

Announcements

- ❖ Instructor: Nelson Padua-Perez (nelson@cs.umd.edu)
- ❖ No posting of code in the forum
- ❖ Check class announcements daily
- ❖ You must implement programming projects by yourself

Link/CSS Example

❖ **Example:** Links folder

Conventions to Use From Now on

- ❖ Variable/Function names
 - ❖ We will use lowercase
 - ❖ If multiple words are associated with a variable name then capitalize the first letter of second word on
waterTemperature
globalWarmingIndex
- ❖ Curly Brackets
 - Use a particular style
- ❖ Comparisons
 - Use `===` rather than `==`
- ❖ No global variables!
- ❖ Good indentation

Introduction to Functions

- ❖ Function → An entity that completes a particular task for us
- ❖ It can take values necessary to complete a particular task
- ❖ After completing a task it returns to the point after the call
- ❖ Examples of JavaScript functions
 - ❖ `document.writeln`
 - ❖ `alert()`
- ❖ You can define your own functions.
- ❖ Order of declaration is immaterial
- ❖ **Example:** Functions.html

Introduction to Functions

- ❖ General form of a function is:

```
function name (<comma-separated list of parameters>) {  
    statements  
}
```

- ❖ Functions are invoked (called) by using the () operator
- ❖ A function can receive values via parameters
 - ❖ We don't use var for parameters
- ❖ A function may return a value
- ❖ There are other approaches to define functions

Scope of Variables

- ❖ Variables declared in a function are called local variables
- ❖ They are created on entry to the function and destroyed on exit
- ❖ You can use the same name in different functions as they are different variables
- ❖ Variables declared outside of a function are called global variables

Functions Returning Values

- ❖ A function can return a value via the return statement
return expression;
- ❖ A call to a function that returns a value can be used as an expression
- ❖ The function execution terminates when a return statement is executed
- ❖ A return statement with no return value terminates the function execution
- ❖ Can we return more than one value?
- ❖ **Example:** FunctionReturn.html
- ❖ Can we reduce the code for the maxVal function?
- ❖ What if we want to compute the maximum of more than two values?

JavaScript (Functions)

- ❖ Advantages of functions are:
 - ❖ Allows you to factor out common code
 - ❖ Allows you to reuse code
 - ❖ Allows you to control the code complexity
- ❖ While designing a solution to a problem you can divide a problem into sub-problems each represented by a function

main() Function

- ❖ The organization for code dealing with functions will be as specified in the following example
- ❖ **Example:** MainFunction.html

Global Variables

- ❖ Global Variables → variables defined outside of any function
- ❖ We want to avoid using global variables. Why?

Testing/Debugging

- ❖ Testing
 - ❖ Remember to test your code as you develop it
 - ❖ First use simple data sets
- ❖ Debugging
 - ❖ Make sure your input is correct
 - ❖ Use Error Console to track down problems
 - ❖ Use lint to check the syntax
 - ❖ Use alert to display values and identify the execution path
 - ❖ Use trace tables
 - ❖ When writing trace tables create a column for each variable
 - ❖ Define the columns as you see find the variables
- ❖ When writing functions
 - ❖ Test each function individually with its own driver
 - ❖ Let's see an example

 vs. \n

- ❖ What is the difference between the two?
- ❖ When should we use them?
- ❖ **Example: Brvsnewline.html**

document.writeln/write

❖ **Example: WritelnVsWrite.html**

Passing Values to Function

- ❖ Mechanism used to pass values to function is called *pass-by-value*
- ❖ Parameters
 - ❖ Variables that receive data
 - ❖ There are normal variables
- ❖ Arguments
 - ❖ Values you pass to a function
- ❖ **Example:** PassByValue.html
- ❖ Does it matter how we name the parameters?