



RICH AND SNAPPY APPS

**(NO SCALING
REQUIRED)**

**BY AMY HOY
AND THOMAS FUCHS
[HTTP://SLASH7.COM/COMPANY](http://slash7.com/company)**



@amyhoy

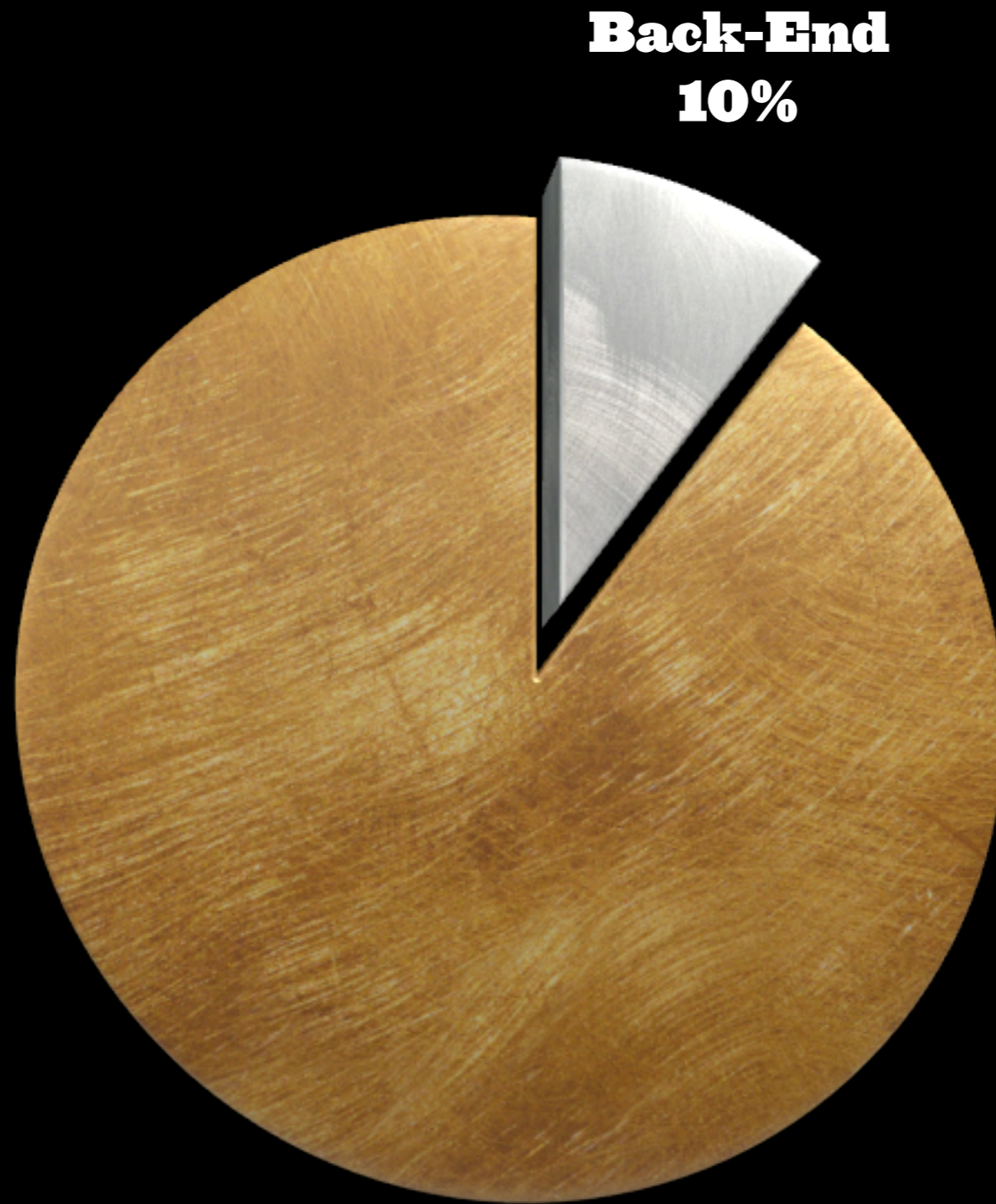
@thomasfuchs



PERF ORMA NCE

“In A/B tests, we tried delaying the page in increments of 100 milliseconds and found that even very small delays would result in substantial and costly drops in revenue.”

Greg Linden, Amazon.com



Back-End
10%

Front-End
90%

(NOT SCIENTIFIC)

JavaScript Rocks! presents...



