



HTML CSS JavaScript & jQuery

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Training Agenda for HTML, CSS, JavaScript & jQuery

■ Day 1

■ Session 1:

- Web Terminologies
- HTML Basics
- Lab: Our First HTML Page

■ Session 2:

- CSS Basics
- Lab: Creating a 3 Column Layout Page

■ Day 2:

■ Session 1:

- HTML Forms
- Working with a Server Side Technology (ASP.NET)
- Lab: Creating a User Registration Form

■ Session 2:

- Background Images, Pseudo Classes, Sprites
- Lab: Styling the User Registration Form

Training Agenda Contd..

■ Day 3:

■ Session 1:

- CSS Menus, Lists and Rounded Corners
- Lab: Adding a rounded cornered Drop Down menu to the User Registration Form

■ Session 2:

- Browser Inconsistencies and how to handle them
- Lab: The Complete User Registration Process
- Mobile Web Design Overview

■ Day 4:

■ Session 1:

- JavaScript Overview
- Lab: JavaScript Programming Basics

■ Session 2:

- DOM, HTML Forms and JavaScript
- Lab: User Registration Form Validation

Training Agenda Contd..

■ Day 5:

■ Session 1:

- Events and Event Handlers
- Error Handling and Debugging JavaScript
- Lab: Creating a JavaScript Modal Dialog

■ Session 2:

- AJAX Overview
- Lab: Loading a remote file asynchronously

■ Day 6

■ Session 1:

- jQuery Overview
- Lab: Alternate Row Styling

■ Session 2:

- More jQuery
- Lab: Building a CSS Style Switcher

Training Agenda Contd..

- Day 7:

- Session 1:

- XML, JSON and JSONP
 - AJAX in jQuery
 - Lab: Ajaxifying the user registration form

- Session 2:

- Authoring Plugins
 - Lab: Creating a Shadow Plugin`
 - Performance Enhancement Techniques in Web Development
 - Accessibility Guidelines and W3C Standards
 - A note about SEO, Caching and Cookies

Training Agenda for Advanced JavaScript & jQuery

- Day 1 : JavaScript Basics
 - Session 1:
 - Anatomy of a Web Page
 - JavaScript Basics
 - Types & Special Objects in JavaScript
 - Lab: Basics of JavaScript Programming
 - DOM Access & Manipulation
 - Session 2:
 - Lab: DOM Access & Manipulation
 - JavaScript Events and Event Handlers
 - JavaScript and Forms
 - Errors and Debugging Techniques in JavaScript
 - Lab: A User Registration Form

Training Agenda Contd..

■ Day 2: JavaScript Advanced

■ Session 1:

- Object Oriented JavaScript
- Functions as First Class Objects
- Scopes & Closures
- Objects & JSON
- Lab: Objects in JavaScript

■ Session 2:

- JS Prototype Syntax
- Coding Standards & Design patterns
 - Unobtrusive Programming
 - Namespacing effectively
 - Configuration Objects
 - Private & Public
 - Singleton pattern
 - Module pattern
 - Factory Pattern
- Lab: Events Unobtrusively, Object Members, Implementing Patterns, Adding methods to existing objects

Training Agenda Contd..

