

Web Development Fundamentals

Ngoc Nguyen

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Course Objectives

- Understand HTML language
- Get the basics of style sheets, the main properties and the use of CSS technology in creating web pages
- Common CSS layouts
- UI development process
- Get an overview of necessary elements to learn JavaScript and work with it
- JQuery, AngularJS
- Use Web Developer tools

Agenda

- Introduction to HTML/CSS
- Common CSS layouts
- UI Development Process
- Introduction to Javascript
- JQuery, AngularJS
- Introduction Web Developer and Debugging tools: Firebug, IE Dev Toolbar, Fiddler

Course Audience and Prerequisite

- This course is designed for people with little to zero Web Development experience, who needs to get up to speed with Web Development.
- Required experience using Web browser.

Assessment Disciplines

- Class Participation

Duration

- Course Duration: 6 hrs

Course Administration

- In order to complete the course you must:
 - Sign in the Class Attendance List
 - Participate in the course
 - Provide your feedback in the End of Course Evaluation

Introduction to HTML/CSS

Introducing HTML

- What is HTML?
- The syntax and structure of HTML
- Introducing tags, attributes and values

What is HTML?

- HTML stands for **H**yper **T**ext **M**arkup **L**anguage.
- HTML is not a programming language, it is a **markup language**
- A markup language is a set of **markup tags**
- HTML uses **markup tags** to describe web pages
- Can write on any computer that has a text editor.

The syntax and structure of HTML

- HTML Documents = Web Pages
 - HTML documents **describe web pages**
 - HTML documents **contain HTML tags** and plain text
 - HTML documents are also **called web pages**
- A HTML document is composed of three parts:
 - a line containing HTML version information,
 - a declarative header section (delimited by the HEAD element),
 - a body, which contains the document's actual content. The body may be implemented by the BODY element or the FRAMESET element.

```
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01//EN"
    "http://www.w3.org/TR/html4/strict.dtd">
<HTML>
  <HEAD>
    <TITLE>My first HTML document</TITLE>
  </HEAD>
  <BODY>
    <P>Hello world!
  </BODY>
</HTML>
```

Introducing tags, elements and attributes

- HTML Tags
- HTML Elements
- HTML Attributes

HTML Tags

- HTML markup tags are usually called HTML tags
 - HTML tags are keywords surrounded by **angle brackets** like `<html>`
 - HTML tags normally **come in pairs** like `` and ``
 - The first tag in a pair is the **start tag**, the second tag is the **end tag**
 - Start and end tags are also called **opening tags** and **closing tags**
- HTML Basic:
 - Headings are defined with the `<h1>` to `<h6>` tags.
 - Paragraphs are defined with the `<p>` tag.
 - links are defined with the `<a>` tag.
 - Images are defined with the `` tag.

HTML Elements

- HTML documents are defined by HTML elements.

Start tag	Element content	End tag
<p>	This is a paragraph	</p>

- HTML Element Syntax
 - An HTML element starts with a **start tag / opening tag**
 - An HTML element ends with an **end tag / closing tag**
 - The **element content** is everything between the start and the end tag
 - Some HTML elements have **empty content**
 - Empty elements are **closed in the start tag**
 - Most HTML elements can have **attributes**

HTML Attributes

- HTML elements can have attributes
- Attributes provide additional information about an element
- Attributes are always specified in the start tag
- Attributes come in name/value pairs like: `name="value"`
- Some attributes that are standard for most HTML elements

Attribute	Value	Description
class	<i>classname</i>	Specifies a <i>classname</i> for an element
id	<i>id</i>	Specifies a unique <i>id</i> for an element
style	<i>style_definition</i>	Specifies an inline style for an element
title	<i>tooltip_text</i>	Specifies extra information about an element (displayed as a tool tip)

Introducing CSS

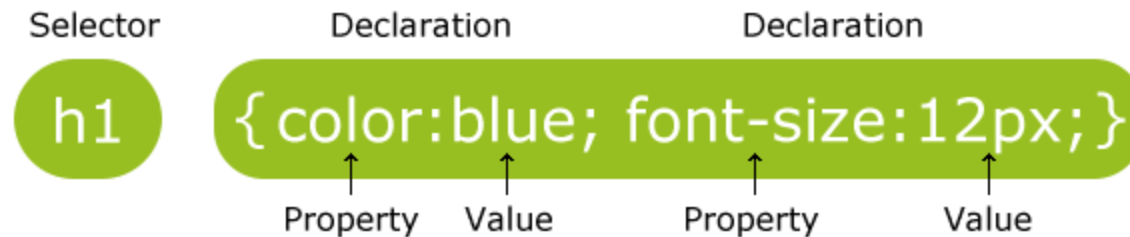
- What is CSS?
- CSS syntax
- Applying and modifying CSS

What is CSS?

- CSS stands for **C**ascading **S**tyle **S**heets
- Styles define **how to display** HTML elements
- **External Style Sheets** can save a lot of work
- External Style Sheets are stored in **CSS files**

CSS Syntax

- A CSS rule has two main parts: a selector, and one or more declarations



- CSS allows you to specify your own selectors called "id" and "class".
 - The id selector is used to specify a style for a single, unique element. It uses the id attribute of the HTML element, and is defined with a "#".
 - The class selector is used to specify a style for a group of elements. It uses the HTML class attribute, and is defined with a ".".

Applying and modifying CSS

- External style sheet

```
<head>
  <link rel="stylesheet" type="text/css"
        href="mystyle.css" />
</head>
```

- Internal style sheet

```
<head>
  <style type="text/css">
    hr { color: sienna; }
    p { margin-left: 20px; }
    body { font-size: 12px; }
  </style>
</head>
```

- Inline style

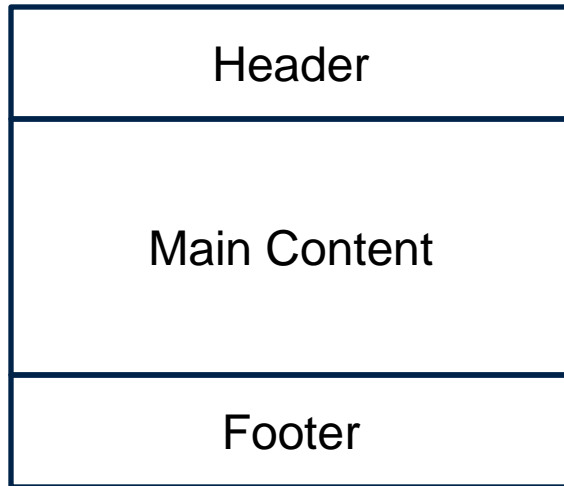
```
<p style="color:sienna;margin-left:20px">
This is a paragraph.</p>
```

