

SEARCH RESULTS >>We found 16 results for title 2112 in Music

New Search

SORT BY:

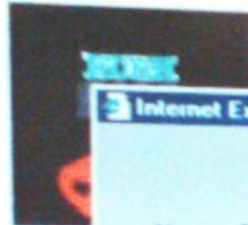
Top Results

Title

Artist

Release Date

1. 2112



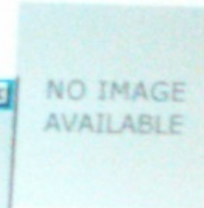
Rush
May, 1987
Compact Disc

2. String Quartet Tribute to Rush's 2112



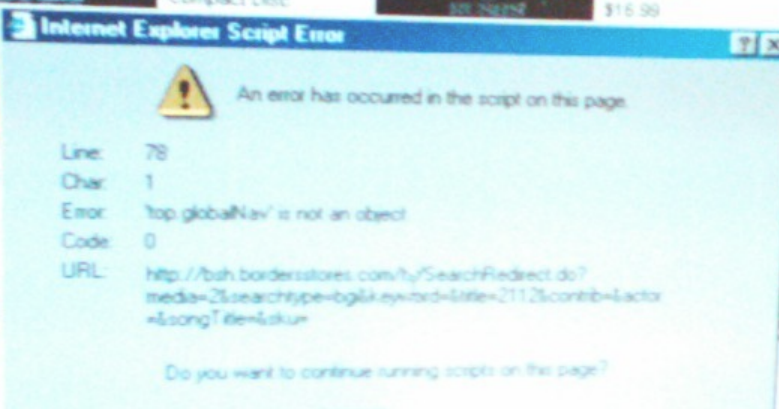
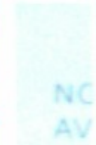
March, 2005
Compact Disc
\$16.99

3. Mindstate



Shades of
March, 2005
Compact Disc
\$13.99
Order

4. Hush



No Limits, No Worries

RESET
December
Compact Disc
\$13.99
Order

Enterprise JavaScript Error Handling

Nicholas C. Zakas

Principal Front End Engineer, Yahoo!

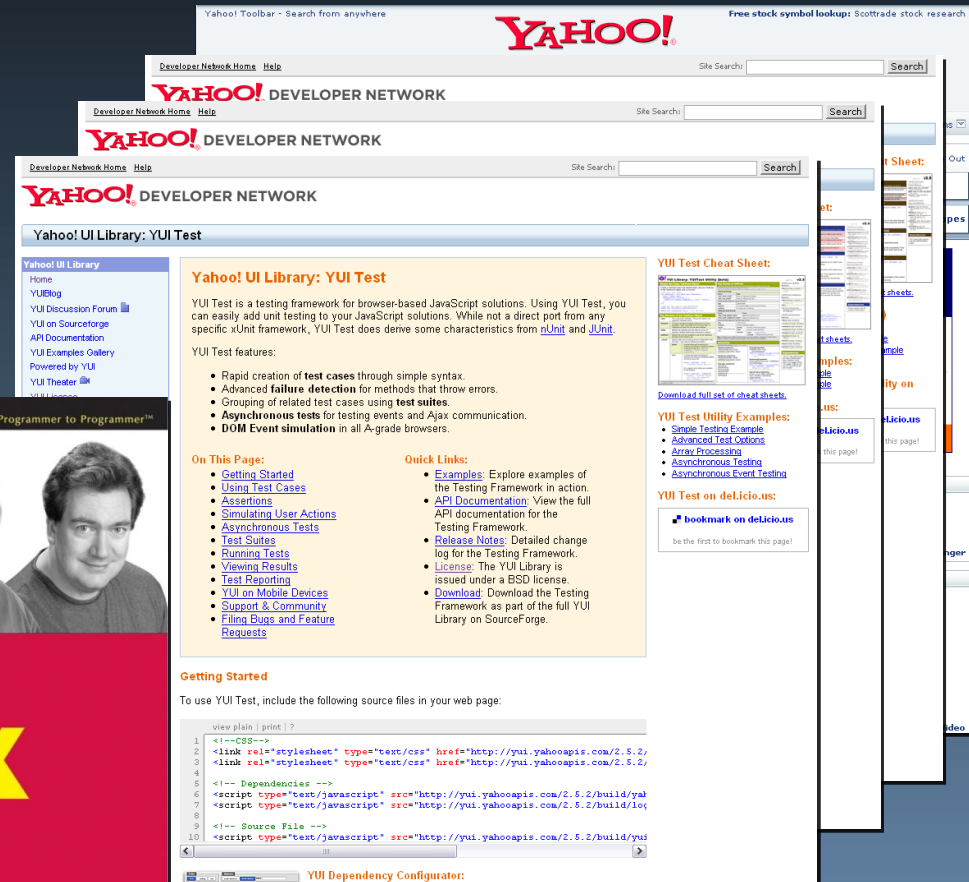
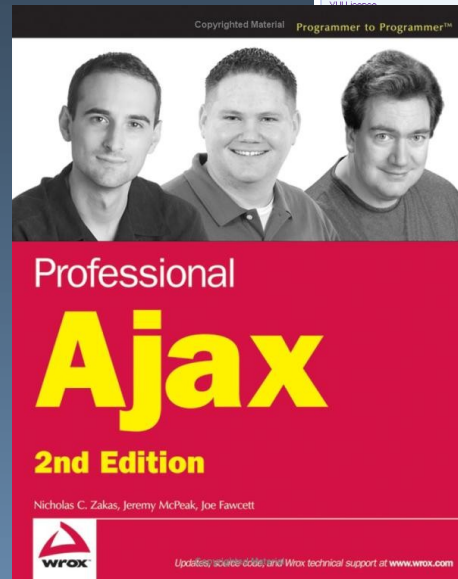
ajaxian