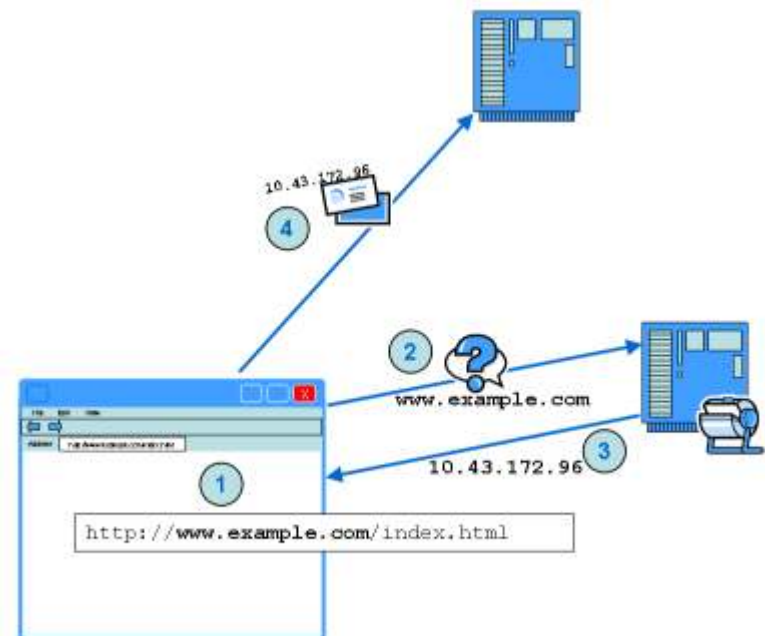
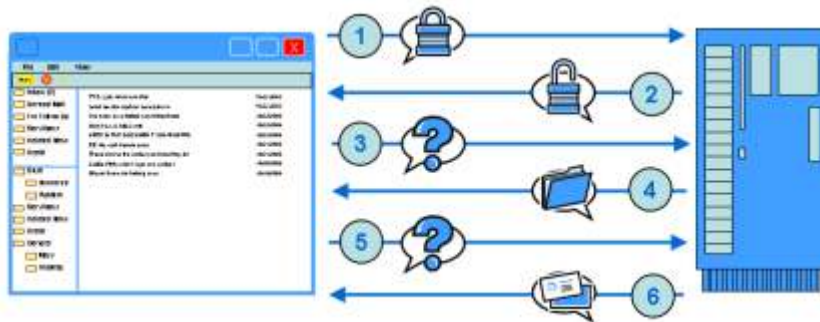
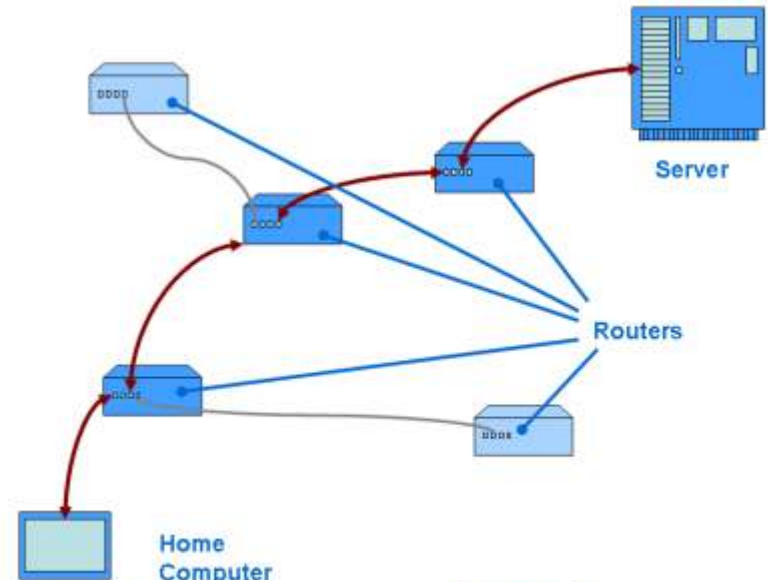
- Day 3: JavaScript & Ajax
 - Session 1:
 - Ajax overview
 - Ajax using JavaScript
 - Content Types & Mime Types Overview
 - Lab: The Ajax Dictionary
 - Session 2:
 - Accessibility & Fallback Techniques
 - Performance & Security Considerations
 - Browser Considerations
 - Lab: Design for Accessibility

Training Agenda Contd..