Multiple Style Sheets

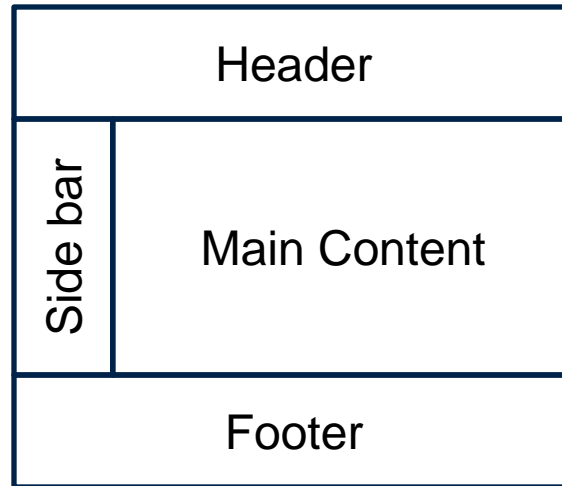
- Browser default
- External style sheet
- Internal style sheet (in the head section)
- Inline style (inside an HTML element)

Common CSS Layouts

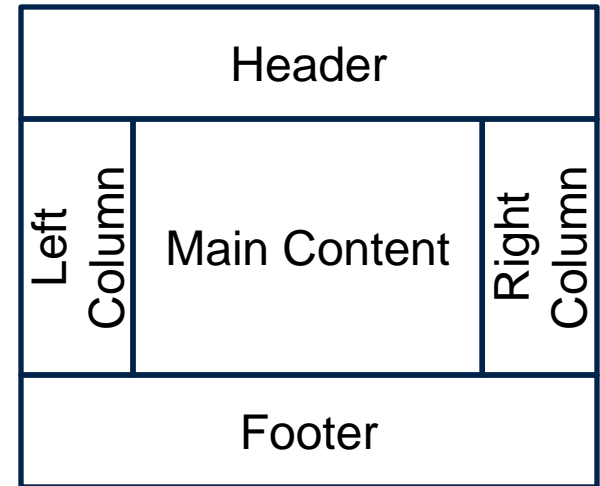
Common CSS Layouts



1 column



2 columns



3 columns

Layout 1: One column

```
<div id="container">  
  <div id="header">Header</div>  
  <div id="content">Content here</div>  
  <div id="footer">Here it goes the footer</div>  
</div>
```

Layout 2: Two columns

HTML

```
<div id="container">  
  <div id="header">Header</div>  
  <div id="sidebar">Sidebar content here</div>  
  <div id="content">Content here</div>  
  <div id="footer">Here it goes the footer</div>  
</div>
```

CSS

```
#container { width:100%; }  
#sidebar { float:left; width:25%; }  
#content { float:left; }  
#footer { clear:both; }
```


Layout 3: Three columns

HTML

```
<div id="container">  
  <div id="header">Header</div>  
  <div id="wrapper">  
    <div id="content">Content here</div>  
  </div>  
  <div id="left">Left column</div>  
  <div id="right">Right column</div>  
  <div id="footer">Here it goes the footer</div>  
</div>
```

CSS

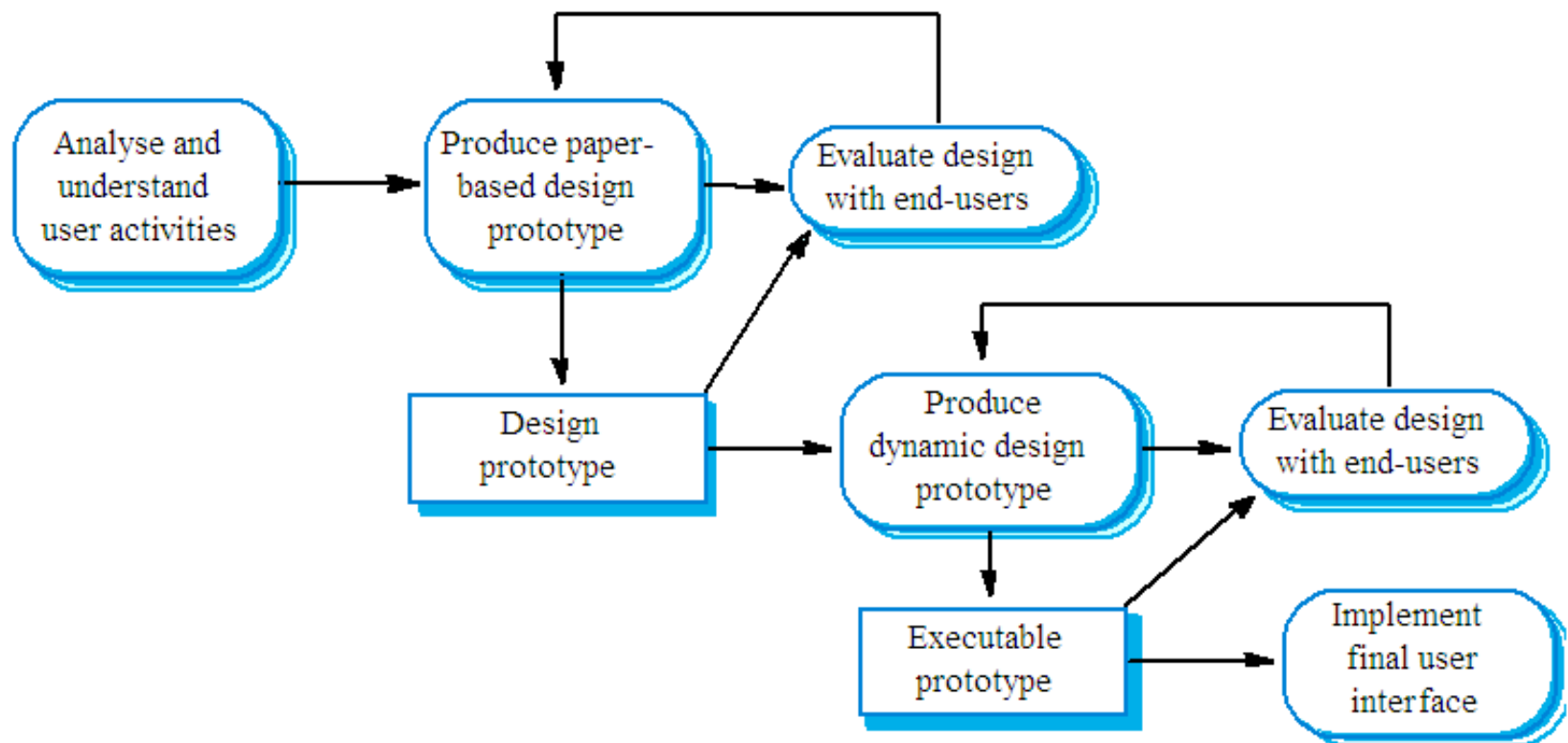
```
#container { width:100%; }  
#wrapper { float:left; width:100%; }  
#content { margin: 0 25%; }  
#left { float:left; width:25%; margin-left:-100%; }  
#right { float:left; width:25%; margin-left:-25%; }  
#footer { clear:left; width:100%; }
```

