

# IT350 Web and Internet Programming

Fall 2007

## SlideSet #9: JavaScript Functions

(from Chapter 10 of the text)

# Function Definitions

- Syntax and terminology:

```
function function-name( parameter-list )
{
    declarations and statements
}
```

- Example

```
/* Return an integer no larger than 'max' */
function getIntegerWithMax(max) {
    var value;
    do {
        value = window.prompt(
            "Please enter an integer no larger than "+max);
    } while (value > max);
    return value;
}
```

# Function Invocation

- Built-in functions
- User-defined functions

Arguments are passed \_\_\_\_\_, so original  
values in caller are \_\_\_\_\_

## Scope – Where is a variable visible in the program?

```
function dog(g) {  
    h = 3;  
    var sum = g+h;  
    document.write("<br/> Sum is: "+sum);  
}  
  
g = 7;  
h = 5;  
  
document.writeln("<br/> g: "+g+" h: "+h);  
dog(g);  
document.writeln("<br/> g: "+g+" h: "+h);  
document.writeln("<br/> sum: "+sum);
```

**Output?**

# 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 #3 – Write a function `indentPrint (N, str1, str2)` that outputs the following:**

- a.) ‘N’ dashes, followed by the string ‘str1’, then `<br/>`
- b.) ‘N’ dashes, followed by the string ‘str2’, then `<br/>`

**Use `document.write()` for output. You can assume N is an integer.**

## Exercise #4

1. What point(s) are strange about the following code?
2. Will each cause a syntax error, logic error, or neither?
3. Fix the average function so that it correctly calculates both requested averages.
4. (a stretch) Do #3 without changing the function header.

```
function average(x, y, z) {  
    return (x + y + z) / 3;  
}
```

```
document.write("<br/> avg2:" +average(3, 9));  
document.write("<br/> avg1:" +average(10, 20, 30, 40));
```

# Connecting JavaScript and XHTML

- Where to place the JavaScript

- In the .html file

- In a separate file

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

- How to invoke the script?

- Place non-function code in the <head>

- **<body onload="start ()">**

- **<input type = "button" value = "Roll" onclick = "play ()" />**

# JavaScript Secrets

- Invalid numbers are NaN
  - Test with `isNaN(value)`
- 5 types for variables:
  - number (including NaN)
  - string
  - boolean
  - “undefined” – may cause error or lead to NaN
  - null
- Gotchas
  - `color = red;`
  - `if (x = 7) ...`
  - Uninitialized variables
  - Forgetting “break” in switch

# JavaScript Tips

- Quoting

```
document.writeln("<a href=\"cat.html\">cat</a>");
```

vs.

```
document.writeln("<a href='cat.html'>cat</a>");
```

- Multiple arguments to document.write()

```
document.writeln("<h1>" + heading + "</h1>");
```

```
document.writeln("<h1>, heading, "</h1>");
```

(doesn't work with my\_writeln() )