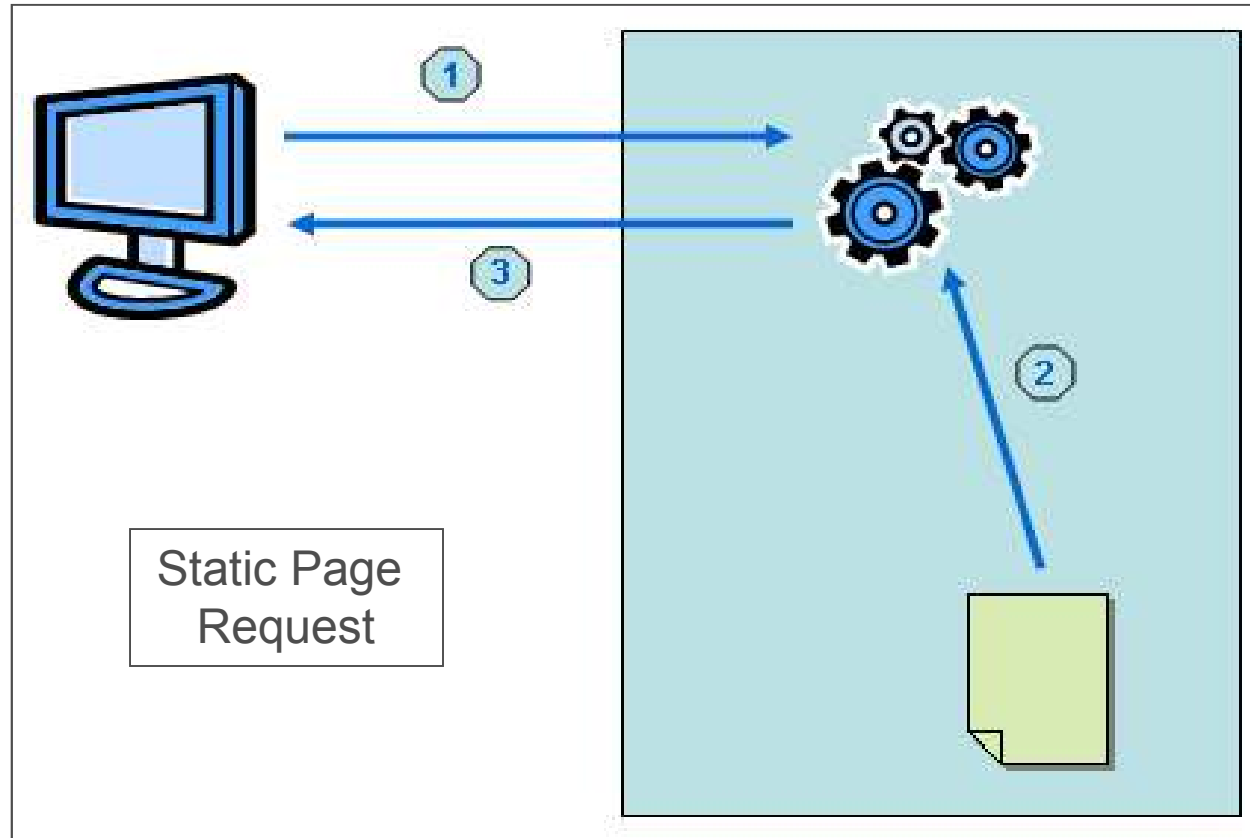
- Day 4: jQuery
 - Session 1:
 - jQuery Overview
 - Selectors in jQuery
 - The jQuery Context & the jQuery Object
 - Each
 - Lab: Page Load, Selectors & Basic Effects
 - Session 2:
 - Binding Events
 - Ajax using jQuery
 - Lab: Ajax enabled Accordion
 - Post Assessment

