JavaScript 101

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What is JavaScript?

• Is a dialect of ECMAScript
• A lightweight, easy to learn Object Oriented Programming language
• Is a client-side language
• Is versatile – Can be inserted into any page (regardless of extension)
• Doesn’t require a special license
• Not the same as Java
What is it used for?

- For adding dynamic content to web pages
- For carrying actions based on events
- Validate data (forms)
- Browser detection
- Slideshows, Image Effects and much more
Basic form of a JavaScript block

```html
<script type=“text/javascript”>
<!--
   Do something/code
//-->  
</script>
```

- Note: JavaScript is case-sensitive (X is not equal to x)
- JavaScript ignores whitespace
Where is JavaScript code placed?

• In the <head></head> section of your page
• In the <body></body> section of your page
• What’s the difference?
• External Files (.js extension)
Variable Declaration in JavaScript

```
<script type = “text/javascript”>
    var variable1;
    var variable2 = 5;
    var variable2;
    variable 3;
</script>
```
Operators

- Arithmetic Operators
- Assignment Operators
- (Boolean) Comparison Operators
- Logical Operators
Arithmetic Operators

- + (Addition)
- - (Subtraction)
- * (Multiplication)
- / (Division)
- % (Modulus)
- ++ (Increment)
- -- (Decrement)
Addition Operator & Strings

• You can actually use the addition (+) operator to add two lines of text

• Example:
  
  var audience = “WLG”;
  document.write(“Hello” + audience + “members!”);
Assignment Operators

• \((x = 5)\)
• \((x += 5)\) same as \(x = x+5\)
• \((x -= 5)\) same as \(x = x-5\)
• \((x *= 5)\) same as \(x = x * 5\)
• \((x /= 5)\) same as \(x = x/5\)
• \((x %= 5)\) same as \(x = x\%5\)
Comparison Operators

- `==`
- `===`
- `!=`
- `>`
- `<`
- `>=`
- `<=`
Logical Operators

• &&
• ||
• !
Conditional Statements

• if
• if...else
• if...else if...else
if statements

if (x > 5)
{
    code to be executed;
}

if\ldots else statements

if (x > 5)
{
    execute this code;
}
else
{
    execute this code instead;
}
if (x > 5) {
    execute this code;
}
else if (x > 4) {
    execute this code;
}
else {
    execute this code;
}
Loops

• Useful if you want to repeat code execution
• for loops
• while loops
• do...while loops
for loop

for(i = 0; i < 10; i ++)
{
    document.write (i);
}

Output: 0123456789
while loop

var x = 6;
while (x > 1)
{
    document.write(x);
    x--;
}

Output: 65432
do...while loop

var x = 5;
do
{
    document.write(x);
    x--;
}
while (x > 1);
Functions

• A good way to break your program/code into a smaller segment that does a specific thing.
• Where you place JavaScript code that you want to execute only when called.
• Begins with the keyword “function”
Function - Example

function checkvalue(parameters)
{
    if (x < 10)
    {
        document.write("The value of x is " + 10);
    }
}
Pop-Up Boxes

- alert ("your text")
- confirm ("your text")
  //OK = True, Cancel = False
- prompt ("your text")
  //Input value or null
Objects

• An object is a "package" of data; a collection of values and functions all classed under a single name. – *(Aaron Weiss)*

• Objects have properties
• Objects have methods
• JavaScript has built-in objects and also allows you to define your own object.
• e.g. the document object
  • document.URL
  • document.getElementById()
Objects – Properties (Examples)

• Image.src
  //Sets or Returns the URL of the image

• String.length
  //Returns the length of a given string

• Document.URL
  //Returns the full URL of the current document
Objects – Method Examples

• `Window.setTimeout();`  
  //Call a function or evaluate an expression after a specified # of milliseconds

• `Date.getDay();`  
  //Gets the day of the week (0-6)

• `String.toUpperCase();`
Form Validation

A basic example: basic-validation.html
Form Validation

An intermediate example: form-validation.html
A Simple Slideshow

- Slideshow.html
JavaScript Tip

• The HTML `<noscript>` tag

```html
<script type="text/javascript">
    var variable1 = "Welcome to my site";
    document.write(variable1);
</script>
<noscript>
    You have JavaScript turned off! The force is not strong with you!
</noscript>
```
Validation without JavaScript

• Q. What happens to my form validation if JavaScript is turned off?