

AJAX

By Vijay Shrivakumar



CERTIFIED EXPERT
Flex® with AIR



CERTIFIED EXPERT
Web Specialist®



About Me

Vijay Shivakumar

Designer | Developer | Trainer

Training on web technologies and Adobe products from past 10 years



AJAX

About You

Designer
Developer
Software Programmer



Prerequisites

HTML / XHTML

CSS

JavaScript

XML

Programming Fundamentals

Willingness to learn

Keep pace with other participants this is a hands on training



Course Agenda

Basic standards for ajax

Learn using ajax

Browser support

Dealing with different data formats

Server side ajax

Cross domain ajax

New HTML5 ajax

Frameworks and toolkits for ajax



What you need?

Aptana Studio 3.2.2

notepad++

editpad

notepad

Internet Explorer recommended 9 or above

Firefox latest (15.x)

**Internet connection to download JavaScript
and xml files**



What is Ajax ?

AJAX = Asynchronous JavaScript and XML.

Based on JavaScript and HTTP requests.

Type of programming made popular in 2005 by Google.

Is not a new programming language, but a new way to use existing standards.

Term AJAX was coined in February 18, 2005, by **Jesse James Garret**



Basics for AJAX

HTML

CSS – Cascading Style Sheets

DOM Events

JavaScript

AJAX

HTML

```
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01  
  Transitional//EN""http://www.w3.org/TR/html4/loose.dtd">  
<html xmlns="http://www.w3.org/1999/xhtml">
```

```
<head>
```

```
  <meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
```

```
  <title>your web page title</title>
```

```
  <script type="text/javascript"> </script>
```

```
</head>
```

```
<body>
```

```
  <div></div>
```

```
</body>
```

```
</html>
```

Inline style

```
<div style="width:200px; height:200px"></div>
```

Page style / Embedded style

```
<style type="text/css">  
    div{    width: 200px; height: 200px;    }  
</style>
```

External style

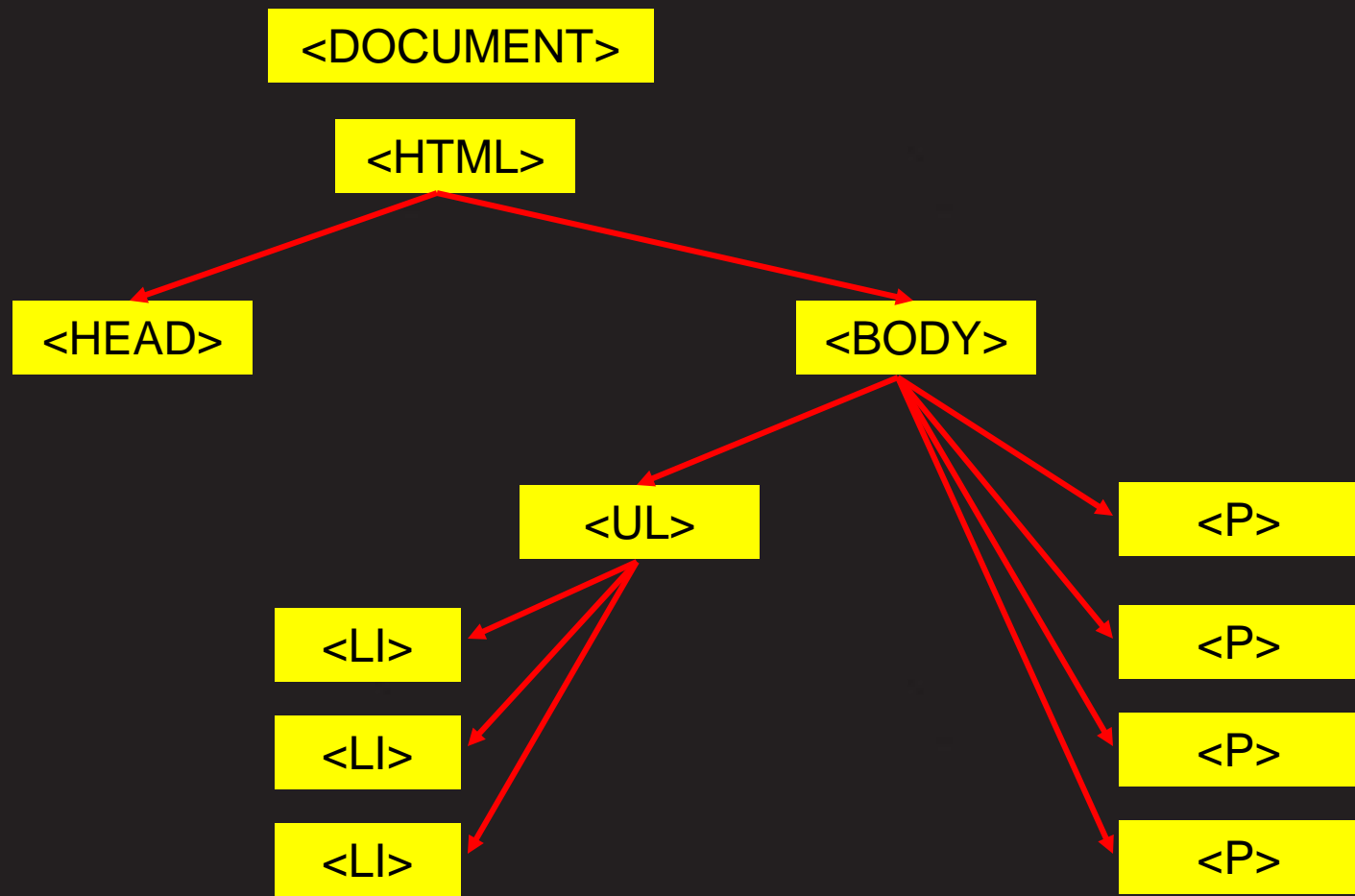
```
<style type="text/css">  
    @import url("mystyle.css")  
</style>  
<link href="mystyle.css" type="text/css" rel="stylesheet" />
```



