JavaScript for PHP Developers

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#tekX #js4php
http://joind.in/1564
What is this?
A practical overview of JS for the PHP developer

Stop c+p'ing, start writing

- get you to stop copying and pasting and start writing JS
I'm too dumb for that

NOT CS-oriented
My experiences and best practices

FWIW
JavaScript dev is opinionated

JS devs are kind of dickheads
History of JavaScript
Brendan Eich
"Mocha"
"LiveScript"
"JavaScript"

Seemed like a good idea at the time

ECMAScript

Yeesh
Core JavaScript
Baseline is JS 1.5

aka ECMAScript 3, circa 1999
Dynamically typed

Hey, I know that!
Object-based
Object-oriented

But not how you think
Functional

First class, baby!

Pass functions as parameters
Declare functions anywhere
Anonymous ("lamba") functions used a lot
Like giving clay to a monkey
Core is pretty darn small

You mean I don't have to memorize 4,500 function names?
## Core JS

<table>
<thead>
<tr>
<th>Core Objects</th>
<th>Core Global Functions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boolean</td>
<td>decodeURI</td>
</tr>
<tr>
<td>Number</td>
<td>decodeURIComponent</td>
</tr>
<tr>
<td>String</td>
<td>encodeURI</td>
</tr>
<tr>
<td>Array</td>
<td>encodeURIComponent</td>
</tr>
<tr>
<td>Object</td>
<td>eval</td>
</tr>
<tr>
<td>Function</td>
<td>isFinite</td>
</tr>
<tr>
<td>RegExp</td>
<td>isNaN</td>
</tr>
<tr>
<td>Date</td>
<td>parseFloat</td>
</tr>
<tr>
<td></td>
<td>parseInt</td>
</tr>
</tbody>
</table>
What's missing?

All the cool stuff!
File i/o
Networking
DB APIs
Yep, the DOM is not part of JavaScript
So what's it good for?

Please don't leave yet.
So what's it good for?

Please don't leave yet.
Asynchronous actions

What?
Like GUI stuff

Oh!
Browsers!
Web Runtime Platforms!
Widget engines!

Dear God
Server-side platforms
Node.js

http://nodejs.org/
Narwhal

http://narwhaljs.org/
v8cgi

http://code.google.com/p/v8cgi/
SSJS isn't terribly mature

Don't quit your day job
Syntax
C/Java-like

Like PHP!
Variable names don't start with '$_'

But they can.
Concatenation with '+'

Not dot.
Dot for members. Or []

Not '->'. You will screw this up.
Always case-sensitive

You will also screw this up.
Semicolons are optional

But you had better always use them
CODE TIME

Semicolons!
Data Types

"Primitives"
Numbers

Integers and floats
Booleans

Truthy
Strings
null

Not NULL, not Null.
undefined

Declared, but no value set. Not the same as null
That's it.
Other elements
Objects

MDC: "Named containers for values"
Arrays, Date, RegExp

All objects
Functions

MDC: "Procedures your application can perform"
Scope

Hang on!
More bleed than PHP
Globals automatically available

No need for global declaration
Declaring variables

With or without
With `var` scope maintained
Without `var`

Oops! Automatically global
Globals are properties of global object

`window` in browsers
CODE TIME

globals!
Closures

This is awesome
Using a var from outside function

Anything within context of function declaration is fair game

Don’t need to declare this with "use" as in PHP5.3
CODE TIME

Closures
Literals

Literally
Numbers

Right.
Booleans

Yep.
RegExp

Hmmm.
'a','r','r','a','y','s';

Hey there.

This is such a pain in the ass to do in PHP. numeric index-only, though
{object:"literals"};

Oh snap!