JavaScript Performance Rocks

by *Thomas Fuchs & Amy Hoy*

find more awesome JavaScript stuff at <http://www.jsrocks.com>

225+ PAGES

```
<!DOCTYPE "xmlns:xsl='http://www.w3.org/1999/XS
Transform'"><html xmlns:java_code="xalan://
gov.blahblah.build.Utils2"><head><META http-equiv="Content-
Type" content="text/html; charset=UTF-8"><title>Blahblah -
Home
</title><!--SYSTEM DEFINED METADATA--><META content="IE=7"
http-equiv="X-UA-Compatible"><META NAME="CMS Document Id"
CONTENT="120186"><META NAME="dc.title" CONTENT="NASA -
Home"><META NAME="dc.format" CONTENT="text/html"><META
NAME="dc.date.modified" CONTENT="2009-06-27"><META
NAME="dc.language" CONTENT="en"><META NAME="dc.publisher"
CONTENT="Foobar"><META NAME="dc.description" CONTENT=""><META
NAME="dc.identifier" CONTENT="http://www.blahblah.gov/home/
index.html"><!--USER DEFINED METADATA--><META NAME="dc.subject"
CONTENT=""><title>Blahblah -
Home
</title><!--Standard Includes--><script src="/js/
191918main_browser_message.js" type="text/javascript"
language="javascript"></script>
<link type="text/css" rel="stylesheet" href="/css/
205608main_allmodules_homepage.css"><script
language="javascript" type="text/javascript" src="/
templateimages/redesign/browser/js/conditionalBrowser.js"></
script>
```

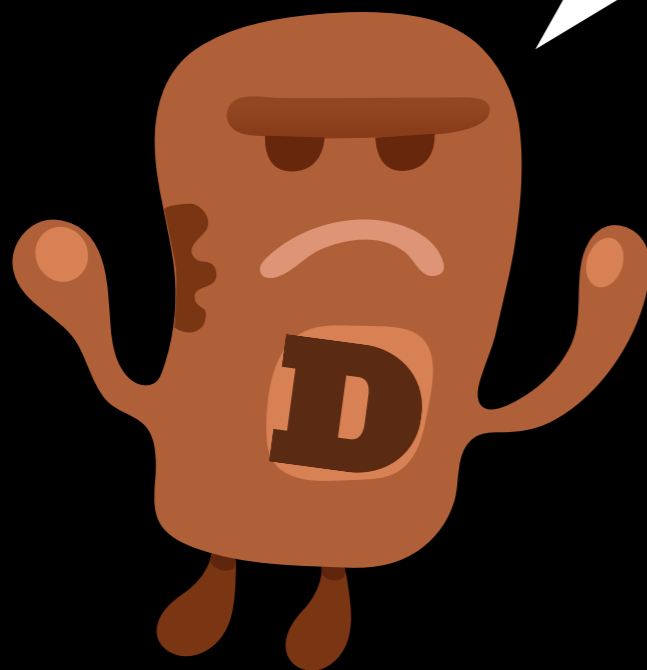
whoa, potentially huge issues 3 warnings indicate app ill-health

[close](#)

dom monster v1.1.2

- 2058 elements
- 3732 nodes
- 1624 text nodes
- 10.8 average nesting depth
- 151.3k serialized DOM size
- 0.004s serialization time

- WARN** Element count seems excessively high. Performance might improve if you reduce the amount of nodes.
- WARN** Nesting depth is very high. Some of the nodes are nested more than 15 levels deep (these are marked with a dashed red border).
- WARN** Found 70 `<script>` tags on page. Try to reduce the amount of script tags.
- TIP** There are 259 empty nodes. Removing them might improve performance.
- TIP** There are 1 nodes which use a deprecated tag name (`CENTER`). Try updating this content to HTML4.
- TIP** 19.4% of nodes are whitespace-only text nodes. Reducing the amount of whitespace, like line breaks and tab stops, can help improve the loading and DOM API performance of the page.
- TIP** There are 48 HTML comments. Removing the comments can help improve the loading and DOM API performance of the page.
- TIP** Your serialized DOM size is a little high. Performance might improve if you reduce the amount of HTML.
- TIP** Nesting depth is a little high. Reducing it might increase performance.
- TIP** Found 40 `<script>` tags in HEAD. For better perceived loading performance move script tags to end of document.
- TIP** Reduce the amount of `<link rel="stylesheet">` tags. There are 2 external stylesheets loaded on the page.
- TIP** Reduce the amount of tags that use the style attribute, replacing it with external CSS definitions. There are 125 nodes that use the style attribute.



