IT452 Advanced Web and Internet Systems

Fall 2009

Set 1: Review of Key Concepts

Exercise #1 – Correct any invalid XHTML syntax

```
<?xml version = "1.0" encoding=utf-8 ?>
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.1//EN"
   "http://www.w3.org/TR/xhtml11/DTD/xhtml11.dtd">
<!-- An example file
<!-- Our first Web page  -->
<html xmlns = "http://www.w3.org/1999/xhtml">

<body>
    <h1> Welcome to <b> IT350!  </h1> </b>
    <h2> Today's Agenda </h2>
    <li> XHTML
    <li> JavaScript
</body>
```

Exercise #2 – Correct any invalid XHTML syntax

```
 <?xml version = "1.0"?>
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.1//EN"
   "http://www.w3.org/TR/xhtml11/DTD/xhtml11.dtd">
<html xmlns = "http://www.w3.org/1999/xhtml">

   <title>Internet and WWW How to Program - Welcome</title>

   <body>

         <img scr = "xmlhtp.jpg" height = "238" width = "183"  >



         <h1 align=“center”>Under construction</h1>

   </body>
</html>
```

Exercise #1 -- What’s the output?

```
var a, b, c;

a = 1;
b = 2;
c = 3;

d = a + b * c;

window.alert("<h1>Begin</h1>");

if (d < 20)
  window.alert("d is okay: "+d);
else
  window.alert("d is too high!:"+ d);
  d = d - 3;

document.writeln("<h1>Done. Final d = "+d+"</h1>");
```

Exercise #2 -- What's the output?

```
var x, y, z;

x = 7;
y = 9;
z = "abc";

window.alert(x+y+z);

window.alert(z+y+x);

if (x)
   window.alert("x true");

x = "seven";

window.alert(x+y+z);
```

JavaScript Scope Rules

- Variables declared inside a function:
  - Explicitly (with var)
  - Implicitly (just used)
  - Parameters

  (Look at FIRST USE inside a function to decide which applies)

- Variables declared outside a function:
  - Explicitly
  - Implicitly

Exercise #1 – Write a function that takes two arguments and returns the minimum of the two

Exercise #2 – What's the output?

```
function fun1 (x) {
   x = x + 3;
   y = y + 4;
   document.writeln("<br/> FUN1: "+x+ "," +y);
}

function fun2 () {
   var y;
   x = x + 10;
   y = y + 20;
   document.writeln("<br/> FUN2: "+x+ "," +y);
}

x = 1;
y = 2;

document.writeln("<br/> MAIN #1: "+x+ "," +y);
fun1(x);
document.writeln("<br/> MAIN #2: "+x+ "," +y);
fun1(y);
document.writeln("<br/> MAIN #3: "+x+ "," +y);
fun2();
document.writeln("<br/> MAIN #4: "+x+ "," +y);
```

Exercise #1 – Change this code to make the <p> element have a bigger font when you move the mouse over it.

```
<html xmlns = "http://www.w3.org/1999/xhtml">
   <head>
      <title>Bigger</title>
      <script type = "text/javascript">









      </script>
   </head>
<body>

<p>
    Welcome to my page!
</p>

</body>
</html>
```

Exercise #2 – Modify so that clicking on the button changes target of <a> element to “dog.html”

```
<html xmlns = "http://www.w3.org/1999/xhtml">
   <head>
      <title>Change Link</title>
      <script type = "text/javascript">









       </script>
   </head>
<body>
<a href="cat.html" >
   See some animals!
</a>

<form action=""> <br/>
  <input type="button" value="Change animal" />
</form>
</body> </html>
```

Perl Basics

```
use CGI qw( :standard );
print( header() );

$x = 2 + 3;
$y = $x * 4;

if ($x == 5.0) {
  print ("x is five");
}

for ($i = 0; $i < 3; $i++) {
   $squared = $i * $i;
   print ("<br> \$i = $i, squared is $squared");
}

$pet1 = "dog";
$pet2 = "ll" . "ama";

# Single quotes vs. double quotes
print ("<br/>I have a $pet1 and a $pet2.");
print ('<br/>I have a $pet1 and a $pet2.');

$comp1 = ($pet1 eq "dog");
print ("<br/> comp1: $comp1");
```

Perl Stuff

"Scalar" variables:

```
$x = 3;
$y = "Hello";
```

"Array" variables:

```
@list = (3, 7, "dog", "cat");
@list2 = @list1;      # copies whole array!
```

A single element of an array is a "scalar:

```
print "Second item is: $list[1]";    # Don't use @
```

Get array length by treating whole array as scalar:

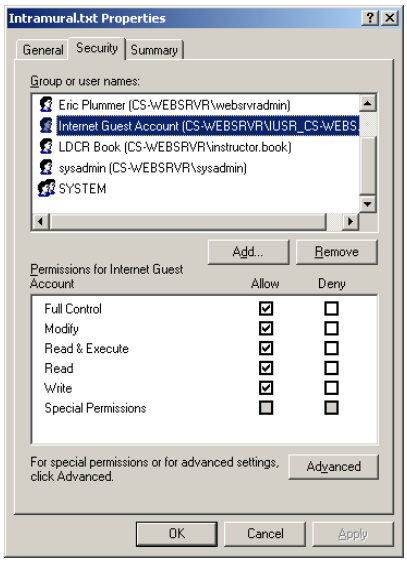
```
$lengthOfList2 = @list2;
```

File operations

```
open ( MYFILE, "input.txt" );
open ( MYFILE, ">output.txt" );
open ( MYFILE, ">>LOG.txt" );
```

File Access

- Ownership: Input/Output files usually **NOT** owned by "Web Server".
  - Operating system may enforce read, write, and/or modify restrictions on I/O files
  - For file output/append, may need to create file prior to first use
  - File permissions need set for access by the "web server" account (Right-click on file, pick Properties, then set permissions like example on right)



Perl Function Calls ("subroutines")

```
use CGI qw( :standard );
print( header() );

# Prints "hello", takes no arguments
sub hello {
   print "\n<br/> Hello.";
}

# Takes two arguments, return their product
sub multiply {
  my($valA, $valB) = @_;
  return $valA * $valB;
}

my($x) = 2;
&hello;
print "\n<br/> $x * 7 = " . &multiply($x,7);
&hello();
&hello(72145);

print(end_html());
```

Function Calls and Arrays

```
# Takes an array as argument, returns minimum value
sub findMin {
  my(@array) = @_;
  my $min = $array[0];
  my $ii;
  my $len = @array;
  for ($ii=0; $ii < $len; $ii++) {
     if ($array[$ii] < $min) {
        $min = $array[$ii];
     }
  }
  return $min;
}

# Defines new global array, @array1
# AND returns a new array with 4 elements.
sub makeArray() {
  @array1 = (89, 23, 90);
  my @array2 = (34, 5.4, 123, 2.01);
  return @array2;
}

@test1 = makeArray();
@test2 = (89, 23, 40, -17);
print "\nMin1 is: " . &findMin(@test1);
print "\nMin2 is: " . &findMin(@test2);
print "\nMin3 is: " . &findMin(@array1);
print "\nMin4 is: " . &findMin(@array2);
```