This is even worse in PHP.
CODE TIME

Literals
Operators
Mostly like PHP

+ , = == === <> ! && ||
Actually like PHP, but scope bleed means it is less predictable
new

Remember, no classes in JS
Does this key exist?
instanceof

"is X of type Y?"
typeof

Returns string of core type
<table>
<thead>
<tr>
<th>typeof</th>
<th>returns</th>
</tr>
</thead>
<tbody>
<tr>
<td>typeof {}</td>
<td>&quot;object&quot;</td>
</tr>
<tr>
<td>typeof function() {}</td>
<td>&quot;function&quot;</td>
</tr>
<tr>
<td>typeof new Function()</td>
<td>&quot;function&quot;</td>
</tr>
<tr>
<td>typeof true</td>
<td>&quot;boolean&quot;</td>
</tr>
<tr>
<td>typeof new Date();</td>
<td>&quot;object&quot; // not &quot;date&quot;; use instanceof</td>
</tr>
<tr>
<td>typeof [1,2,3]</td>
<td>&quot;object&quot; // not &quot;array&quot;</td>
</tr>
<tr>
<td>typeof NaN</td>
<td>&quot;number&quot;</td>
</tr>
<tr>
<td>typeof null</td>
<td>&quot;object&quot;</td>
</tr>
<tr>
<td>typeof undefined</td>
<td>&quot;undefined&quot;</td>
</tr>
</tbody>
</table>

"not a number" is a number, apparently
Type conversion
parseInt(val, [radix])

Radix is optional, but Douglas Crockford will hate you
parseFloat(val)

Like parseInt, returns NaN if cannot convert
String(obj)
Number(obj)
Boolean(obj)

http://jibbering.com/faq/notes/type-conversion/
Functions
In the procedural tradition
As objects
As constructors
Function arguments

An array, kind of
CODE TIME

Fun with functions
Objects
As hashes

Or associative arrays
As static modules
CODE TIME

Objects as modules
As instance-able objects

Not a word
No classes

Just make the object and have a constructor func
No visibility levels

No public, private, protected
Prototypes & inheritance
Every object has a prototype
Prototype provides attributes of object
Modifying prototype changes all objects that use it
Prototype has `.constructor`

points to constructor function of object
CODE TIME

Prototypes and inheritance
Dates

Kinda suck in JS
eval()

Almost a necessary evil
Malleability

That again

- You can dynamically redefine almost any object property in JS
- Many JS frameworks extend code objects
  - I generally don't like this
  - can cause unexpected behavior (for...in)
  - can cause compatibility issues
- People do this because in many cases they HAVE to
  - JS code is so small that it, in many ways, forces strong, divergent implementations
BREAK TIME

Cookies???
JS in the browser

- Most common context
- Incredibly rich, diverse community
  - much like PHP
Execution model

Non-sequential, long-running
Single threaded
Browser compatibility

Oh the humanity
DOM APIs

Woo wee!
Elements and events

Words and pictures and movin' stuff!
These are terrible

Trust me
I'm not going to teach you these

They suck
Just use jQuery

Basically fixes everything

No, it's not the only way, but it's very good, very compatible, and very popular
CODE TIME

DOM manipulation and events

* Spaz Keyboard Nav Text example;
* SpazMenu
HTTP interaction
JSON is love
Use JSON2.js
Newer browsers have native implementations
CODE TIME

Web APIs, woooooooooo!
Resources: Code

• SpazCore
  http://github.com/funkatron/spazcore

• Underscore.js
  http://documentcloud.github.com/underscore/

• http://delicious.com/funka7ron/javascript
Contents:

Resources: Web

- Mozilla Dev Center: Code JavaScript Guide
  https://developer.mozilla.org/en/Core_JavaScript_1.5_Guide

- Mozilla Dev Center: Core JavaScript Reference
  https://developer.mozilla.org/en/Core_JavaScript_1.5_Reference

- Eloquent JavaScript
  http://eloquentjavascript.net/

- comp.lang.javascript FAQ
  http://jibbering.com/faq/

- Nicholas C. Zakas' Blog
  http://www.nczonline.net/

- John Resig's Blog
  http://ejohn.org/

- http://wtfjs.com/
Resources: Books

- JavaScript: The Definitive Guide
  David Flanagan

- JavaScript: The Good Parts
  Douglas Crockford

- High-Performance JavaScript
  Various
References
References

• Mozilla Dev Center: Core JavaScript Guide
• Eloquent JavaScript