

## jQuery and AJAX for Responsive Web Sites

### Lecture 6 Ajax and APIs

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## Objectives

- Recap
- Homework
- AJAX
- REST APIs

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## Recap

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- **AJAX**
- JavaScript talks to server, no page reloads
- Better UX, potentially faster
- Code complexity



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### JavaScript to HTTP Requests

- XMLHttpRequest API
- DOM Manipulation
  - `<script>`
  - `<img>`
  - `<iframe>`

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### jQuery AJAX Methods

- `get()`
- `post()`
- `load()`
- `getJSON()`
- `ajax()`

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# Homework

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## a) Web Server Access



Image from Wikipedia

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## b) Craigslist AJAX

- Event handling
- AJAX
- DOM Manipulation

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## c) DataTables

- Unguided assignment
- Import for UX
- jqGrid, DataTables
- Doesn't fit in to main lecture content

Name	Position	Salary	Age
John Doe	Software Engineer	\$120,000	35
Jane Smith	Product Manager	\$110,000	32
Mike Johnson	Marketing Specialist	\$85,000	28
Sarah Lee	UX Designer	\$95,000	30
David Kim	Systems Administrator	\$75,000	25
Emily White	Business Development	\$100,000	33
Chris Brown	Quality Assurance	\$65,000	22
Alex Green	Frontend Developer	\$90,000	27
Olivia Black	Backend Developer	\$105,000	31
Noah Grey	DevOps Engineer	\$115,000	34

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## Assignment 4

- \$.ajax()
- Custom events and Observer
- Async file uploads with iframes
- HighCharts

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# AJAX Again

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XMLHttpRequest	<script>
\$.get()	\$.getJSON() <b>callback=?</b>
\$.post()	\$.ajax() <b>dataType=jsonp</b>
\$.load()	
\$.getJSON()	
\$.ajax()	

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## Why JSON-P ...

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## Same Origin Policy

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Images from Wikipedia

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### Same Origin Policy (SOP)

- Security restriction
- Only AJAX to page origin  
<http://cnn.com/index.html>
- Work Arounds!



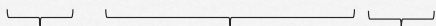
Image from Wikipedia

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### S.O.P.

**http://niekdev.foo.com:8080**



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< JSONP Demo >

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## JSON P Steps

1. Make JavaScript "callback" function: `cbFunc()`.
2. Add `<script>` to our dom and set `src` to `api.yahoo.com/foo/`

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## JSON-P Summary

- Bypasses SOP
- `<script>`
- Executes arbitrary code from remote source  
**DANGER! DANGER! DANGER! DANGER!**
- jQuery takes care of nitty-gritty

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## S.O.P. Wrap Up

- JSON-P
- XMLHttpRequest2
- Access-Control-Allow-Origin: \*

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## Other AJAX Annoyances

Async File Uploads  
`<iframe>`



Image from Wikipedia

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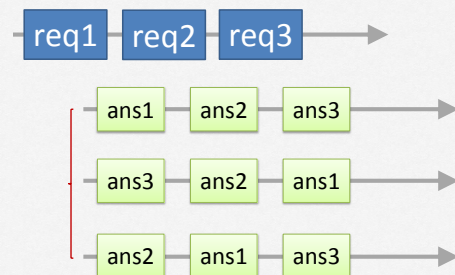
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## AJAX Control Flow

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## No Ordering Guarantees



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## &lt; Ordering Demo &gt;

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## Ordering via Request Chaining

*Watch for speed issues ...*

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## &lt; Chaining Demo &gt;

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## Ordering via Request Chaining

*when( ).done( function(a1,a2) { ... } );*

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## Things that go wrong

- JavaScript code errors
- Client OS crash
- Client hardware crash
- Simple Network failure (sucky wifi)
- Exotic Network failure (partitions)
- Data Center Failure (hurricane Sandy)

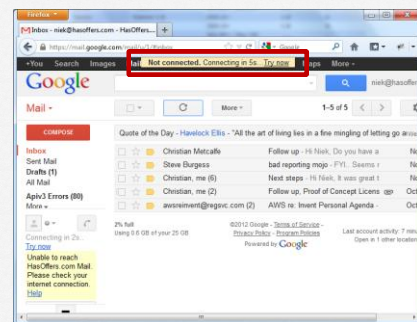


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List adapted from OMQ Guide

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## Failure Mitigation



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## Failure Mitigation (2)



`$.ajax()` error callback

`$.ajaxSetup()`

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## AJAX Zoom Out

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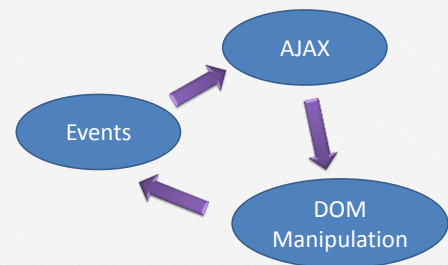
- JSON
- XML
- HTML
- raw text....

↑  
Scale of  
increasing  
awesomeness

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## Feedback Loop



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AJAX +  
Browser History



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