DOM MONSTER

BOOKMARKLET

1. LOAD-TIME

2. RUN-TIME

3. FAKING IT

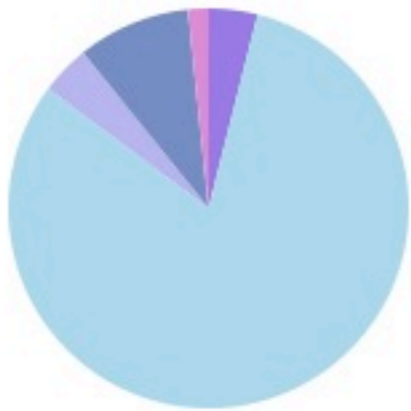
LOAD-TIME #1

EXPIRATION

HEADERS

WEIGHT GRAPHS

Empty Cache



HTTP Requests - 10

Total Weight - 45.2K

■	1 HTML/Text	1.7K
■	1 JavaScript File	36.7K
■	1 Stylesheet File	1.8K
■	6 CSS Image	4.1K
■	1 Image	0.7K

Primed Cache



HTTP Requests - 1

Total Weight - 1.7K

■	1 HTML/Text	1.7K
---	-------------	------

Primed Cache



HTTP Requests - 158

Total Weight - 127.7K

■	1 HTML/Text	20.6K
■	15 JavaScript File	1.6K
■	2 Stylesheet File	0.0K
■	14 IFrame	39.3K
■	2 Flash Object	0.0K
■	45 CSS Image	0.0K
■	77 Image	66.0K
■	2 Redirect	0.0K

**caching headers are good
but expiration is wrong**

LOAD-TIME #2

CONCATENATION

■	12 JavaScript File	318.2K
■	3 Stylesheet File	164.4K

not so good

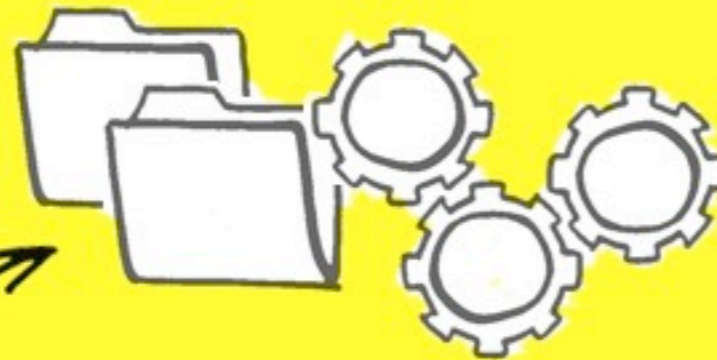
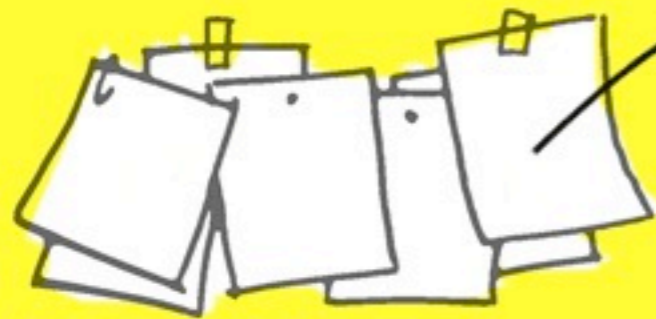
■	1 JavaScript File	36.7K
■	1 Stylesheet File	1.8K