Components of the Web

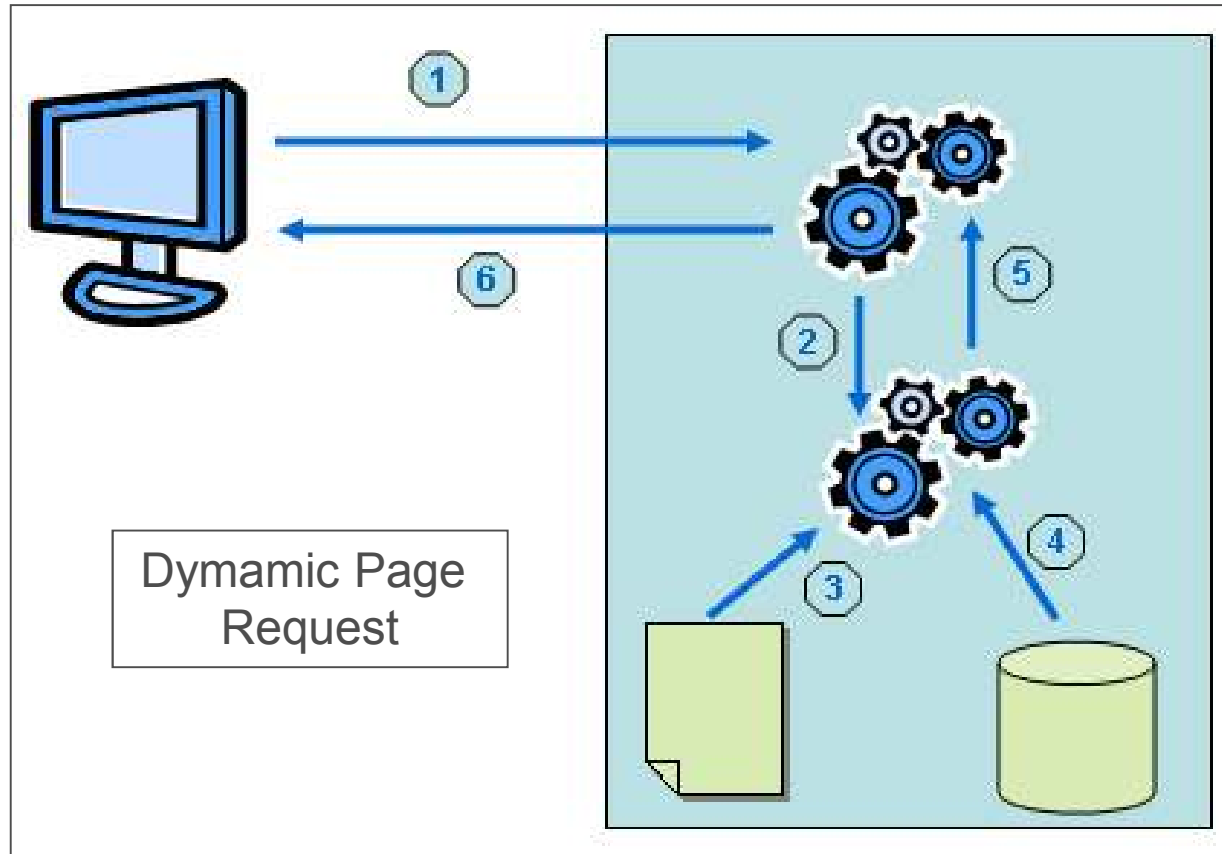
- Computer Networks
- Network Addresses
- Browsers and Web Servers
- Hyper Text Transfer Protocol (HTTP)
- Hyper Text Markup Language (HTML)
- Web Applications



Web Applications



Web Applications



The Structure of a HTML Document

```
<?xml ?>  
<!DOCTYPE/>  
<HTML>  
  <HEAD>  
    <TITLE></TITLE>  
  </HEAD>  
  <BODY></BODY>  
</HTML>
```

!DOCTYPE

```
<?xml version="1.0"
  encoding="UTF-8"?>
<!DOCTYPE HTML PUBLIC "-//
  //W3C//DTD HTML 4.01
  Transitional//EN"
  "http://www.w3.org/TR/html4/loose.dtd">
```

```
<html>
  <head>
    <title></title>
  </head>
  <body>
  </body>
</html>
```

```
<?xml version="1.0"
  encoding="UTF-8"?>
<!DOCTYPE html PUBLIC "-//
  //W3C//DTD XHTML 1.0
  Transitional//EN"
  "http://www.w3.org/TR/xhtml1/
  DTD/xhtml1-transitional.dtd">
```

```
<html
  xmlns="http://www.w3.org/1999/xhtml" xml:lang="en"
  lang="en">
  <head>
    <title></title>
  </head>
  <body>
  </body>
</html>
```

The Rules of HTML / XHTML

- HTML Is Not Case Sensitive, XHTML Is
- HTML/XHTML Attribute Values May Be Case Sensitive
- HTML/XHTML Is Sensitive to a Single White Space Character
- XHTML/HTML Follows a Content Model
- Elements Should Have Close Tags Unless Empty
- Unused Elements May Minimize
- Elements Should Nest In Correct Order
- Attribute Values Should Be Quoted
- Browsers Ignore Unknown Attributes and Elements