Selectors

Specificity

- DOM selection
- DOM creation
- DOM attributes
- DOM removing
- DOM navigation





JavaScript

Using JavaScript to access CSS

Reading / Modifying

- DOM Events
- Native Events
- Inline Events
- Unobtrusive
- Cross Browser Event Implementation
- Event Object
- Event Flow



AJAX



JS OOP

Differences between classical & prototypical

AJAX

HTTP Request



HTML, XML, JavaScript, Images, audio/video etc...

The XMLHttpRequest Advantages

- In a traditional request the user waits a lot before the data is displayed on the page
- Ajax makes the wait time lot lesser 😊
- Saves bandwidth makes your application responsive and fast etc...

The XMLHttpRequest

- Cross browser JavaScript object that can request data from server without refreshing the page.
- It was first implemented by Microsoft in IE 5
- Now supported by W3C

Properties of XMLHttpRequest object

readyState

responseText

responseXML

status

statusText

Properties of XMLHttpRequest object

readyState is not cross browser friendly

- 0 = Uninitialized (object contains no data)
- 1 = Open (object is currently open)
- 2 = Sent (object finished sending request for data)
- 3 = Receiving (receiving data or processing returned data)
- 4 = Loaded (object finished initializing)

Properties of XMLHttpRequest object

status

200	=	OK
400	=	Bad request
401	=	Unauthorized
403	=	Forbidden
404	=	Not found
500	=	Internal server error

Methods of XMLHttpRequest object

`abort()` | Cancels the request

`getAllResponseHeaders()`

`getResponseHeaders()`

`open("method", "URL", async(false sync, true
async), ["user", "pass"])`

`send(content for post or null/empty for get)`

`setRequestHeader("label", "value")`

Methods of XMLHttpRequest object

setRequestHeader("label", "value")

`setRequestHeader("Content-Type", "application/x-www-form-urlencoded");`

`setRequestHeader("Content-Type", "text/xml");`

`setRequestHeader("Content-Type", "application/json");`

`setRequestHeader("Content-Type", "text/plain");`



XMLHttpRequest

Event Handlers of XMLHttpRequest `onreadystatechange()`

Firefox Specific Events (Use at your own risk)

`onload` triggered when `readyState` is 4

(basically fires only when the load is complete)

`onprogress` triggered for any progress

`onerror` triggered when any error happens

AJAX

HTTP Request

Cross Origin Request





AJAX



XMLHttpRequest



Frameworks

Prototype

Scriptaculous

Dojo

YUI

Mootools

jQuery

ExtJS

GWT (Java)

DWR (Java)

Ajax for ASP.NET

▪

▪

200+ more...



Prototype.js

- Prototype is a free, open source JavaScript library that works across modern web browsers.
- Easy dynamic web application development
- Abstracts all the browser differences
- Began in 2005 as a Ruby on Rails framework
- More info on <http://prototypejs.org>

Browser Support for Prototype



6.0 or Greater



1.5 or Greater



2.6 or Greater



1.0 or Greater



9.2.X or Greater



Prototype.js

Main Objectives

- Dom Manipulation
- Events
- Ajax
- Effects via scriptaculous

Selection of DOM

- `$()` select elms with an ID
 - An alternate for `document.getElementById();`
- `$$()` retrieves an array of element with matching css selector
- `$F()` retrieves form values.



AJAX



Scriptaculous.js

The word "AJAX" is rendered in a bold, 3D-style font. Each letter is a different color: 'A' is red, 'J' is yellow, 'A' is green, 'X' is blue, and 'A' is purple. The letters are set against a background of colorful, wavy vertical lines in shades of orange, yellow, green, and blue.

AJAX

The word "Mootools" is written in a white, bold, sans-serif font. It is underlined with a thin white line. To the left of the text is a red wavy line that curves upwards and then downwards.

Mootools

dojō



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AJAX



Dojo

Comes with 3 packages

Dojo

Dijit

DojoX



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