optimized

SPROCKETS

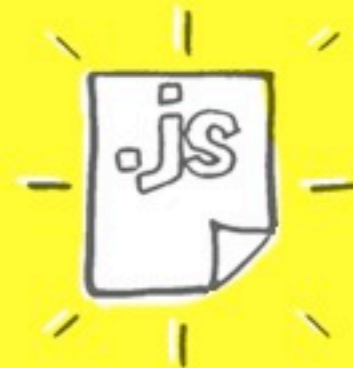
→ INSTALL & USE NOW

helps you turn
messy JavaScript



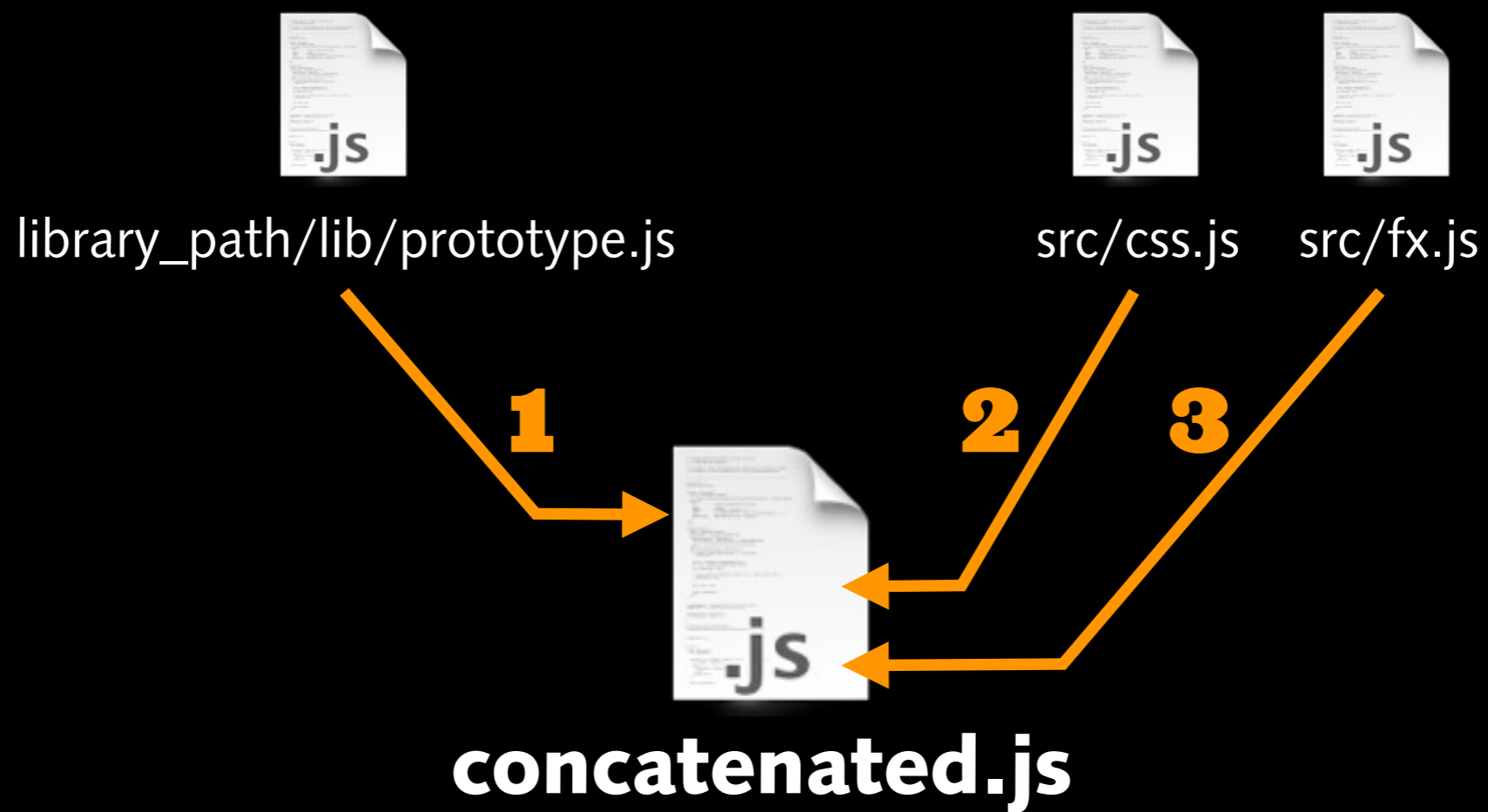
into clean modules
for development

and a single file
for deployment.



<http://getsprockets.org>

```
///  
///  
///  
// = require <prototype>  
// = require "css"  
// = require "fx"
```





YUI Compressor



concatenated.js



concatenated.min.js

<http://developer.yahoo.com/yui/compressor/>

LOAD-TIME #3

GZIP

prototype

138k



Original

80k



Minified

24k



Minified+GZIP

5.7X compression

**more than a second
faster on a 1MBit
connection**

1. LOAD-TIME

2. RUN-TIME

3. FAKING IT

RUN-TIME #1

HTML

COMPLEXITY

RUN-TIME #2

INLINE

FUNCTION CALLS

```
function methodCall(){
  function square(n){ return n*n };
  var i=10000, sum = 0;
  while(i-->0) sum += square(i);
}
```




```
function inlinedMethod(){
  var i=10000, sum = 0;
  while(i-->0) sum += i*i;
}
```