Core Elements

- Headings
- ID, class, title
- BR, HR, P, SPAN, DIV
- Blockquote, Pre
- Lists – OL, UL

CSS



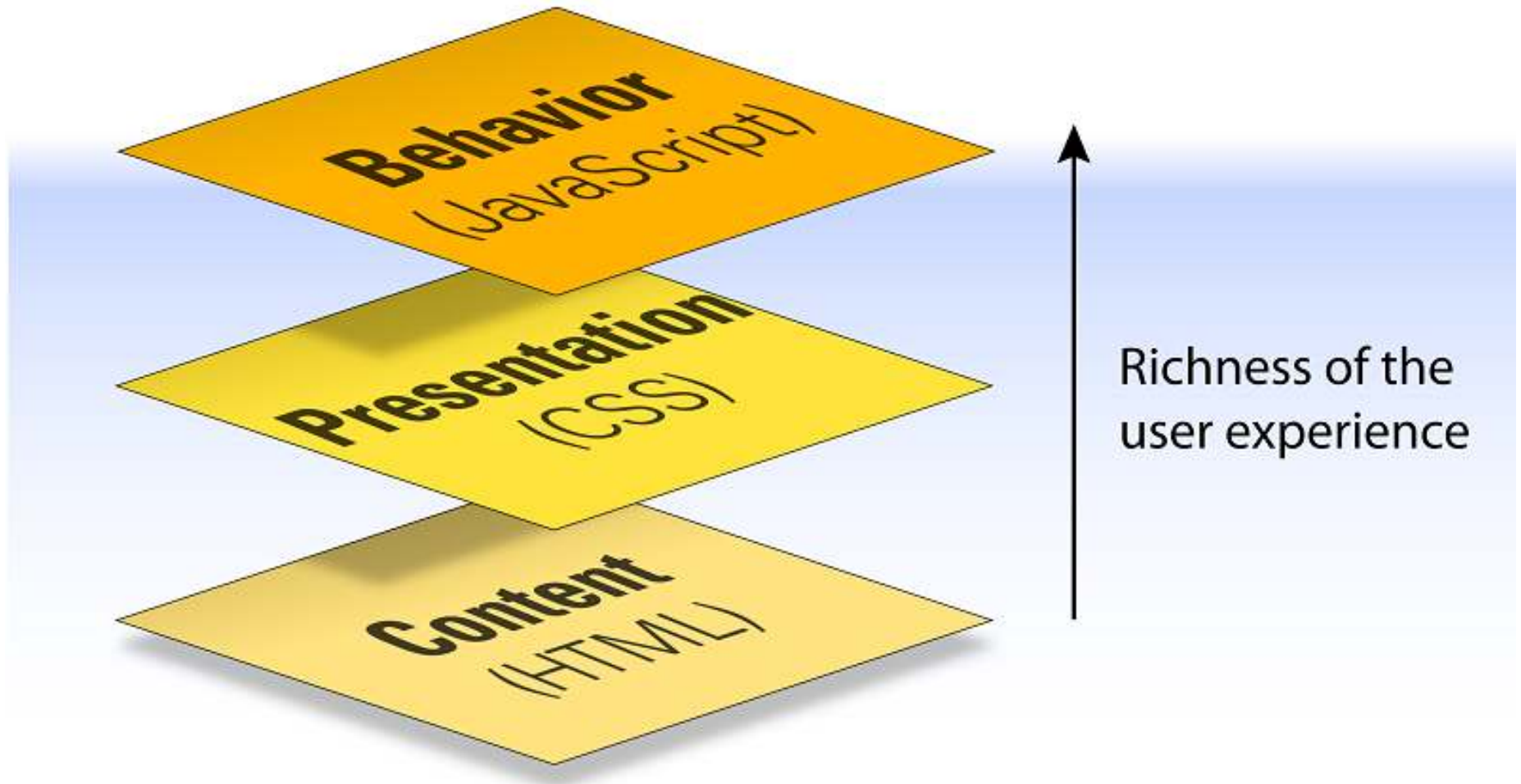
CSS

- Positioning
- Display
- Pseudo Classes
- Pseudo Elements

JavaScript



The Three Layers



JavaScript Data

- Data Types – Number, String, Boolean
- Date
- Arrays, Associative Arrays
- If Statement
- Loops – While, Do-While, For
- Functions
- Scope of Variables
- Objects
- Regular Expressions

Lab 1: JavaScript Basics

- Write a program in which you specify a date and the program outputs the number of days, months, years and weeks between the specified date and today.