THE
ajax EXPERIENCE

The only Web 2.0 event
created by the real developers

Who's this guy?

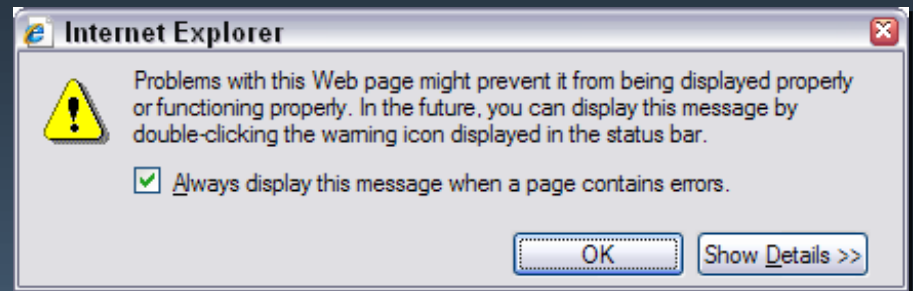
- Principal Front End Engineer, Yahoo! Front Page
- YUI Contributor
- Author



Question:

What do users see when there's a JavaScript error on a web page?


Answer:
Nothing!*




“If an error is possible, someone will make it. The designer must assume that all possible errors will occur and design so as to minimize the chance of the error in the first place, or its effects once it gets made. Errors should be easy to detect, they should have minimal consequences, and, if possible, their effects should be reversible.”

-Donald A. Norman

The Design of Everyday Things



Rule #1:
Assume your code will fail



My code is beautiful
and never fails

Assumption?

```
1 // (c) 2005-2008 Sam Stephenson
2 Object.extend = function(destination, source) {
3     for (var property in source)
4         destination[property] = source[property];
5     return destination;
6 };
```