Web Layout Tips

- Keep it simple
- Readable font size and face
- Use web safe eye pleasing colors
- Webpage Dimensions
- Limit File Size

UI Design Process

UI Design Process



Introduction to Javascript

JavaScript

- What is JavaScript?
- What Can JavaScript do?
- JavaScript Basic
- JavaScript Framework

What is JavaScript?

- JavaScript was designed to add interactivity to HTML pages
- JavaScript is a scripting language
- A scripting language is a lightweight programming language
- JavaScript is usually embedded directly into HTML pages
- JavaScript is an interpreted language (means that scripts execute without preliminary compilation)

What Can JavaScript do?

- JavaScript gives HTML designers a programming tool
- JavaScript can react to events
- JavaScript can read and write HTML elements
- JavaScript can be used to validate data
- JavaScript can be used to detect the visitor's browser JavaScript can be used to create cookies

JavaScript - Basic

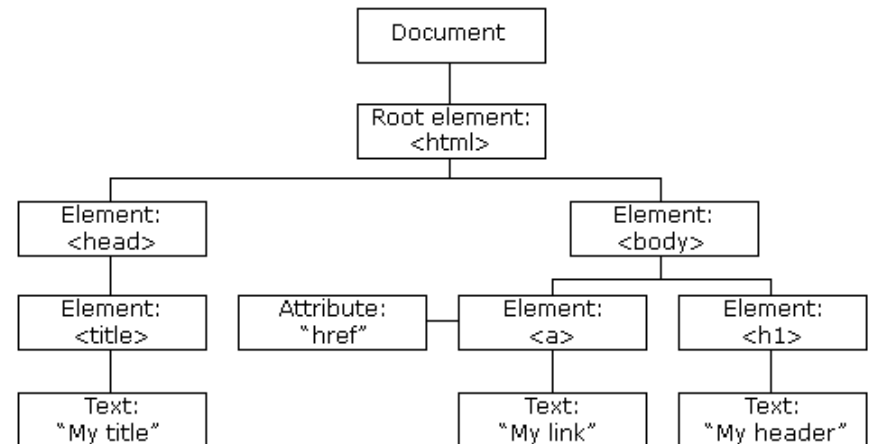
- Statements
- Comments
- Variables
- Operators
- Comparisons
- If...Else
- Switch
- Popup Boxes
- Functions
- For Loop
- While Loop
- Break Loops
- For...In
- Events
- Try...Catch
- Throw

```
<script type="text/javascript">  
document.write("<h1>This is a heading</h1>");  
document.write("<p>This is a paragraph.</p>");  
</script>
```

JavaScript - Basic

HTML DOM: The HTML DOM defines a standard way for accessing and manipulating HTML documents.

```
<script type="text/javascript">
function insRow()
{
var x=document.getElementById('myTable').insertRow(0);
var y=x.insertCell(0);
var z=x.insertCell(1);
y.innerHTML="NEW CELL1";
z.innerHTML="NEW CELL2";
y.onclick = function(){ alert(this.innerHTML); }
}
</script>
```



