JSON JavaScript Object Notation

The Fat-Free Alternative to XML*

* www.json.org/fatfree.html

Who are you?

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Business Systems Developer (Jack-of-all-Trades)

Administrative & Residential Information Technology (ARIT)

UCSB:1.5 years

Webmaster at Santa Barbara Bank & Trust: 13 years

Writing web applications for almost 20 years. (Perl in 1996)

What is it?

- Data format using text to represent objects.

- Representation of objects and other data types.

- Serialized JavaScript Objects.

What is it good for?

Moving data!

- Website back-end to the front-end.

- Website to a Mobile App.

- Database to an Application.

Why Web Standards Group?

A tenet of the Web Standards Group is:

Keep content separate from presentation.

JSON can be a robust yet simple method to accomplish this best practice.

What does it look like?

```
{
    "FirstName" : "Leroy",
    "IsEnrolled" : true,
    "PermNumber" : "1234567",
    "Age": 25
}
```

What is the format?

JSON uses name/value pair.

The name is a double quoted string, then a colon, and finally the value which may be quoted, depending on the data type.

"name" : "value"

Tell me more about format.

JSON is always wrapped in curly braces.
Name/value pairs are separated by commas.

{ "name" : "Leroy", "age" : 25 }

What are the data types?

JSON uses simple types of data.

Everything can be represented by grouping these together.

String (text)
Number (integer/decimal)
Boolean (true/false)
Array (List of things)
Object (Group of things)
Null (Nothing, nadda, zilch)

Data Examples Please!

String

"name" : "value",

"Location" : "Santa Barbara, CA",

"Climate": "Just Fine"

Numbers

"FavNum" : 25,

"Gigawatts" : 1.21,

"TheAnswer : 42,

"Pi" : 3.14159265359,

"G" : 01000111

Data Examples Please!

Boolean

"name" : true,

"key" : false

Null

"name" : null

Other JSON types

"name" : { json-object }

"name" : [json-array]

JSON Array?

A JSON array list a list of like things. They can be any other data type including other arrays.

Arrays use square brackets [ ].

[1, 2, 3, 4, 5, 6, 7]

["a", "b", "c", "1", "2"]

[true, false, true]

["Ab","Cd",null,"Gh"]

[[1,2],["a","b"],[],[true]]

[{"a":"b"},{"a":"c"},{}]

JSON Object?

A JSON object is a grouping of related items. Each item is named unlike arrays.

Objects use curly braces { }.

```
{   "Name": "Leroy",
    "Address": {
        "City": "SB",
        "State": "CA" },
    "Active": true
}
```

What about comments?

All code has "comments"; notes that are human readable but ignored by the computer.

JSON has no built-in comments like XML but the standard practice is to create a field for your comments which is not used by your application.

APIs

A Sampling of JSON APIs

- https://developers.google.com/maps/documentation/javascript/datalayer#sample_geojson

- http://wiki.servicenow.com/index.php?title=JSONv2_Web_Service

- https://www.flickr.com/services/api/response.json.html

- https://www.apple.com/itunes/affiliates/resources/documentation/itunes-store-web-service-search-api.html#understand

- https://dev.twitter.com/rest/reference/get/statuses/user_timeline

MongoDB

A NoSQL database that uses Binary JSON known as BSON.

http://docs.mongodb.org/manual/core/crud-introduction/

JavaScript

Natively "consume" JSON

```
var person1 = {"name": "Leroy", "id": 25 };
var person2 = {name: "Jackson", id: 42 };

alert(person1.name);      // Leroy
alert(person2.id);        // 42
```

Encoders and Decoders

PHP

php.net/manual/en/book.json.php

C#

james.newtonking.com/json

Python

docs.python.org/3/library/json.html

Live Demo

C# and PHP garster.github.io/presentations/json/

- Server-Side Object + JSON Serialize.
- View JSON data in browser.
- Consume with JavaScript.

Lottery Tracker: lottery.garyscott.net

The End

JSON is quick, easy, and used everywhere.

You can use it in your next web project.

Thank you!