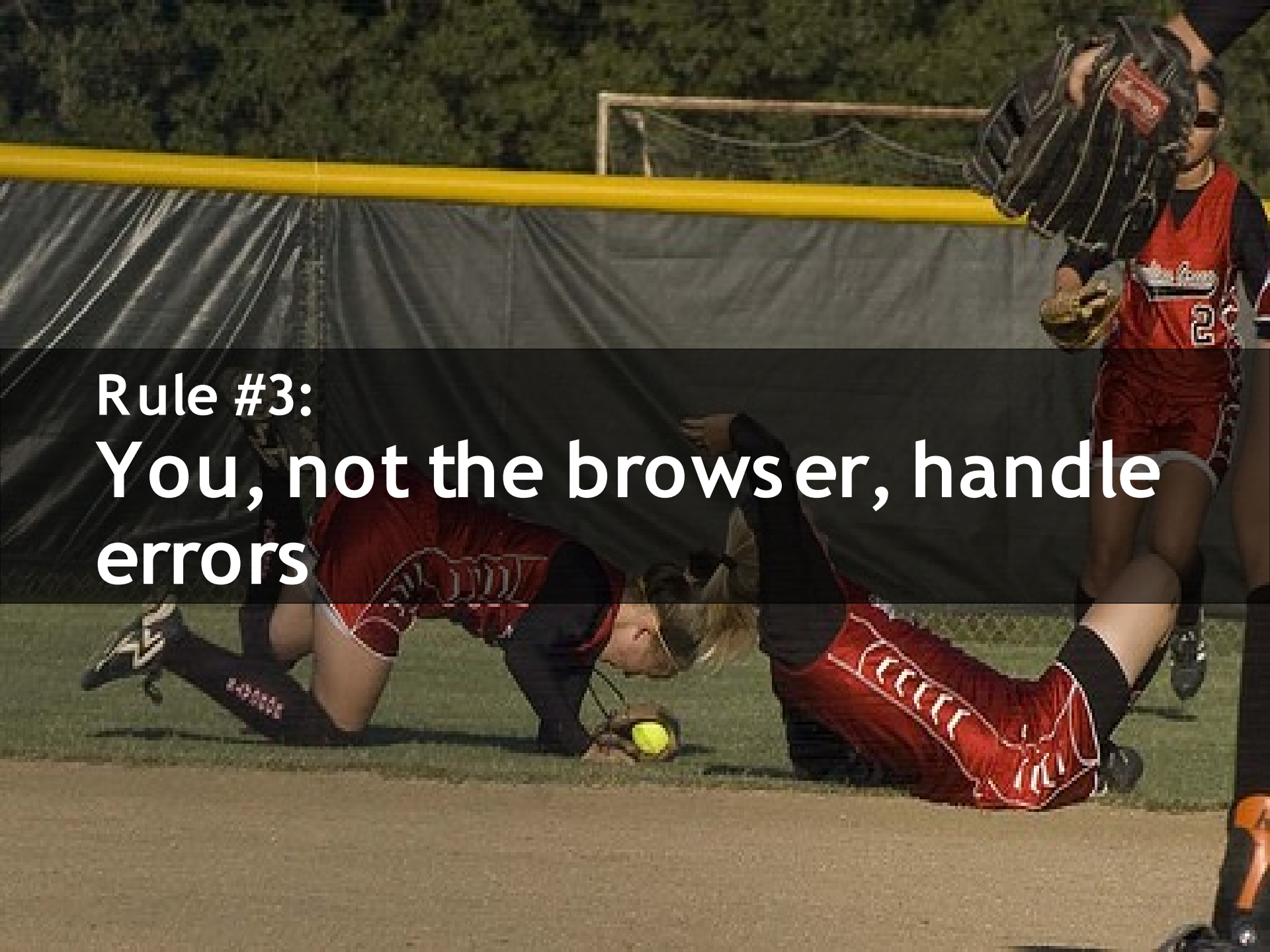
- What if destination is null?
- What if source is null?

A photograph of a large pile of cut logs in a forest. The logs are stacked in a somewhat haphazard manner, with some showing the light-colored wood grain and others showing the dark bark. A red and white striped caution tape is stretched across the background, partially obscuring the trees. The ground is covered in a layer of dry leaves and wood chips. The text "Rule #2: Log errors to the server" is overlaid on the image in a white, sans-serif font.

Rule #2:
Log errors to the server

Simple Logging

```
1  function log(sev, msg) {  
2      var img = new Image();  
3      img.src = "log.php?sev=" +  
4          encodeURIComponent(sev) +  
5          "&msg=" + encodeURIComponent(msg);  
6  }  
7  
8  //usage  
9  log(1, "Something bad happened.");
```

A photograph of a softball game in progress. In the foreground, a player in a red jersey is diving for a yellow softball. Another player in a red jersey is lying on the ground nearby. In the background, another player in a red jersey is standing and watching the play. A yellow foul line is visible, and a black tarp covers the backstop. The text "Rule #3: You, not the browser, handle errors" is overlaid on the image.

Rule #3:
You, not the browser, handle errors

try-catch

```
1  try {  
2      operation();  
3  } catch (ex) {  
4      log(2, "operation() failed: " + ex.message);  
5  }
```

