

Objectives

- Recap
- Homework
- Closures
- Ajax Intro

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Previously on
WEBLAMP 441...

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Arrays

- Object
- Indices vs. properties
- Length property "*Magic*"

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Arrays (2)

Object + Length *Magic* + Methods

push
pop
reverse
splice
sort
...

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Meaning of **this**

Functions	Methods
Constructors	Function.call() Function.apply()

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Functions	Nonsensical window.
Methods	Object method invoked on
Constructors	New object
Function.call() Function.apply()	Explicitly defined

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Homework

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Assignment 2: Event Handling

- Should be submitted to Moodle
- Will be graded by Sunday

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Assignment 3

- Posting tomorrow night
- Forum notice if delayed
- Fun with Ajax
- Webserver accounts from D.A.

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closures

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Function + Scope = Closure

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```
// creates new functions on the fly and returns them
function closureMaker( x ) {
    var y = x * 2;

    return function() { return y };
}

// make an instance of our function
var myClosure = closureMaker(7);

// returns 14... But var y is no longer visible!
myClosure();
```

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Closures: Big Idea

- Functions hold on to scope from when they were defined, not when they're invoked

```
function outerFunc() {
  var myArr = [100,200,300];
  return function() {
    return myArr[1]++;
  };
}
outerFunc();
```

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Closures and privates.....

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Privates: why care?

Encapsulation

Program to interfaces, not implementations

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Closures and privates

```
var Student = function() {
  var ourGrade = 100;
  this.getGrade = function() {
    return ourGrade;
  };
  this.setGrade = function( val ) {
    ourGrade = val;
  };
};

var niek = new Student();
var theo = new Student();

theo.setGrade( 75 );
niek.getGrade();
theo.getGrade();
```

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< Closure Privates Demo >

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Closures and this

```
// making an object...
var clickCounter = {
  'count': 0,
  'bindTo': function( selector ) {
    // bind an a click event handler
    $(selector).click(
      function(e) {
        // will not work
        this.count += 1;
        console.log( this.count );
      }
    );
  }
};

clickCounter.bindTo('p');
```

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< Closures and this Demo >

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Closures and this

```
// making an object...
var clickCounter = {
  'count': 0,
  'bindTo': function( selector ) {

    // !!! handle to this using closure
    var self = this;

    // bind an a click event handler
    $(selector).click(
      function(e) {
        self.count += 1;
        console.log( self.count );
      }
    );
  }
};

clickCounter.bindTo('p');
```

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Ajax

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The dark ages.....



Image from Wikipedia

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Lost in Seattle

lostinseattle.com

- Click to pan map = lame.

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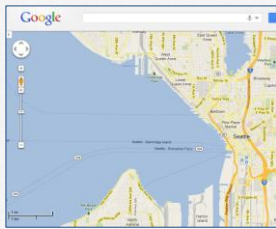
Enlightenment!



Image from Wikipedia

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Google Maps
maps.google.com

- Drag to pan, click wheel zooming!

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The Big Idea.....

- JavaScript interaction with server
no page reloads
- HTML + CSS + JavaScript
interaction with server driving behavior
- Migrate from back to front end

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The Benefits

- Desktop UX
- Speed
 - Slow chunks after main load
 - Avoid downloading repeated data



Image from Wikipedia

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The Costs

Complexity



Image from Wikipedia

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Ajax

Some details.

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HTTP Requests: Traditional

- window.location
- form submit

Require us to leave page...

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HTTP Requests: Scripted (1)

- `img.src`
- `iframe.src`
- `script.src`

We can add to DOM, fire off requests

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HTTP Requests: Scripted (2)

- XMLHttpRequest API

- Not just XML
- Not just http

<code>\$.get()</code>	}	With exception of JSONP
<code>\$.post()</code>		
<code>\$.load()</code>		
<code>\$.ajax()</code>		

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Asynchronous ... usually

JavaScript

And

Xml ... occasionally

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< AJAX Request Demo >

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