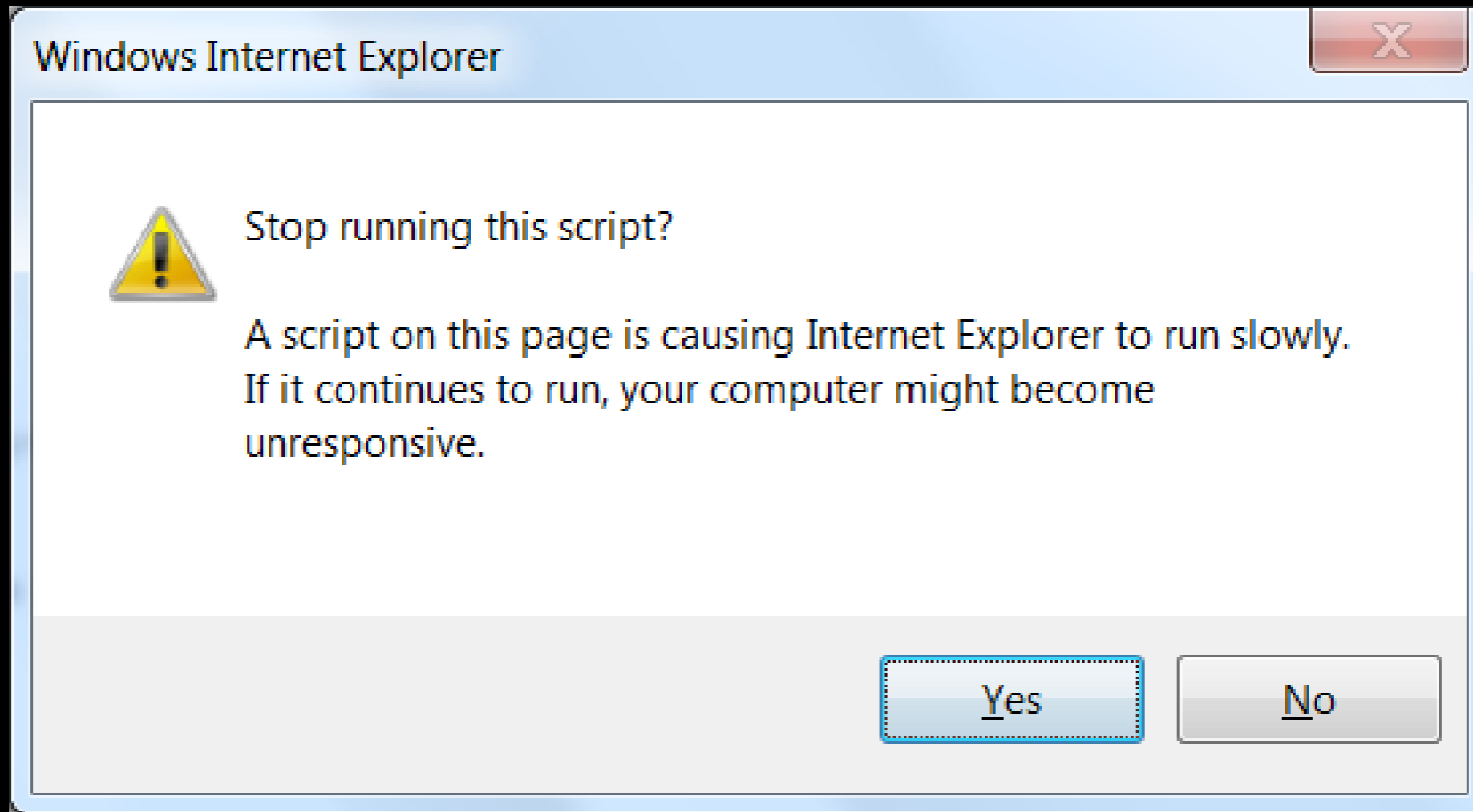
```
function methodCall(){  
    function square(n){ return n*n };  
    var i=10000, sum = 0;  
    while(i-->0) sum += square(i);  
}
```

```
function inlinedMethod(){  
    var i=10000, sum = 0;  
    while(i-->0) sum += i*i;  
}
```

```
function methodCall(){  
    function square(n){ return n*n };  
    var i=10000, sum = 0;  
    while(i-->0) sum += square(i);  
}
```

```
function inlinedMethod(){  
    var i=10000, sum = 0;  
    while(i-->0) sum += i*i;  
}
```

	<code>methodCall()</code>	<code>inlinedMethod()</code>
	0.410s	0.150s
	0.056s	0.045s
	uhm, ahh, hmm[†]	0.128s
	0.027s	0.016s



**IE8 THROWS THIS
WARNING AFTER 1SEC**





RUN-TIME #3

EMBRACE THE

LANGUAGE

```
function literals(){  
  var a = [], o = {};  
}
```





```
function classic(){  
  var a = new Array, o = new Object;  
}
```