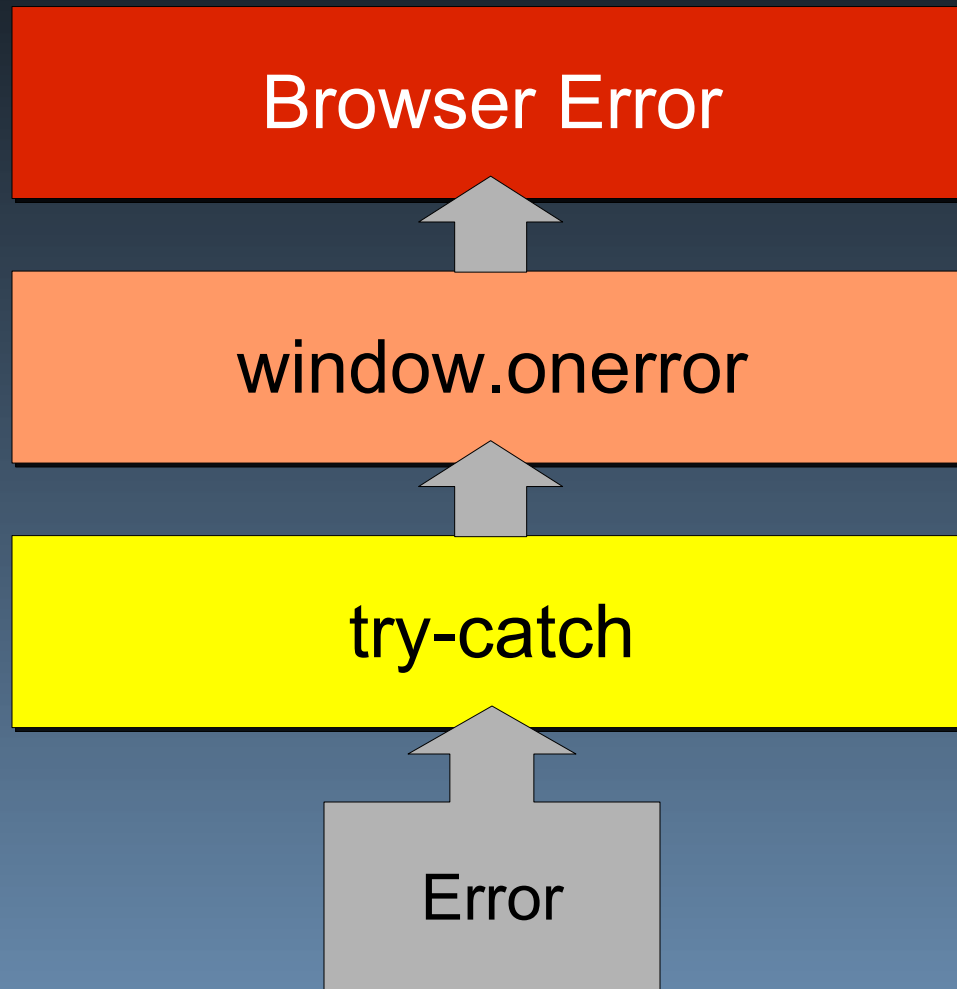
- Thrown errors contain extra information
- Errors that are caught are considered to have been handled


window.onerror

```
1 window.onerror = function(msg, url, line) {  
2     log(1, msg);  
3     return true;  
4 };
```

- Last stop before browser responds
- Return true to indicate not to respond
- Only supported in Internet Explorer and Firefox

Error Lifecycle



A woman with blonde hair and blue eyes is holding a magnifying glass over her right eye, making it appear significantly larger. She is wearing a dark brown sweater over a light-colored collared shirt and a blue beaded necklace. In the background, a man with dark hair wearing a red and black striped shirt is sitting on a grey couch. The setting appears to be a living room with a large window or glass door in the background.

**Rule #4:
Identify where errors might
occur**

Types of Errors

- Type coercion errors

Type Coercion Errors

```
1 //Boolean conversion
2 if (null){ /*never executed */}
3 if (0){ /*never executed */}
4 if (""){ /*never executed */}
5
6 if ("hi"){ /*executed*/ }
7 if (-1){ /*executed*/ }
8 if ({}){ /*executed*/ }
9
10
11 //Equivalence conversion
12 alert(5 == "5"); //true
13 alert(5 === "5"); //false
14 alert(1 == true); //true
15 alert(1 === true); //false
```

Types of Errors

- Type coercion errors
- Data type errors

Data Type Errors

- Often occurs with function arguments
- Typically a symptom of insufficient value checking

Data Type Errors

```
1  function concat(str1, str2) {  
2      return str1 + str2;  
3  }
```

```
1  function add(num1, num2) {  
2      return num1 + num2;  
3  }
```

Data Type Errors

```
1  function sortArray(values) {  
2      if (values != null) {  
3          values.sort(function(a,b) {  
4              return b-a;  
5          });  
6      }  
7  }
```

Data Type Errors - Fixed

```
1  function sortArray(values) {  
2      if (typeof values.sort == "function") {  
3          values.sort(function(a,b) {  
4              return b-a;  
5          });  
6      }  
7  }
```


Data Type Errors - Fixed

```
1  function sortArray(values) {  
2      if (values instanceof Array) {  
3          values.sort(function(a,b) {  
4              return b-a;  
5          });  
6      }  
7  }
```

