COMS W3101: Scripting Languages: Javascript (Spring 2009)

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Lecture-1

- Course overview
 - See http://www.cs.columbia.edu/~ramana
- Overview of HTML
 - Formatting, headings, images, colors, tables, forms, etc.
 - XHTML difference with HTML
 - DHTML
 - What is it?
 - Why is it needed
- Javascript
 - Overview, what is it, why is it needed, etc.
 - How does it fit with HTML

Prerequisites

- A good background in at least one programming language is recommended.
- Ability to learn quickly.

Overview of HTML

- HTTP: Communication protocol between
 - Any web server (e.g., www.cnn.com) and
 - Browswer (e.g., firefox, IE, Opera, etc.)
- HTML Hyper-Text Markup Language

Format in which web data is stored.



HTML ... contd.

- Format in which a web server stores the content.
- Transferred over to the client (using HTTP).
- Hypertext stores data of many formatsSimple text - with different fonts, sizes, colors, paragraphs, etc.
 - Audio, video, image files, etc.
 - Uses markup tags, e.g., <h1> Heading </h1>
 - ⇒ Can arrange data in tables, bullets, web links, forms, etc. HTML details
- HTML details

http://www.w3schools.com/html/default.asp http://www.w3.org/TR/html4/

A typical HTML page

<html> <!-- Beginning of the HTML page -->

<head> <!--Typically has page title, useful for search engines -->

Sample Web page

```
</title> <-- Page title -->
```

```
</head>
```

```
volume states <-- Body of the web page, has main content-->
Content
```

</body>

</html> <-- End of the HTML page -->

DHTML - Dynamic HTML

- Web requirements have become more demanding.
 - Not just "static" requirements, anymore
 - Check validity of input given on a web page.
 - Ability to manipulate data dynamically.
 - Based on the already available data.
 - Provide (simple) animation
 - Highlight a text area with a different color.
 - Change behavior of images on mouse clicks, focus, etc.
- Solution: DHTML
 - Ability to change HTML content dynamically.
 - Javascript can solve most of these issues.

Javascript – overview

- Executes on client (browser)
- Scripting NOT compile/link.
- Helps provide dynamic nature of HTML pages.
- Included as part of HTML pages as
 - Regular code (viewable by user)
 - A file present in some location.
- NOTE: Javascript is NOT the same as JAVA

A simple Javascript program

<html> <head> <title> Simple Javascript program </title> </head> <body> <script type="text/javascript"> document.write ("Simple Javascript program"); </script> </body> </html>

Javascript code

- Javascript code in HTML
- Javascript code can be placed in
 - <head> part of HTML file
 - Code is NOT executed unless called in <body> part of the file.
 - <body> part of HTML file executed along with the rest of body part.
 - Outside HTML file, location is specified.
 - Executed when called in <body>

Ways of defining Javascript code.

First:	Second:	
<head></head>	<head></head>	
<script type="text/javascript"></td><td></td></tr><tr><td>function foo() // defined here</td><td></head></td></tr><tr><td></script>	<body></body>	
	<script type="text/javascript"></td></tr><tr><td></td><td>function foo() // defined here</td></tr><tr><td><body></td><td>{</td></tr><tr><td><script type="text/javascript"></td><td></td></tr><tr><td>foo() // called here</td><td>}</td></tr><tr><td></script>	foo() // Called here
/		

Ways of defining Javascript code, contd.

Third:

```
<head>
<script type="text/javascript"
src="http://cnn.com/foo.js"> // Any general location
</script>
</head>
<body>
<script type="text/javascript"
// Javascript code called here.
</script>
</body>
```

Javascript - types

- Not a strongly typed language
 - x = 5; x = "string" is perfectly acceptable.
- Case sensitive.
- A variable has a "var" prefix.
 - "var x = 5" is same as just, "x = 5".
- Re-declaration is possible
 - var x=5; var x; \rightarrow x is still 5.

Javascript - operators

- Arithmetic operators: Usual ones
 +, -, *, /, %, ++, --
- Assignment operators
 - =, +=, -=, *=, /=, % =
- String operators:
 - + (concatenation operator)
- Comparison operators:
 - ==, !=, ===, >, <, >=, <=</pre>
- Logical operators
 - &&, ||, !
- Conditional operator
 - variable = (condition) ? value1: value2

Javascript - control statements

if statement:

if (cond1) statement1 else if (cond2) statement2

else statement3

```
for statement:
for (i = 0; i < n; i++)
  // code
```

Javascript - control statements ... contd.



Javascript - Popup boxes

Alert box

- alert ("alert text");
- Confirm box
 - confirm ("confirm some text");
- Prompt box
 - prompt ("prompt text", "default value")