ADVANCED JAVASCRIPT

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WHAT WE'RE GOING TO DO

- Basic of JavaScript
- History
- Variables
- Array
- Functions
- Regular Expressions
- DOM And Web Browser Environment

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WHAT WE'RE GOING TO DO (CONT.)

- Objects
- Document Object
- Dynamic HTML
- Dialog Boxes
- Events

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WHAT IS JAVASCRIPT

- Object based (not object oriented) programming language
  - very limited object creation
  - a set of pre-defined objects associated with
    - HTML document structure
      - many HTML tags constitute JS Objects
    - Browser functionality
      - provides a limited API to Browser functionality

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WHERE DID IT COME FROM

- Originally called LiveScript at Netscape
  - started out to be a server side scripting language for providing database connectivity and dynamic HTML generation on Netscape Web Servers
  - Netscape decided it would be a good thing for their browsers and servers to speak the same language so it got included in Navigator
  - Netscape in alliance w/Sun jointly announced the language and its new name Java Script
  - Because of rapid acceptance by the web community Microsoft forced to include in IE Browser

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BROWSER COMPATIBILITY

- For the most part Java Script runs the same way in all popular browsers
- There are a number of areas where there are slight differences in how Java Script will run
- There will be a separate set of slides addressing these differences and making your pages browser neutral.

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JAVASCRIPT…JAVA ?

- There is no relationship other than the fact that Java and JavaScript resemble each other (and C++) syntactically
- JavaScript is pretty much the de-facto standard for client-side scripting (Internet Explorer also provides VBScript & JScript)
- In Netscape browsers there is an API (Live Connect) that allows JavaScript and Java applets embedded in the same page to communicate.

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WHAT CAN IT BE USED FOR

- Some pretty amazing things….
  - Text animation
  - graphic animation
  - simple browser based application
  - HTML forms submission
  - client-side forms data validation (relieving the server of this task)
  - web site navigation

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PUTTING JAVASCRIPT INTO YOUR HTML

- in an external file
  - collect commonly used functions together into external function libraries on the server
    - added benefit of privacy from all but the most curious users
- in-line with your HTML
- as an expression for an HTML tag attribute
- within some HTML tags as Event Handlers

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<SCRIPT>…</SCRIPT>

- <SCRIPT language=…. src=……></SCRIPT>
- The <SCRIPT> tag indicates to the browser the beginning of an embedded script; </SCRIPT> indicates the end of an embedded script.
- the "language" attribute indicates the script processor to be used
- the "src" attribute indicates the URL of a file on the server containing the script to be embedded

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<SCRIPT>

- <SCRIPT LANGUAGE="JavaScript">
- *Your*
- *Javascript*
- *Code*
- *Goes*
- *Here*
- </SCRIPT>

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PROGRAMMING FUNDAMENTALS

- Value Types
  - String "Sample"
  - Number 2.52 , 5 , .5
  - Boolean true, false
  - Null null
  - Object - all properties and methods belonging to the object or array
  - Function - a function definition

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VARIABLES

- Naming
  - start with alpha followed by alphameric (and _)
- Creating
  - use the *var* keyword
    - var myName
  - definition and initialization can be combined
    - var myName = "John"

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ARRAYS

- One dimensional arrays
  - var myarray = new Array( ) //empty array
  - var myarray1 = new Array(10) // 10 elements
  - var myarray2 = new Array(2,4,6) // 3 elements initialized to 2, 4, and 6 respectively
- 0 based - myarray[0] is first element

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USER DEFINED OBJECTS

- Implemented as associative arrays
  - var point = new Object() // empty object
  - point.x = 5 ; point.y = 3; // no longer empty
  - var newpoint = {x:4 , y:5} // object literal form
  - var anotherpoint = new Object( )
  - anotherpoint = newpoint //object assignment

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USER DEFINED FUNCTIONS

- Function definition:
  - function sum(x,y) { return x + y; }
- Function Constructor
  - var sum = Function("x","y", "return x + y;")
- Function literal format (Javascript 1.2)
  - var sum = Function(x,y) {return x + y;}
- a function assigned to a property of an object is called a method of the object
- within the body of a function arguments[] contains an array of the arguements