Types of Errors

- Type coercion errors
- Data type errors
- Communication errors

Communication Errors

- Invalid URL/post data
- Server response status
- No network connection
- Server response content

Invalid URL/Post Data

- Typically long string concatenations
- Don't forget to use `encodeURIComponent()` on each part
 - Not `encodeURI()`
- Make sure parameters are named correctly

Server Response Status

- 200 is not the only valid status that may be returned
 - Beware of 304
- Any other status means you didn't get data

Server Response Status

```
1  var xhr = new XMLHttpRequest();
2  xhr.open("get", "index.htm", true);
3
4  xhr.onreadystatechange = function() {
5      if (xhr.readyState == 4) {
6          if ((xhr.status >= 200 && xhr.status < 300) ||
7              xhr.status == 304) {
8              //handle response
9          } else {
10             //handle error
11          }
12      }
13
14  };
15
16  xhr.send(null);
```

No Network Connection

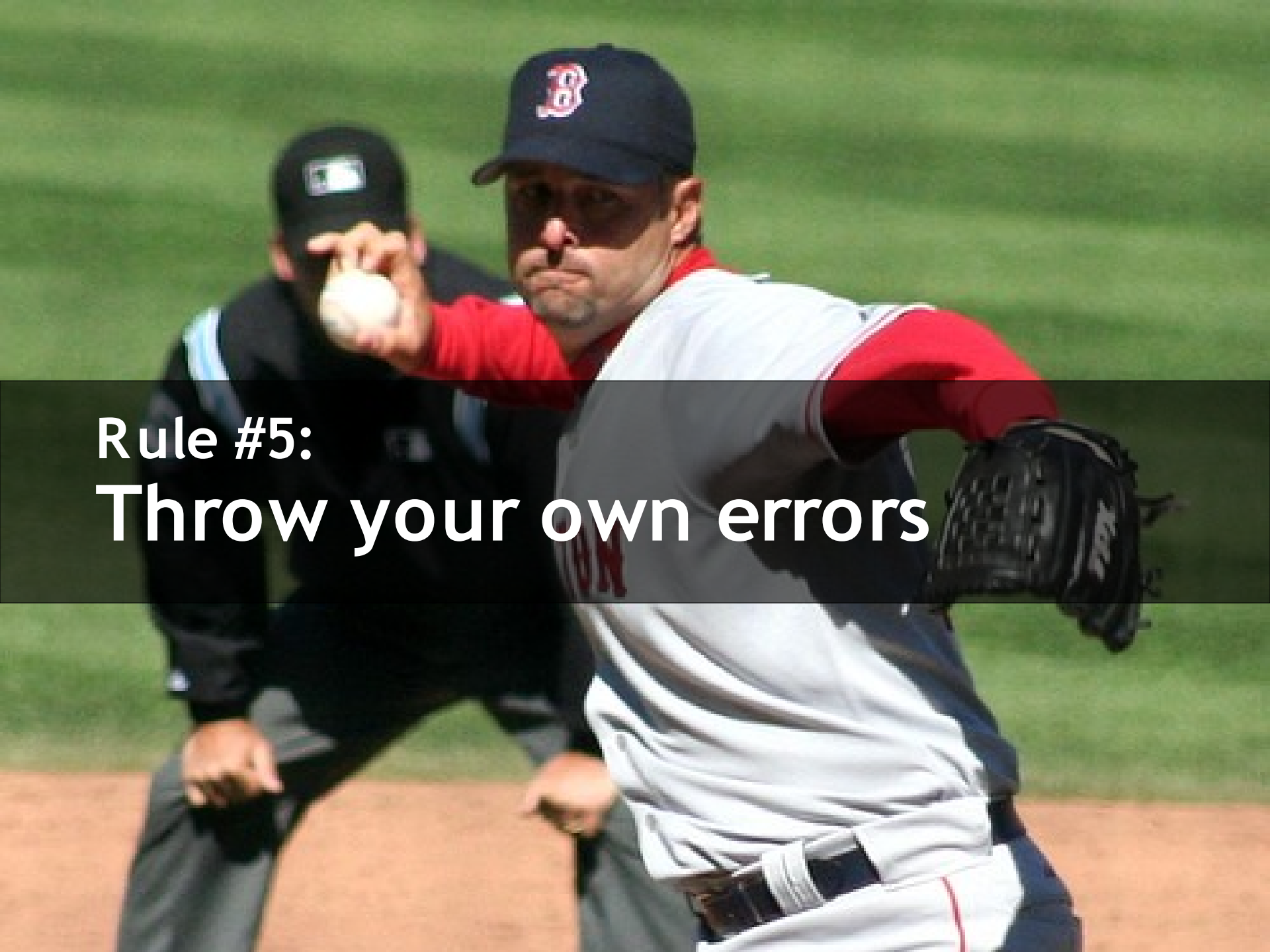
- Internet Explorer throws an error when calling `open()` but then goes through normal lifecycle
- Firefox fails silently but throws an error if you try to access any response property (`status`, `statusText`, `responseText`)