	<code>classic()</code>	<code>literals()</code>
	0.291s	0.265s
	0.020s	0.016s
	0.220s	0.185s
	0.024s	0.010s

```
var string = '2';
```

```
function implicit(){  
    return 1 * string;  
}
```

```
function explicit(){  
    return parseInt(string);  
}
```

	<code>explicit()</code>	<code>implicit()</code>
	0.044s	0.054s
	0.012s	0.004s
	0.015s	0.036s
	0.080s	0.060s

RUN-TIME #4

GET RID OF LOOPS

```
function normalLoop(){  
    var i=60, j=0;  
    while(i-->0) j++;  
}
```

```
function unrolledLoop(){
```

```
  var j=0;
```

```
  j++; j++; j++; j++; j++; j++;
```

```
  j++; j++; j++; j++; j++; j++;
```

```
  j++; j++; j++; j++; j++; j++;
```

```
  j++; j++; j++; j++; j++; j++;
```

```
  j++; j++; j++; j++; j++; j++;
```

```
  j++; j++; j++; j++; j++; j++;
```





```
  j++; j++; j++; j++; j++; j++;
```

```
  j++; j++; j++; j++; j++; j++;
```

```
  j++; j++; j++; j++; j++; j++;
```

```
  j++; j++; j++; j++; j++; j++;
```

```
}
```

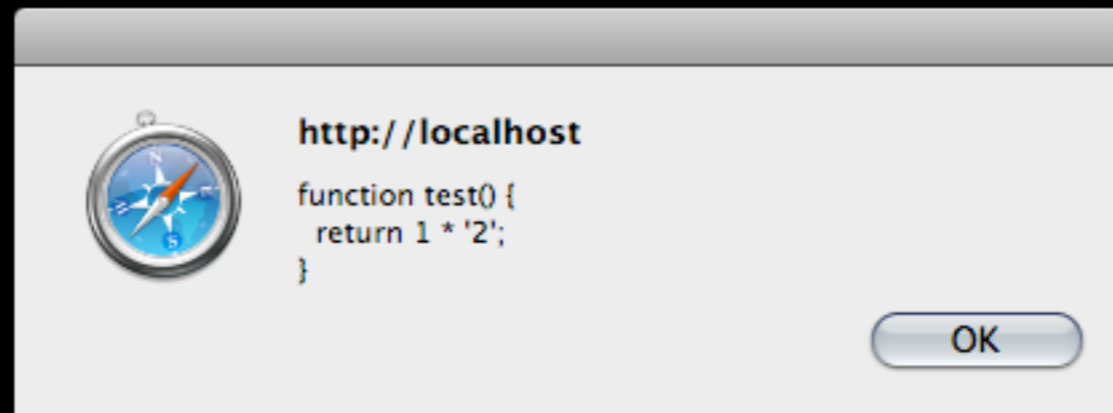
	<code>normalLoop()</code>	<code>unrolledLoop()</code>
	0.023s	0.010s
	0.003s	0.001s
	0.032s	0.015s
	0.005s	0.001s

BEWARE OF ENGINE DIFFERENCES



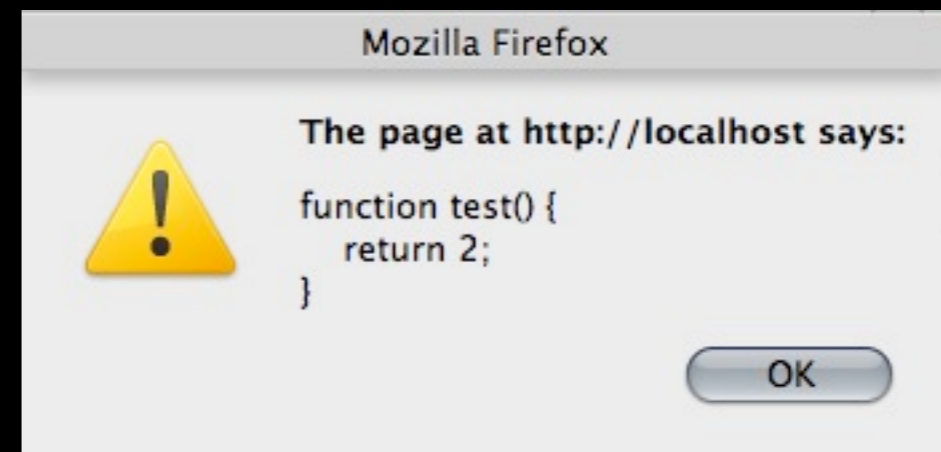
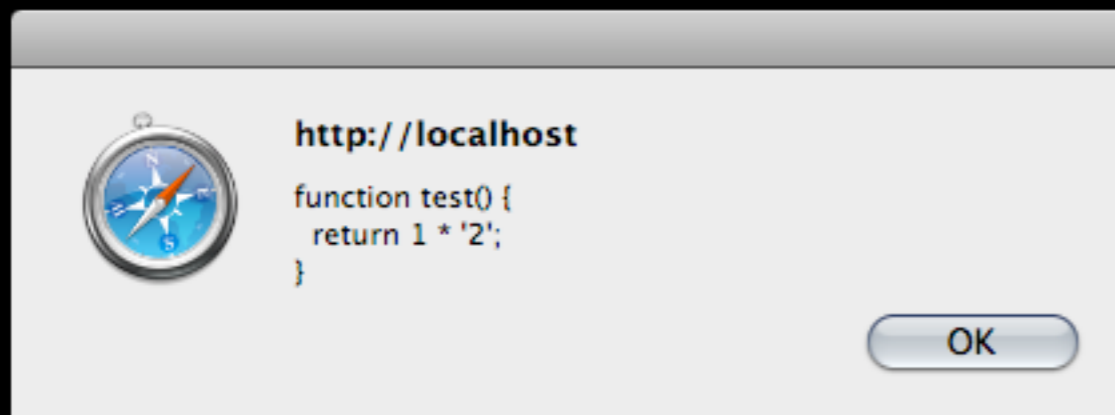
```
function test(){  
    return 1 * '2';  
}
```

```
alert(test.toString());
```