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BUILT-IN FUNCTIONS

- Many commonly used functions are built into the language for:
  - string manipulations
  - math operations
  - built-in object methods
  - parsing
  - dynamic expression evaluation

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REGULAR EXPRESSION SYNTAX

/n,/t match literal newline, tab

\\, \/, * match a special character literally, ignoring or escaping its special meaning

[…] Match any one character between the brackets

[^…] Match any one character not between the brackets

w, \W Match any word\non-word character

\s, \S Match any whitespace/non-whitespace

\d, \D Match any digit/non-digit

^, $ require match at beginning/end of a string or in multi-line mode, beginning/end of a line

+ Match previous term one or more times

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OBJECT BASED NOT OBJECT ORIENTED

- Javascript treats the browser's objects as a pre-defined set of objects to which Javascript provides an API.
- Javascript, in addition to being a programming language, is meant to be a way to program a user's browser

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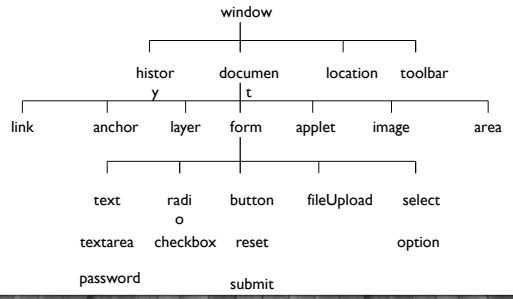
DOM AND WEB BROWSER ENVIRONMENT



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OBJECTS

- window - the current browser window
- window.history - the Netscape history list
- window.document - the html document currently in the browser client area
- window.location - the browser location field
- window.toolbar - the browser toolbar
- window.document.link - an array containing all of the links in the document
- window.document.anchor - an array of all the anchor points in the document

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OBJECTS (MORE…)

- Window.document.layer - a named document layer
- window.document.applet - a named java applet area
- window.document.image- a named image tag
- window.document.area - a named area
- window.document.form - a named form or the default form
- ect, ect

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A FEW EXAMPLES...

- window.location = "http://www.yahoo.com"
  - will take you to the specified URL (like a goto)
- window.history.back()
  - back( ) is a method on history
  - will be like clicking the back button in Nav 3
  - in Nav 4 will take you back to prev window
- window.history.goto(1)
  - takes you back to first URL in history array

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THE DOCUMENT OBJECT MODEL

- It is very important to understand the object model
- each object has its own properties, some of which are read only some of which you can be set directly by assignment (as location)
- each object also has a set of behaviors called methods

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DOCUMENT OBJECT EXAMPLES

- document.bgColor="yellow";
- document.fgColor="red";
- document.linkColor="purple";
- document.write("<h2>HELLO THERE!</h2>");
- Document.write("W3C Organization");

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DHTML

- DHTML is acronym for Dynamic HTML.
- It is really just the combination of HTML , JavaScript and CSS., which was introduced in 4.0 series of browsers.
- The main focus generally when speaking of DHTML is Animation and other such dynamic effects.

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DIALOG BOXES

- Alert Box : to display alert on the web page.

  Syntax : alert("any message");
- Prompt Box : to enter any value from user. It has 2 buttons ok & cancel. Syntax : prompt("any message",any default value);
- Confirm Box : verify or to accept something. It has 2 buttons ok & cancel. Syntax : prompt("any message");

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EVENTS

- onAbort
- onBlur
- onChange
- onClick
- onError
- onFocus
- onLoad
- onMouseOut
- onMouseOver
- onReset
- onSelect
- onSubmit
- onUnload

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ADDITIONAL EVENTS

- onKeyDown =
  - as soon as the key is depresses
    - allows filtering of key strokes before the character is displayed
- onKeyUp =
  - as soon as key is released
- onKeyUp = signals the end of a key down and a key up sequence

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