No Network Connection

```
1  var xhr = new XMLHttpRequest();
2
3  try {
4      xhr.open("get", "index.htm", true);
5  } catch (ex) {}
6
7  xhr.onreadystatechange = function() {
8      if (xhr.readyState == 4) {
9          try {
10             if ((xhr.status >= 200 && xhr.status < 300) ||
11                 xhr.status == 304) {
12                 //handle response
13             } else {
14                 //handle error
15             }
16         } catch(ex) {
17             //handle error
18         }
19     }
20
21 };
22
23 xhr.send(null);
```

Server Response Content

- A status of 200/304 is not enough
- Server errors often return HTML
- If possible, set status to 500

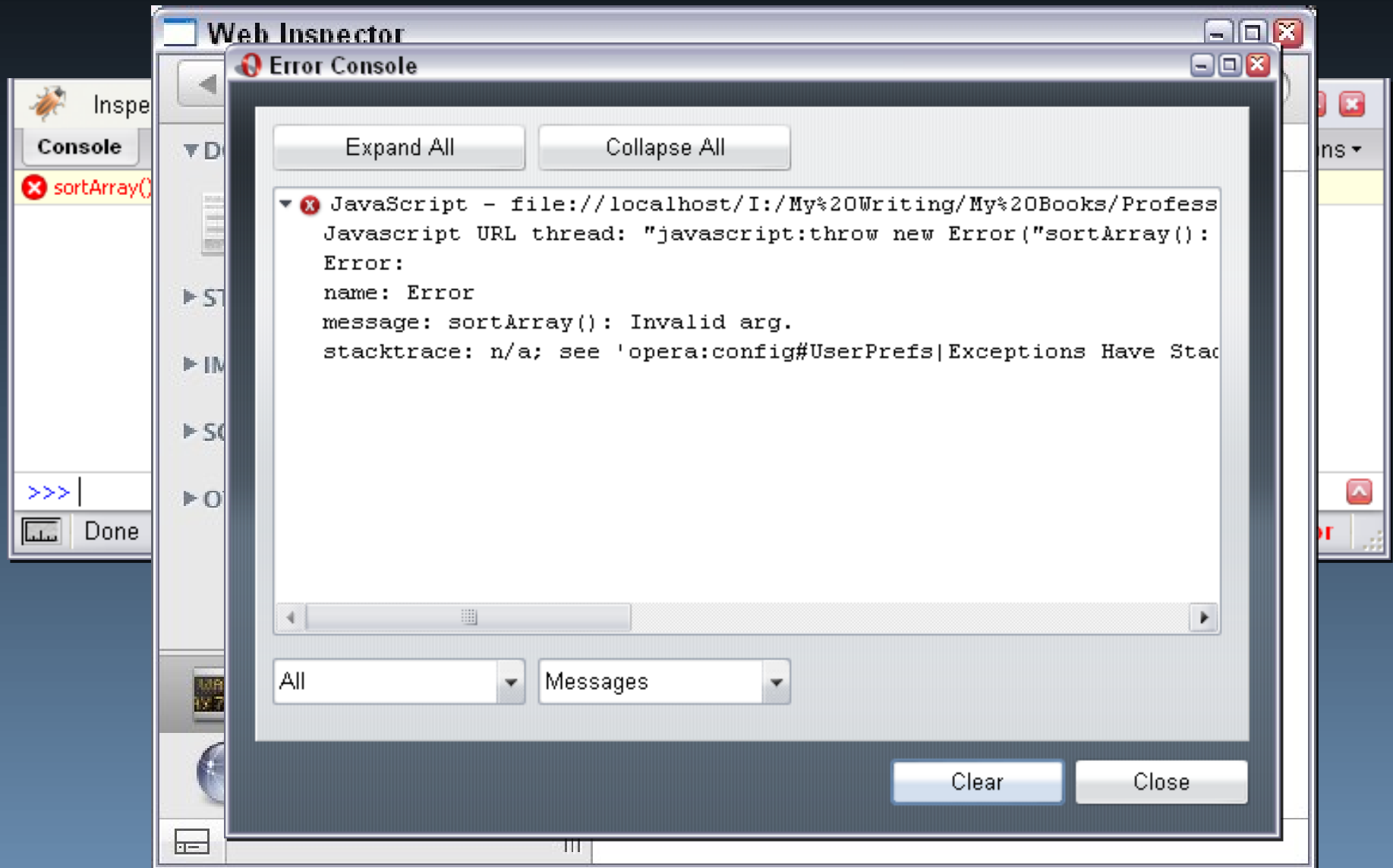
A photograph of a Boston Red Sox pitcher in mid-throw. The pitcher is wearing a white home jersey with red sleeves and a navy blue cap with the Red Sox 'B' logo. He is holding a baseball in his right hand, ready to release it. A baseball umpire in a black uniform and cap is positioned behind him, watching the play. The scene is set on a baseball field with green grass and brown dirt.

