Overly Complex
- A “document” format
- A markup language
- A programming language

Why use JSON?

- Straightforward syntax
- Easy to create and manipulate
- Can be natively parsed in JavaScript using **eval()**
- Supported by all major JavaScript frameworks
- Supported by most backend technologies

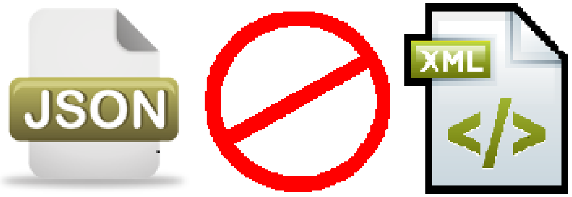
JSON vs. XML

Much Like XML

JSON ✓ XML </>

- Plain text formats
- “Self-describing“ (human readable)
- Hierarchical (Values can contain lists of objects or values)

Not Like XML



- Lighter and faster than XML
- JSON uses typed objects. All XML values are type-less strings and must be parsed at runtime.
- Less syntax, no semantics
- Properties are immediately accessible to JavaScript code

Knocks against JSON

- Lack of namespaces
- No inherit validation (XML has DTD and templates, but there is JSONlint)
- Not extensible
- It’s basically just ***not*** XML

Syntax

JSON Object Syntax

- Unordered sets of name/value pairs
- Begins with { (left brace)
- Ends with } (right brace)
- Each name is followed by : (colon)
- Name/value pairs are separated by , (comma)

JSON Example

```
var employeeData = {
  "employee_id": 1234567,
  "name": "Jeff Fox",
  "hire_date": "1/1/2013",
  "location": "Norwalk, CT",
  "consultant": false
};
```

Arrays in JSON

- An ordered collection of values
- Begins with [(left bracket)
- Ends with] (right bracket)
- Name/value pairs are separated by , (comma)

JSON Array Example

```
var employeeData = {
  "employee_id": 1236937,
  "name": "Jeff Fox",
  "hire_date": "1/1/2013",
  "location": "Norwalk, CT",
  "consultant": false,
   "random_nums": [ 24,65,12,94 ]
};
```

Data Types

Data Types: Strings

- Sequence of 0 or more Unicode characters
- Wrapped in "double quotes“
- Backslash escapement

Data Types: Numbers

- Integer
- Real
- Scientific
- No octal or hex
- No NaN or Infinity – Use **null** instead.

Data Types: Booleans & Null

- Booleans: true or false

- Null: A value that specifies nothing or no value.

Data Types: Objects & Arrays

- Objects: Unordered key/value pairs wrapped in { }
- Arrays: Ordered key/value pairs wrapped in [ ]

JSON Usage

How & When to use JSON

- Transfer data to and from a server
- Perform asynchronous data calls without requiring a page refresh
- Working with data stores
- Compile and save form or user data for local storage

Where is JSON used today?

- Anywhere and everywhere!

CNN
f
Y!
TM
g
in
t
ESPN

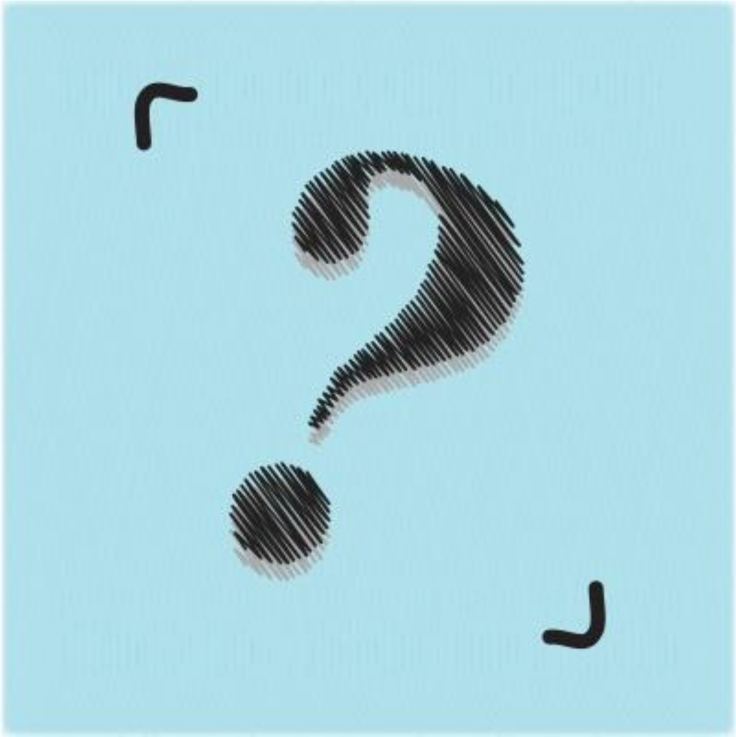
And many,
many more!

Simple Example

Simple Demo

- Build a JSON data object in code
- Display raw output
- Display formatted output
- Manipulate via form input

Questions?



Resources

- Simple Demo on Github: https://github.com/jfox015/BIFC-Simple-JSON-Demo
- Another JSON Tutorial: http://iviewsource.com/codingtutorials/getting-started-with-javascript-object-notation-json-for-absolute-beginners/
- JSON.org: http://www.json.org/

THANK
YOU