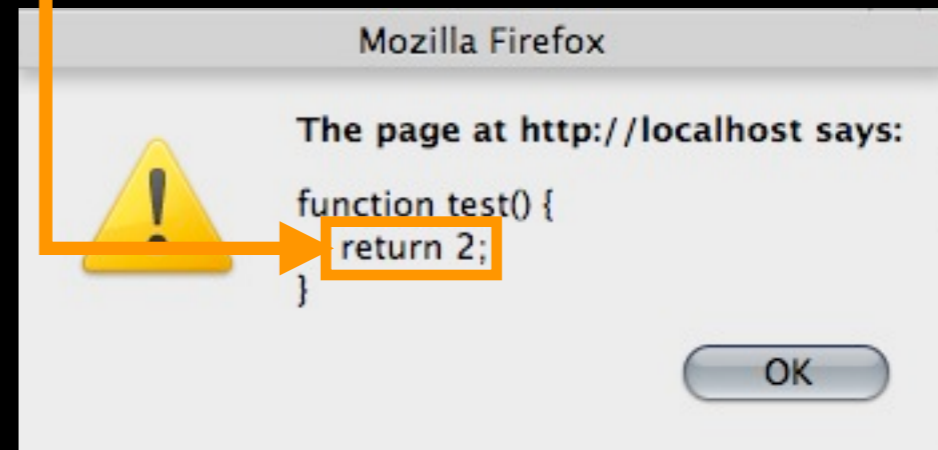
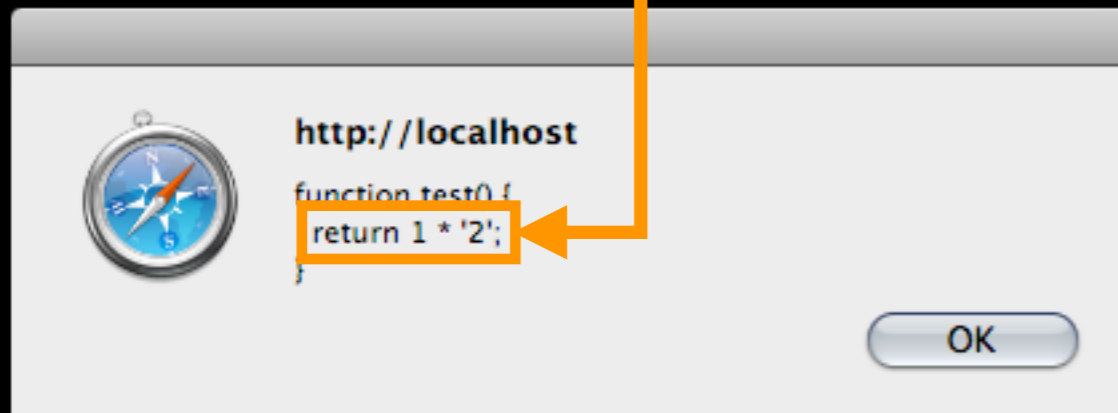
```
function test(){  
  return 1 * '2';  
}
```

```
alert(test.toString());
```



```
function test(){  
  return 1 * '2';  
}
```

```
alert(test.toString());
```