DOM Access & Manipulation

- getElementById
- getElementsByTagName

Events

- Event Handlers
- this
- Event Listeners
- The event Object - Prevent Default
- Event Propagation – Capturing & Bubbling

DOM 0 Event Handler	W3C DOM Event Listener
onblur	blur
onfocus	focus
onchange	change
onmouseover	mouseover
onmouseout	mouseout
onmousemove	mousemove
onmousedown	mousedown
onmouseup	mouseup
onclick	click
ondblclick	dblclick
onkeydown	keydown
onkeyup	keyup
onkeypress	keypress
onsubmit	submit
onload	load
onunload	unload

Debugging and Error Handling

- How to Debug?
- Tools at hand – Firebug!
- JavaScript Debugger now supported in IE 8 onwards.
- Error Handling with Try-Catch

Object Oriented JavaScript

- Why objects?
- Creating Object Definitions
- Reusing Objects
- JSON Overview

Advanced Concepts

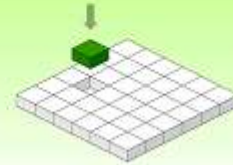
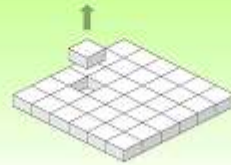
- Passing Parameters to Event Handlers/Listeners
- Functions accepting arbitrary number of parameters
- JavaScript Closures

AJAX

Normal Page Request



Ajax Request



XMLHttpRequest

- IE 5 & 6 – new `ActiveXObject("Microsoft.XMLHTTP");`
- `Open(Type, Url)`
- `Send(data)`
- XMLHttpRequest object is non-reusable
- `responseXML` and `responseText`

Design Patterns in JavaScript

- Creational Pattern
- Constructor Pattern
- Singleton Pattern
- Module Pattern
- Façade Pattern
- Factory Pattern

jQuery



jQuery Overview

- What is jQuery actually?
- How browsers see HTML
- JSON Overview
- Downloading jQuery
- Including jQuery in your pages
- Hello World

Selectors – The Heart of jQuery

- Element Selector
\$(“element”)
- ID Selector
\$(“#id”)
- Class Selector
\$(“.classname”)
- Ancestor Descendant
\$(“E F”)
- Parent Child
\$(“E > F”)
- Siblings – Adjacent & General
Adjacent Sibling : \$(“E + F”)
General Siblings : \$(“E ~ F”);
- Multiple Selectors
\$(“E, F, G”)

Selectors Contd..

- `:first-child`, `:last-child`, `:only-child` `:nth-child(n)`
 - `$(“li:first-child”);`
 - `$(“tr:last-child”);`
 - `$(“img:only-child”);`
 - `$(“tr:nth-child(2n)”);`
- **Attribute Selectors**
 - Has Attribute: `$(“img[alt]”);`
 - Begins With: `$(“a[href^=mailto:]”);`
 - Ends With: `$(“a[href$=.pdf]”);`
 - Contains: `$(“a[href*=microsoft]”);`
 - Equals: `$(“:checkbox[checked=true]”)`
- `:not(s)`, `:empty`, `:eq(n)`, `:contains(s)`
- `:even`, `:odd`

jQuery Tid-Bits

- The jQuery Object
- Looping with `each()`;
- `this`
- Chaining
- Closures
- Accessing DOM Objects
 - Array Subscript – Unsafe
 - `.get(n)`
- Making peace with other libraries – `noConflict()`
- Caching for performance

DOM Traversal

- `.filter()`
- `.siblings()`
- `.parent()`, `.children()`, `.parents()`
- `.next()`, `.nextAll()`, `.prev()`, `.prevAll()`, `.andSelf()`
- `.find()`

Manipulating Styles

- `.addClass()`
- `.removeClass()`
- `.css("height", "35px")`

Events

- Unobtrusive Programming
- Capturing vs. Bubbling; StopPropagation, preventDefault
- The Universal Page Load
- Binding Events to Elements, Triggering Events via Code
- Shorthands
 - blur, focus, select
 - change
 - click, dblclick
 - mousedown, mouseup, mouseover, mouseout, mousemove
 - keyup, keydown, keypress
 - select
- Event Handler Context
- Passing additional parameters to events
- Compound Events
 - Toggle, Hover
- Live, Die & Delegate!