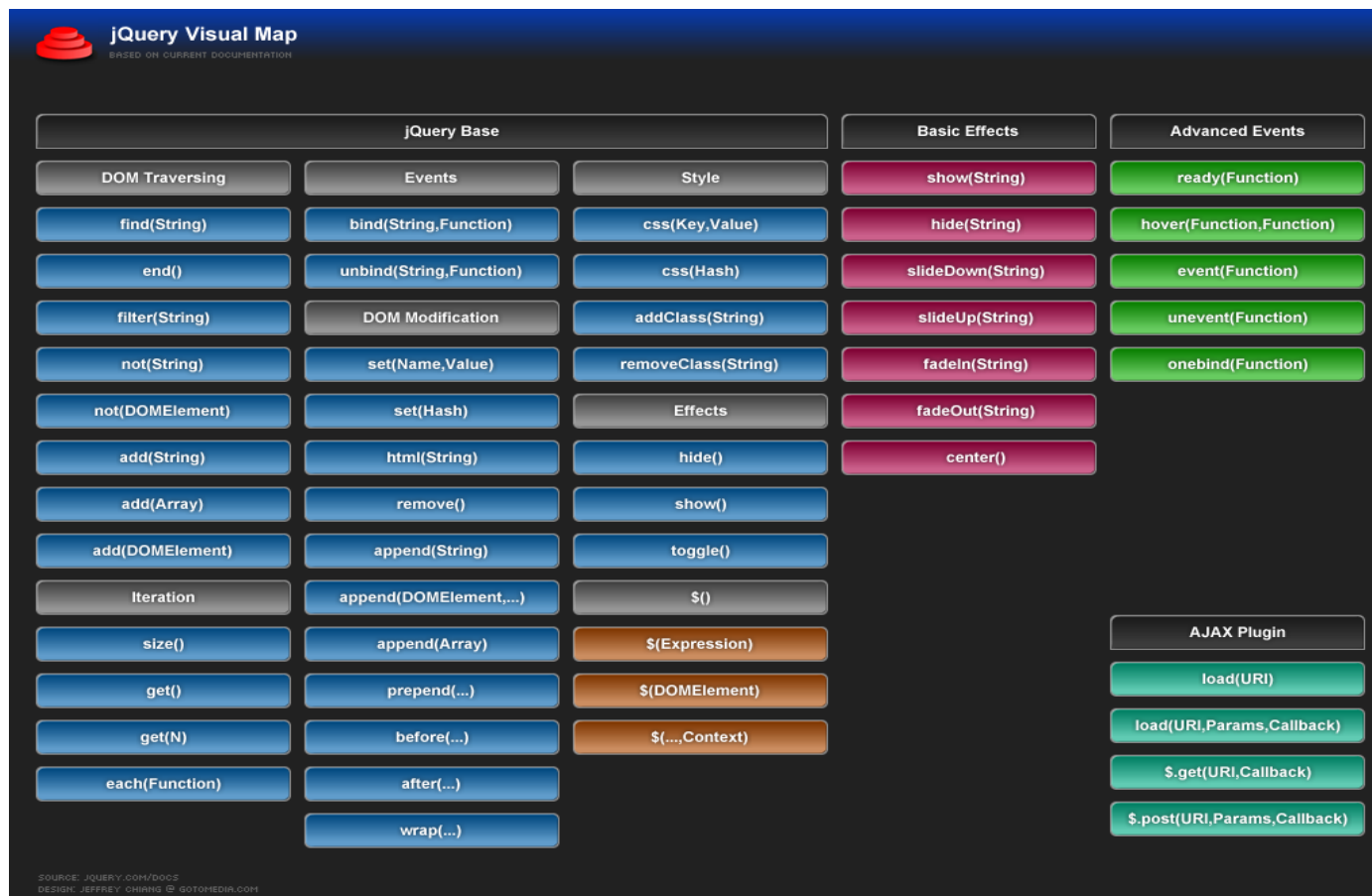
JavaScript : Framework

- JQuery: jQuery is a fast and concise JavaScript Library that simplifies HTML document traversing, event handling, animating, and Ajax interactions for rapid web development.
- Ext.JS
- Prototype
- Mootools
- ...

```
...email).each(function() {
    var var_email = $(this).load("/email/");
});
$('.autoDisable').attr('disabled', true);
$.fn.multiSelect.defaults = {
    select: "select.multiselect",
    noneSelectedText: "None selected",
    selectedList: 3
};
```

JavaScript : Framework

- Jquery Visual Map



JavaScript : Framework

If you're using JavaScript to create a dynamic website, Angular is a good choice.

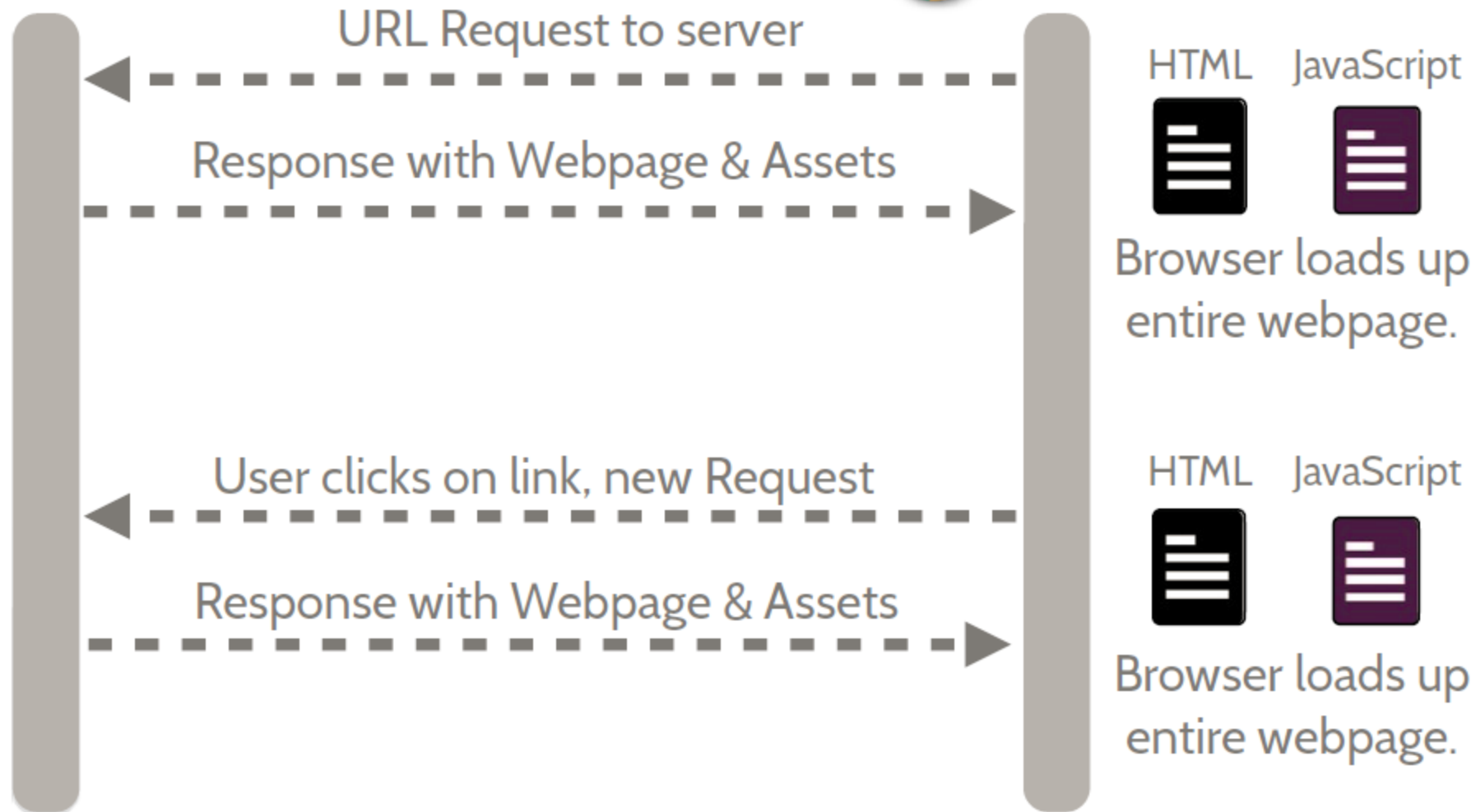
- Angular helps you organize your JavaScript
- Angular helps create responsive (as in fast) websites
- Angular plays well with jQuery
- Angular is easy to test