Rule #5:
Throw your own errors

Throw Your Own Errors

```
1 function sortArray(values) {  
2     if (values instanceof Array) {  
3         values.sort(function(a,b) {  
4             return b-a;  
5         });  
6     } else {  
7         throw new Error("sortArray(): Invalid arg.");  
8     }  
9 }
```

Browser Responds



Throw or Try-Catch?

- Errors should be thrown in the low-level parts of the application
 - Utilities, core libraries, etc.
- Use try-catch blocks in higher level parts
 - Application-specific
 - Client-side business logic

A black sedan is shown with severe damage to its front end, including a crumpled hood, a shattered headlight, and a bent front bumper. The car is parked on a grassy area with fallen autumn leaves. A tree with some yellowing leaves is to the right of the car. In the background, a road and some buildings are visible under a hazy sky.

Rule #6:
Distinguish fatal versus non-
fatal

Non-Fatal Errors

- Won't interfere with user's main tasks
- Affects only a portion of the page
 - Easily disabled/ignored
- Recovery is possible
- A repeat of the action may result in the appropriate result
- Don't tell the user it isn't working unless absolutely necessary

Yahoo! Toolbar - Search from anywhere



Netflix: Only \$4.99/mo. Movies delivered, try free

Web Images Video Local Shopping more

Search:

Web Search

Yahoo! Home

My Yahoo!

Aug 21, 2008

Page Options

- Answers
- Autos
- Fantasy FB
- Finance
- Flickr
- Games
- Groups
- HotJobs
- Maps
- Mobile Web
- Movies | TV
- Music
- OMG
- Personals
- Real Estate
- Shine
- Shopping
- Sports
- Travel
- Yellow Pages
- Health

Featured

Entertainment

Sports

Video



Underage issue heats up

The IOC is officially looking into claims that the Chinese gymnasts are underage. **>> New evidence coming out**

- Liukin home
- Gymnastics roundup
- Angry wrestler appeals losing medal



Chinese gymnasts' ages being investigated



Richest kings & queens in the world revealed



Underwood says Romo still calls...or does he?



See how life would be without a bank

>> More: **Featured** | **Buzz**

News

World

Local

Finance

Beijing 2008 Games - Day 14

Medal Count

- 99
- 83
- 52

Top Athletes

- Fabio (BRA)
- Phil Dalhausser (USA)
- LaShawn Merritt (USA)

Latest Results

- Beach volleyball
- BMX finals
- Track and field

>> Gold medal result reopens Olympic softball debate

>> More: **Complete Coverage** | **TV Schedule** |

As of 9:41 p.m. PDT

Hi, Nicholas

Sign Out



Mail



Messenger



Radio

Please go to **Yahoo! Mail** to get your mail.

>> Go To Yahoo! Mail



Weather
63°F



Local



Horoscopes

CLICK TO EXPAND >



In celebration of our 100th anniversary...

Fatal Errors

- The application absolutely cannot continue
- Significantly interferes with user's ability to be productive
- Other errors will occur if the application continues
- Message the user immediately!
- Reload

Yahoo! Mail Make My Yahoo! your home page

MY YAHOO!

Search

Web Images Video Local Shopping more

Web Search

Quicklinks

Nicholas' Page

My Main Page

My Front Page

My Main Page

New Tab

Hi, Nicholas Sign Out Tips Help

Add Content Change Appearance More Options

Last update: Aug 21, 9:36 pm

Weather

Compact Classic Full

63°F

Location

Peabody, MA

City or ZIP

Go

Personal Assistant



Mail



Music



News



Weather



Lottery



Music



We noticed you may have signed in or signed out in another window. Click OK to reload your page.