Effects & Animations

- Hide, Show
- fadeIn, fadeOut
- Toggle
- slideUp, slideDown
- slideToggle
- .animate()

Working with Forms

■ Form Selectors

- :text
- :checkbox
- :radio
- :image
- :submit
- :reset
- :password
- :file
- :input
- :button
- :enabled
- :disabled
- :checked
- :selected

DOM Manipulation

- `.text()`
- `.html()`
- `.val()`
- `.append()`, `prepend()`
- `.remove()`
- `.empty()`
- `.attr()`, `.removeAttr()`
- `addClass()`, `removeClass()`
- Creating DOM Nodes
- `insertAfter`, `after`, `insertBefore`, `before`
- `prependTo`, `appendTo`
- `.wrap()`

AJAX

- `.load("a.html")`
- `.getJSON("b.json");`
- `.get("c.xml");`
- `.post("d.php");`
- `.ajax({`
 - `url:""`,
 - `type:"GET"`,
 - `dataType: "html"`,
 - `success: function(data){`
 - `},`
 - `error: function(xhr){`
 - `}`

Authoring Plugins

```
(function($){  
    $.fn.myPlugin = function(options){  
        var defaults = { };  
        options = $.extend(defaults, options);  
  
        return this.each(function(){  
            //My Code for selected elements  
        });  
    }  
})(jQuery);
```

```
//Calling  
$("selector").myPlugin({options})
```

jQuery Best Practices – Tips & Tricks

- Select directly using an ID selector where possible
- Cache objects if using repeatedly
- Chain as long as possible
- Reduce Direct DOM Manipulation
- Be wary of selectors in loops or each()
- Leverage Event Delegation where possible
- Defer loading to window.load
- Don't use jQuery where its not needed!
- Conditionally loading jQuery locally

OOJ – Object Oriented JavaScript

- JavaScript is a Prototype based Language
- Closures
- JSON
- Extending Native Objects
- Getter/Setter
- Arrays & Objects – Library -> Books -> Authors

Lab

- Create a class for Cartesian Co-Ordinate System of Points. A Point has 2 properties, Latitude and Longitude. Create 2 point objects, set their co-ordinates using their constructors and provide a member function to find the simple X & Y distance between them.
- Distance can be represented as another Point object.
- X distance = $x1.Longitude - x2.Longitude$
- Y distance = $x1.Latitude - x1.Latitude$
- User interactivity is a bonus.

JSON

```
var myJSONObject = {  
  "People":  
  [  
    {"Name": "Tom", "Age": "25", "Email": "tom@abc.com"},  
    {"Name": "Dick", "Age": "24", "Email": "dick@xyz.com"},  
    {"Name": "Harry", "Age": "26", "Email": "harry@pqr.com"}  
  ]  
};
```

```
var myObject = JSON.parse(myJSONtext);
```

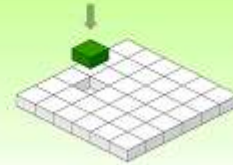
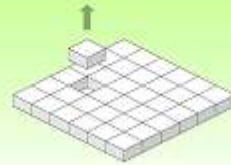
```
var myJSONText = JSON.stringify(myObject, replacer);
```