Traditional Page-Refresh

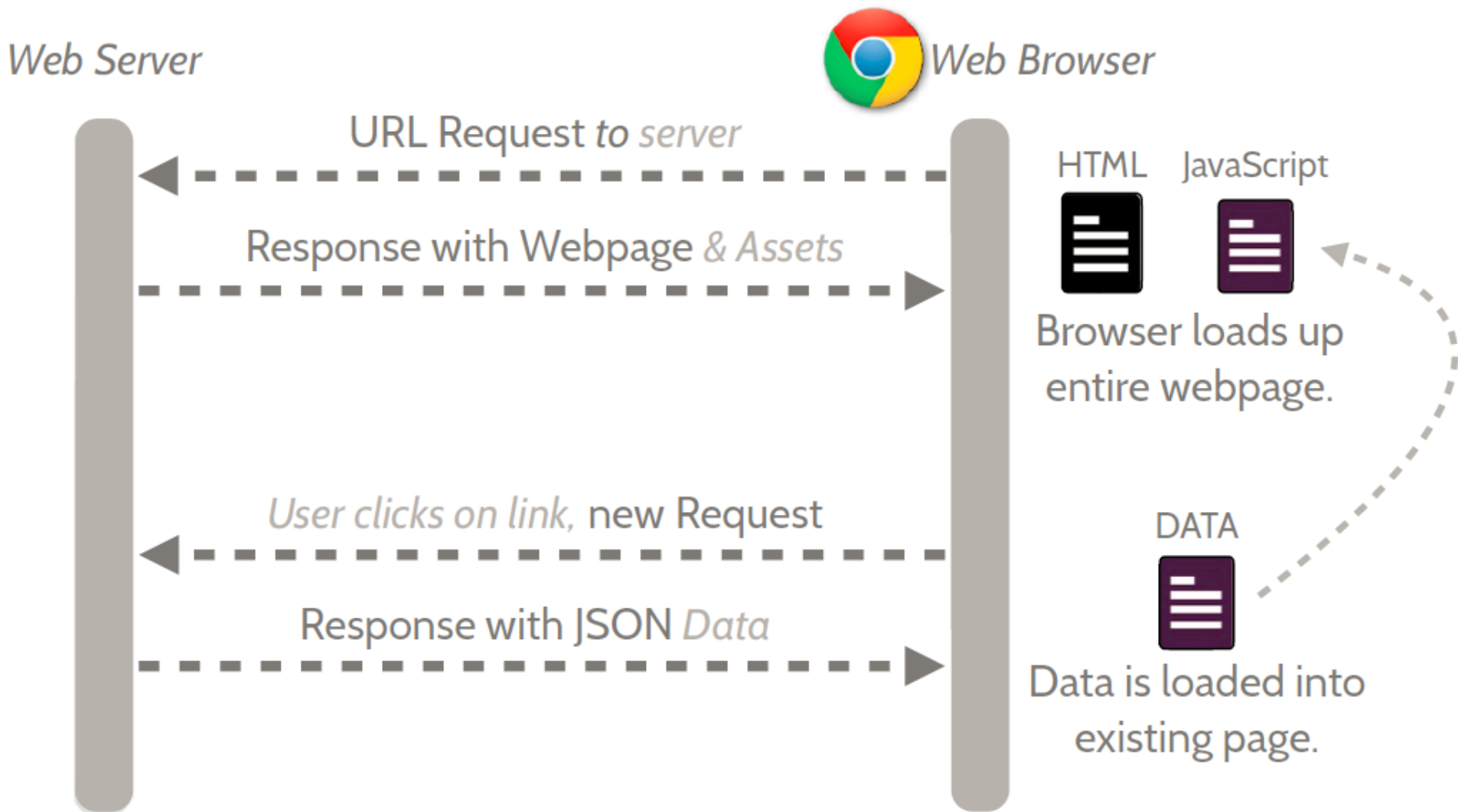
Web Server



Web Browser



A “responsive” website using Angular



AngularJS

- Library:

`<script type="text/javascript" src="angular.min.js"></script>`

- Directives – HTML annotations that trigger Javascript behaviors
- Modules – Where our application components live
- Controllers – Where we add application behavior
- Expressions – How values get displayed within the page

Introduction to Web Developer and Debugging tools

Introduction Web Developer and Debugging tools

Help you research and resolve:

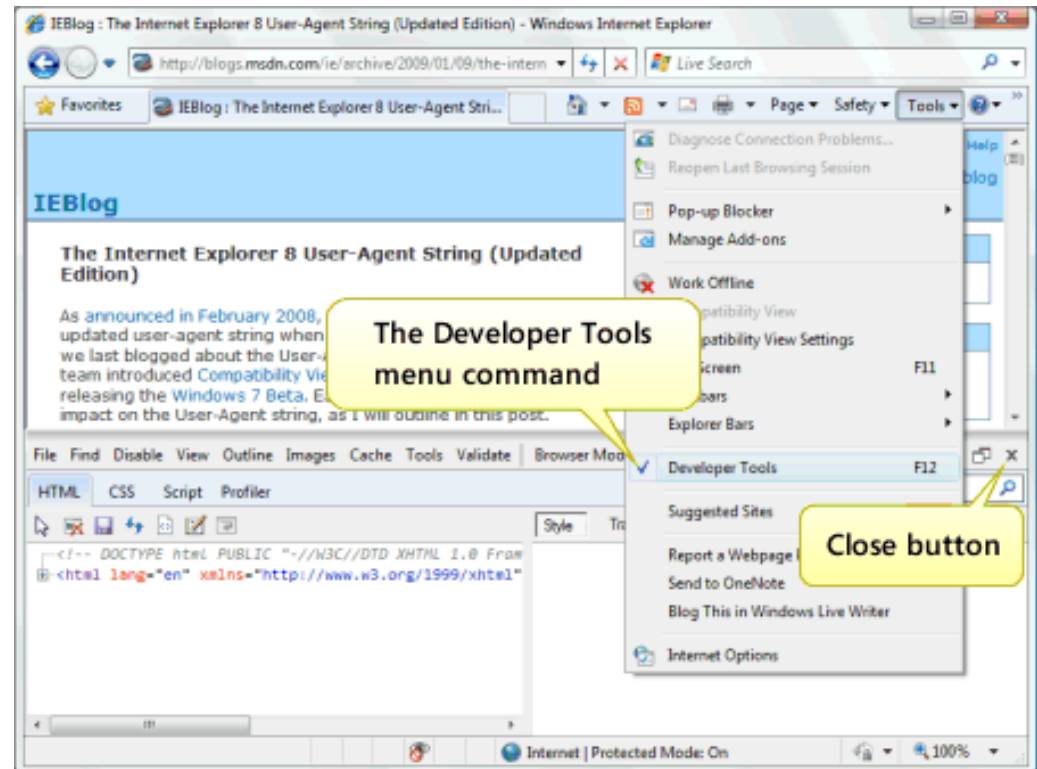
- HTML
- Cascading Style Sheets (CSS)
- JavaScript
- traffic between your computer and the Internet.