Ok

Calendar

<< July

Today

October >>

August 2008

September 2008

Sun	Mon	Tue	Wed	Thur	Fri	Sat
27	28	29	30	31	1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23

Sun	Mon	Tue	Wed	Thur	Fri	Sat
31	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27



Cancer (6/22-7/22)

A friend is acting sort of oddly right now, and you could be getting somewhat suspicious of them. Try not to jump to any conclusions -- there is far too little information for you to go on. Put yourself in their place. If you were having a bad day, going through some personal stuff or trying to figure out a problem, would you want your friends assuming the worst? Support them and be patient. Find out if you can help them. If they say no, then just give them space.


» More at Y! Astrology



Inside My Yahoo! - August 21

Fatal or Non-Fatal?

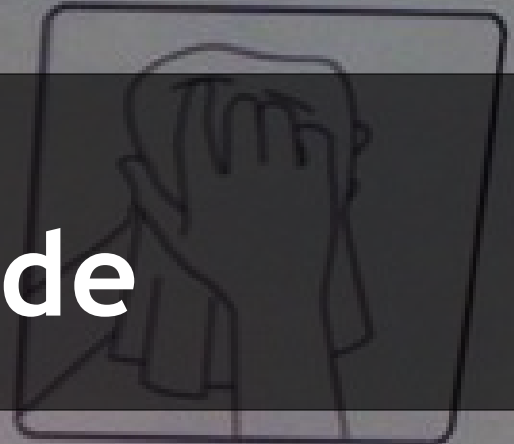
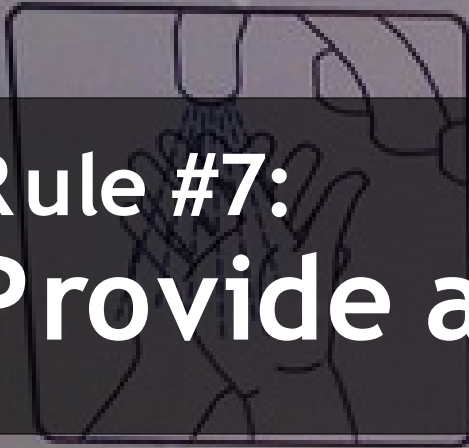
- Don't allow your code to determine what is and is not fatal
 - Watch out for loops
- The user's experience comes first

Fatal or Non-Fatal?

```
1   for (var i=0; i < mods.length; i++) {  
2      mods[i].init();  
3  }
```

```
1   for (var i=0; i < mods.length; i++) {  
2       try {  
3          mods[i].init();  
4      } catch (ex) {  
5          log(2, "Module " + i + " failed.");  
6      }  
7  }
```


Take 20 seconds to debug yourself.



**Rule #7:
Provide a debug mode**

A reminder from Apple Wellness

Debug Mode


- Assign a variable that is globally available
- try-catch should re-throw the error
- window.onerror should return false
- Allow the browser to handle the error

Debug Mode

```
1  for (var i=0; i < mods.length; i++) {  
2      try {  
3          mods[i].init();  
4      } catch (ex) {  
5          if (debugMode) {  
6              throw ex;  
7          } else {  
8              log(2, "Module " + i + " failed.");  
9          }  
10     }  
11 }
```

Debug Mode

```
1 window.onerror = function(msg, url, line) {  
2     if (debugMode){  
3         return false;  
4     } else {  
5         log(1, msg);  
6         return true;  
7     }  
8 };
```

A close-up photograph of a white envelope. A red rectangular stamp is printed on the envelope, containing the text 'DOCUMENTS ENCLOSED' in a bold, sans-serif font. The envelope is slightly wrinkled and the background is dark and out of focus.

DOCUMENTS ENCLOSED

Summary

Rules

1. Assume your code will fail
2. Log errors to the server
3. You, not the browser, handle errors
4. Identify where errors might occur
5. Throw your own errors
6. Distinguish fatal versus non-fatal
7. Provide a debug mode

Questions?



Etcetera

- My blog: www.nczonline.net
- My email: [nzakas@ yahoo-inc.com](mailto:nzakas@yahoo-inc.com)

Happy debugging!

ajaxian



The only Web 2.0 event
created by the real developers

Creative Commons Images Used

- <http://www.flickr.com/photos/crazytales562/2514843252/>
- <http://flickr.com/photos/waldoj/126354436/>
- <http://flickr.com/photos/markhillary/289294549/>
- <http://flickr.com/photos/3fold/437853495/>
- <http://flickr.com/photos/ianhampton/65178598/>
- <http://flickr.com/photos/joshlewis/1596018210/>
- <http://flickr.com/photos/oberazzi/318947873/>
- <http://flickr.com/photos/mc/27061495/>