1. LOAD-TIME

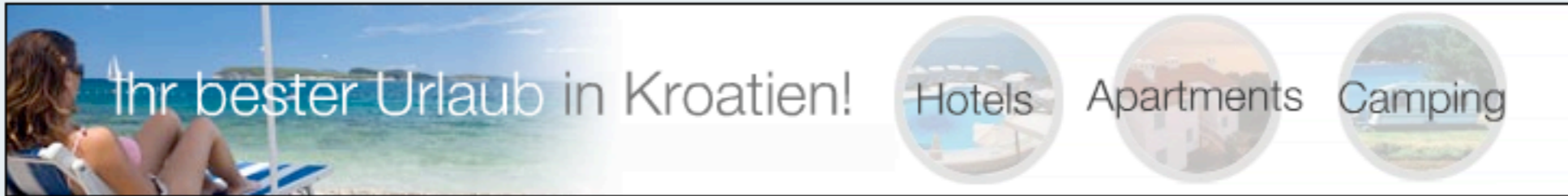
2. RUN-TIME

3. FAKING IT

**... AND GRANT ME
THE SERENITY TO
ACCEPT THE THINGS
I CAN'T**

**USERS WAIT FOR
5-8 SECONDS BEFORE
GIVING UP[†]**

[†]Nah, F., "A study on tolerable waiting time: how long are Web users willing to wait?"
Behaviour & Information Technology 23, no. 3 (2004): 153-163.



or Submission

ent is submitted by people just like
r submitting. There are just a few
keep in mind:

you think a lot of other people
ested in.

iginal source, not a site that's
g others' work.

content with spam, pornography,
aterial that otherwise violates our
It's there for this reason.

submit your own content to Digg
bout whether it's of general
ers.

[uently Asked Questions](#) about

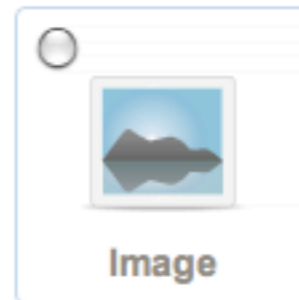
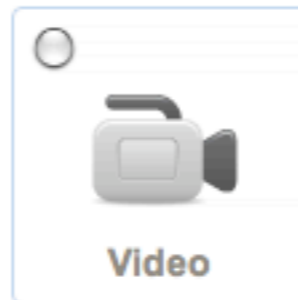
Submit a New Link - Step 1 of 2

Please avoid duplication by [searching](#) to ensure nobody has submitted a link about the same thing.

Enter The URL

<http://javascriptrocks.com/performance/>

Choose Media



Continue

**OR UP TO HALF A
MINUTE WITH A
PROGRESS FEEDBACK**





Salaam spiffariffic!

Now you know how to greet people in Arabic!

» Your Photostream pro

Recent Uploads | [Recent Activity](#)



» Your Contacts



From [Matt?!](#)



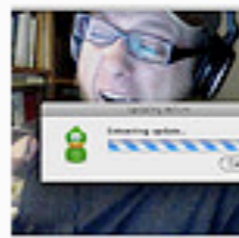
From [typedown](#)



From [!.Keesssss.!](#)



From [@dinamarie...](#)



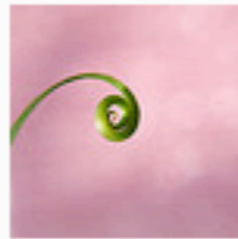
From [Luke Dorny...](#)



From [lifeography@](#)



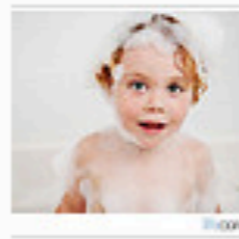
From [tanakawho](#)



From [tanakawho](#)



From [tanakawho](#)



From [lifeography@](#)

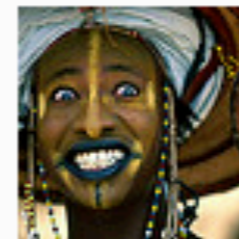


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Flickr Blog

Posted 28 Jun 09

Portraits of praxis

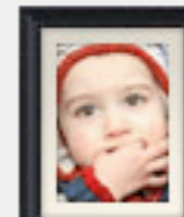


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meebo id

password

[forgot password?](#)

remember me

Sign On

... or register now

One login to access all your accounts.
IM from any browser, anywhere.

email

full name

Register



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Q&A

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[HTTP://SLASH7.COM/COMPANY](http://slash7.com/company)