Debugging Tools:

- IE Developer
- Fiddler

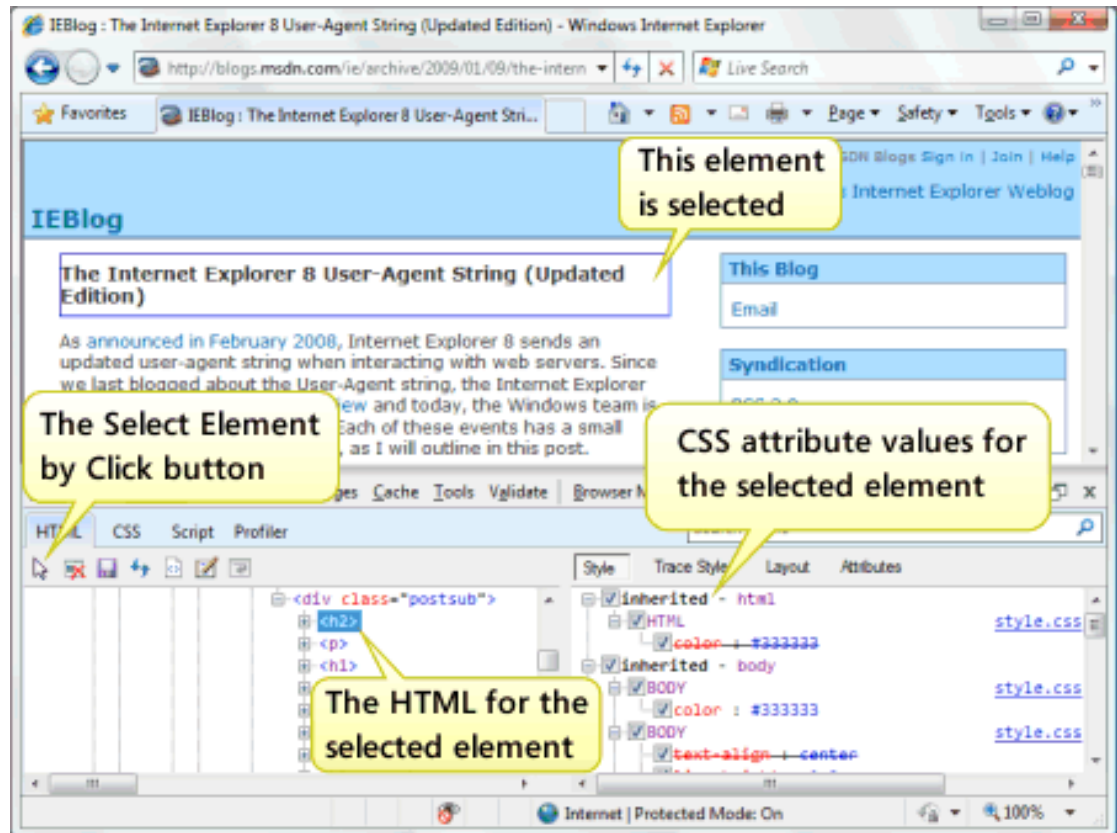
IE Developer

- **Opening and Closing the Developer Tools:** to open the Developer Tools, press F12; alternatively, on the Tools menu of the Internet Explorer 8 toolbar, click Developer Tools. The following image shows the Developer Tools window.



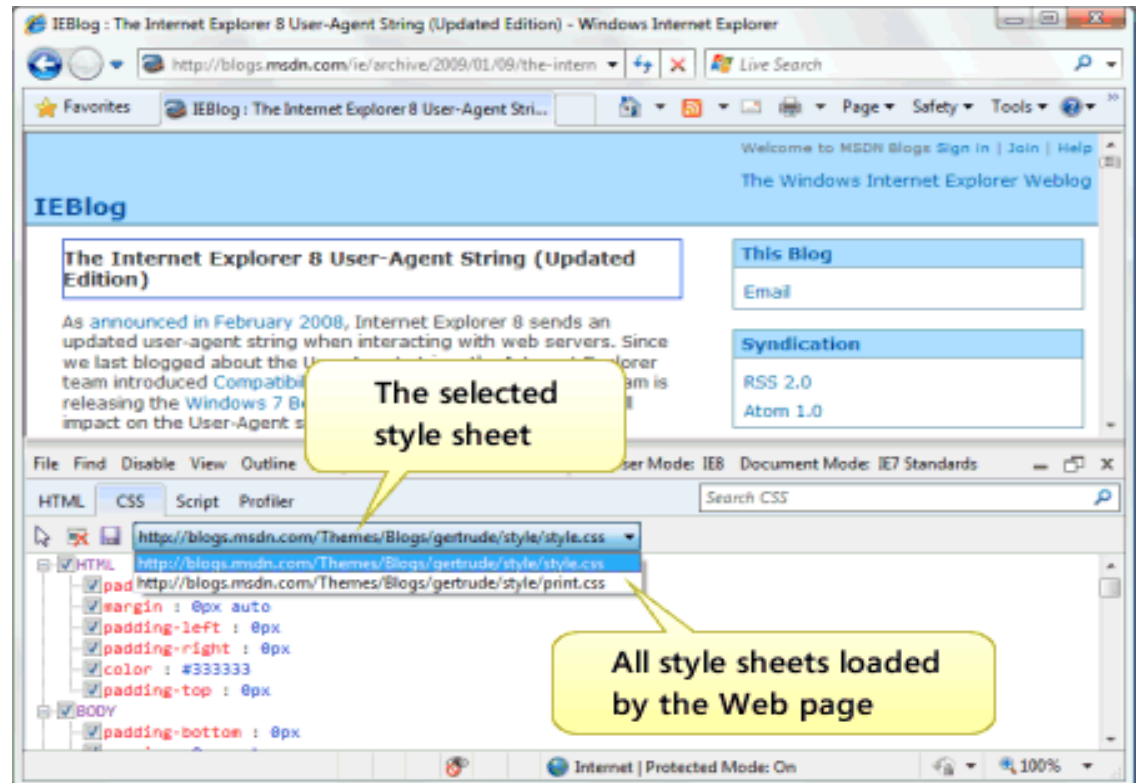
IE Developer

- **Selecting Objects on a webpage:** to select an element, either highlight it in the HTML tab or click the Select Element by Click button on the Developer Tools Find menu