AJAX

Normal Page Request



Ajax Request



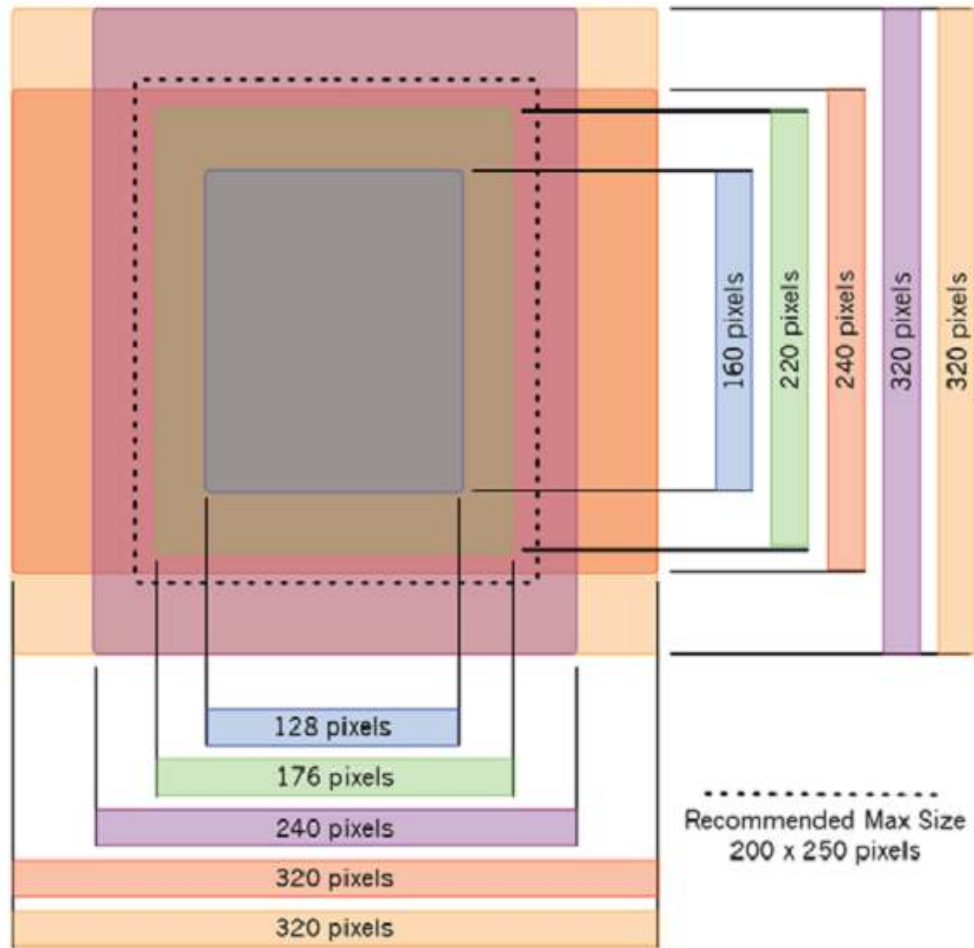
XMLHttpRequest

- IE 5 & 6 – new `ActiveXObject("Microsoft.XMLHTTP");`
- `Open(Type, Url)`
- `Send(data)`
- XMLHttpRequest object is non-reusable
- `responseXML` and `responseText`

Design Patterns in JavaScript

- Singleton
- Module
 - Module Syntax
 - Accesing Globals
 - Module Export
- Factory

Mobile Web Design



References

- Dive Into Accessibility
 - <http://diveintoaccessibility.org/>
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- Books
 - Pro JavaScript Design Patterns by Dustin Diaz
 - Object Oriented JavaScript by Stoyan Stefanov
 - Advanced JavaScript 3rd Ed by Chuck Easttom
 - Learning jQuery 1.3
- High Performance String Concatenation
 - <http://www.sitepoint.com/javascript-fast-string-concatenation/>
- HTML5 Forms Playground
 - <http://wufoo.com/html5/>
- Font Kit Generator
 - <http://www.fontsquirrel.com/fontface/generator>
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 - <http://net.tutsplus.com/tutorials/javascript-ajax/14-helpful-jquery-tricks-notes-and-best-practices/>
- Net.Tuts+
 - <http://net.tutsplus.com/>
- JavaScript Playground Online
 - <http://jsfiddle.net/>
- CSS3 Fluid Less Framework
 - <http://lessframework.com/>
- CSS Frameworks
 - <http://960.gs/>, <http://www.blueprintcss.org/>

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- Flowplayer
 - <http://flowplayer.org/>
- SWFObject
 - <http://code.google.com/p/swfobject/>
- SWFUpload
 - <http://swfupload.org/>
- Miro Video Converter
 - <http://www.mirovideoconverter.com/>