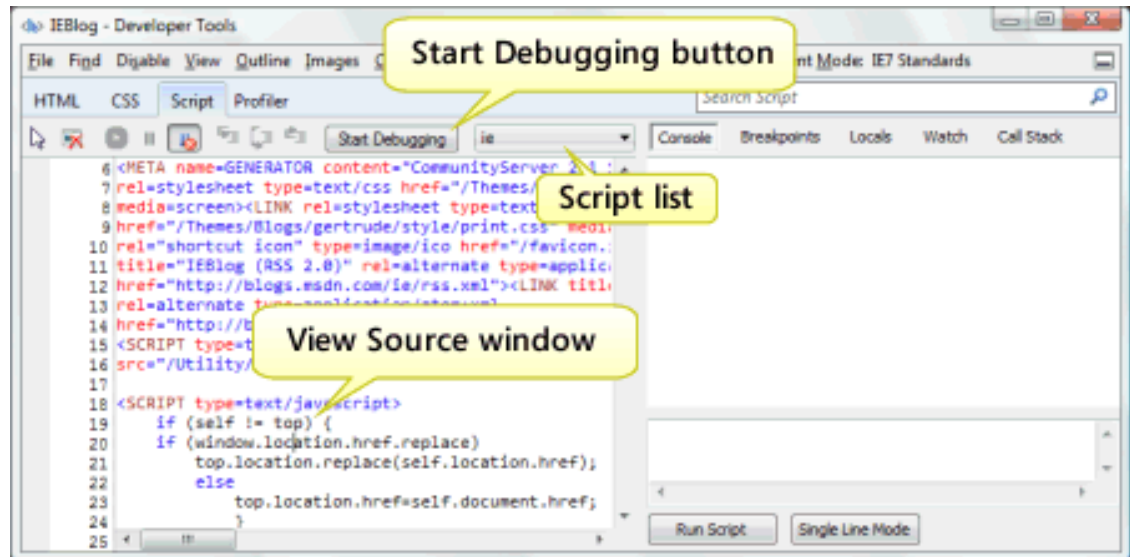
IE Developer

- **Inspecting CSS Rules:** the CSS tab enables you to understand the interplay among your style sheets



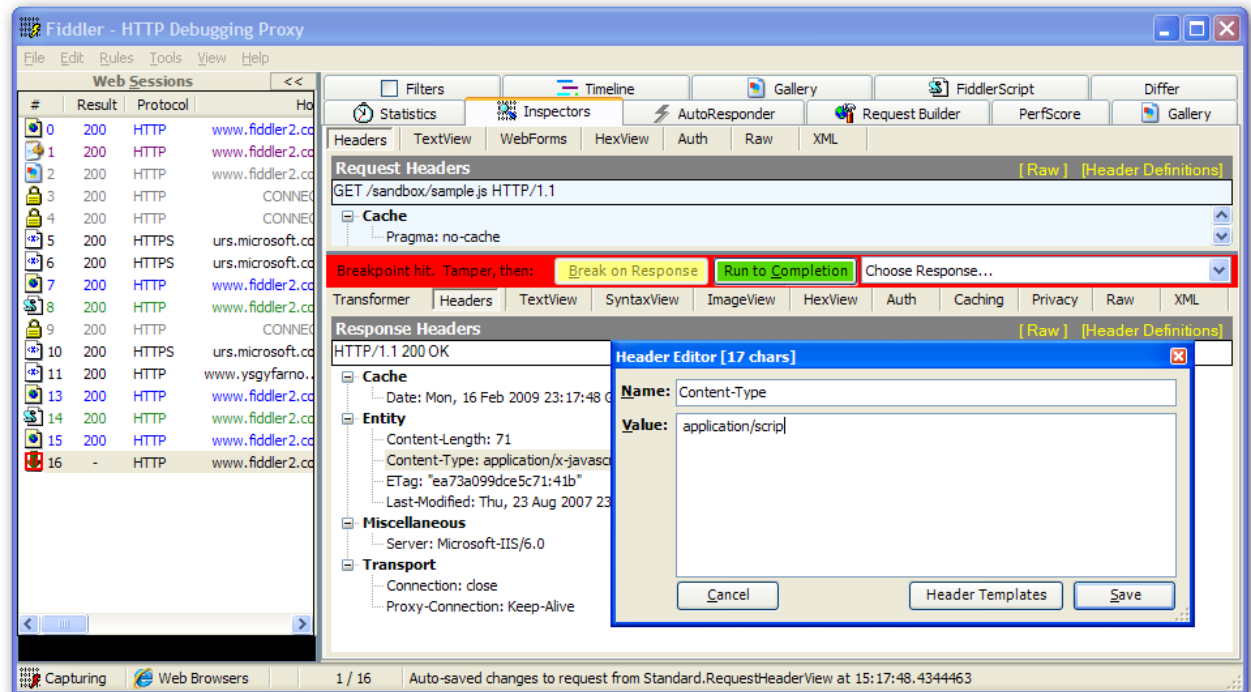
IE Developer

- **Debugging Script:** JScript debugging is a critical part of Web development. With the intuitive, lightweight JScript debugger, the Developer Tools feature brings one-click simplicity to the end-to-end JScript debugging experience.



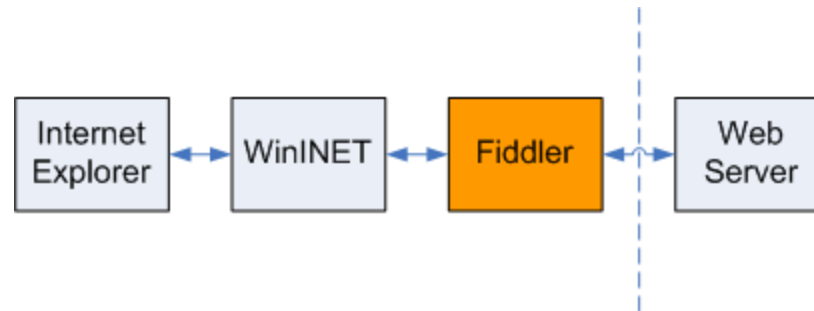
Fiddler

- The easy, clean, and powerful debugging proxy for checking out HTTP between here and there



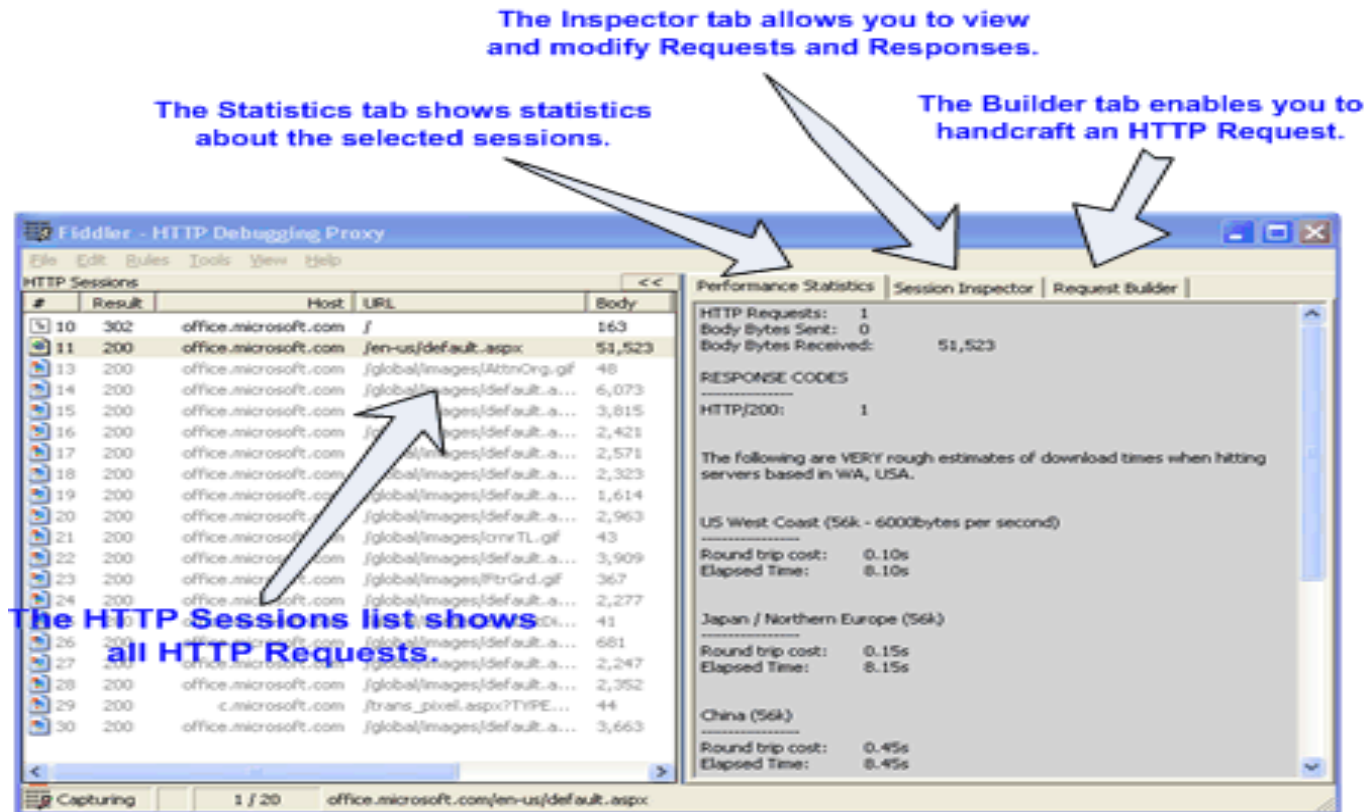
Fiddler

- As the system proxy, all HTTP requests from WinInet flow through Fiddler before reaching the target Web servers. Similarly, all HTTP responses flow through Fiddler before being returned to the client application.



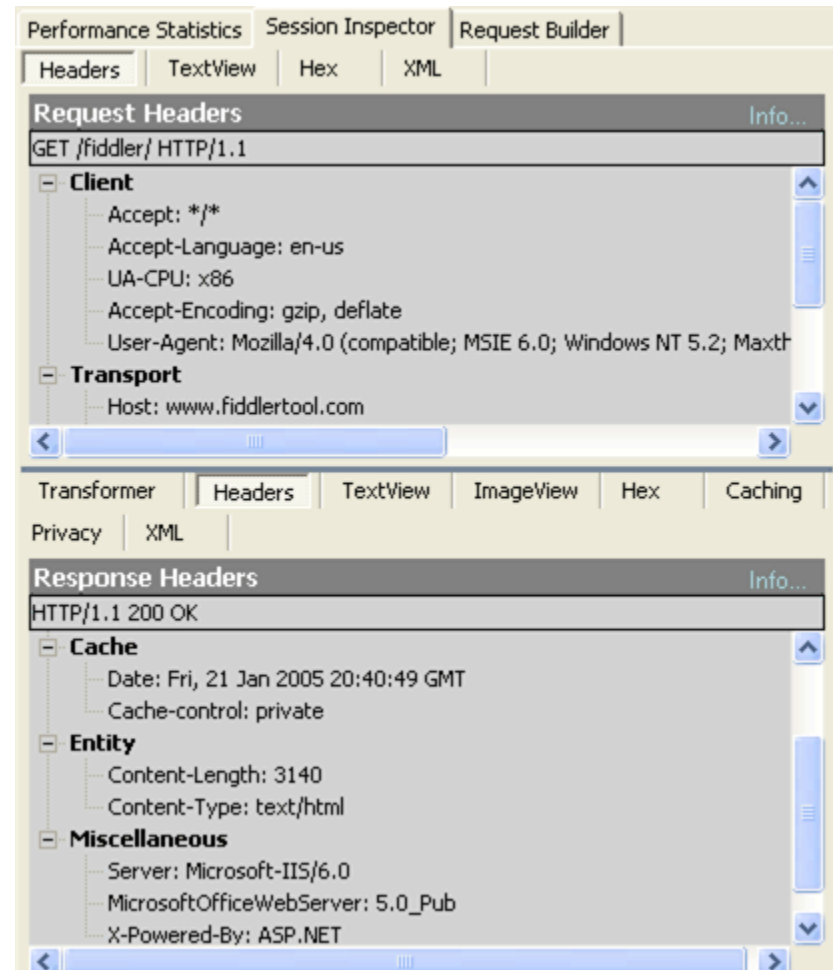
Fiddler

- Fiddler's user interface contains a list of HTTP sessions and three tabs that allow you to view different aspects of the selected sessions.



Fiddler

- **Using Fiddler for Debugging:** Fiddler can pause HTTP traffic and allow edits. This feature proves useful for security testing, as well as for general functionality testing, because all code paths can be exercised.



Points to Remember



Q&A



Thank You.

Revision History

Date	Version	Description	Updated by	Reviewed and Approved By
18-Oct-2011	0.1	Revised course objectives & agenda	Ngoc Nguyen	
12-Dec-2011	0.9	First version	Ngoc Nguyen	
19-Dec-2011	1.0	Add Javascript course	Nhan Tran	
16-Jan-2012	1.1	Update CSS layout	Ngoc Nguyen	Tai H Le
16-July-2014	2.0	Add AngularJS	Ngoc Nguyen	