Announcements

- Check class announcements daily
- You must implement programming projects by yourself

Form Processing Review

- **Example:** FormExample folder
  - Notice the use of <fieldset> and <legend>
  - Notice the <label>

Assignment #5

- Let's talk about some parts of this project

Scrolling Tables

- You can separate the table sections by using
  - thead, tfoot, tbody
- For large tables, when printed, each page will show the header and the footer
- Elements must be defined in the order: thead, tfoot, tbody
- **Example: ScrollingTables.html**

Sorting

- Note → strings can be compared using < >. For example:

```
var x = “a”;
var y = “b”;
var z = x < y;
```

- sort() function
  - sort data using alphabetical order
- **Example:** Sorting.html

Math Constants

- Math.E → Euler's constant
- Math.PI
- Math.SQRT1_2 → Square root of ½
- Math.SQRT2 → Square root of 2
- Math.LN2 → Natural log of 2 (~0.693)
- Math.LN10 → Natural log of 10 (~2.302)
- Math.LOG2E → Base 2 log of E (~1.442)
- Math.LOG10E → Base 10 log of E (~0.434)
- **Example:** MathConstants.html

Math Functions

- Math.min → returns the smallest of a series of numbers
- Math.max → returns the maximum of a series of numbers
- Math.round → rounds to nearest integer (>= .5 to next integer, < .5 to previous integer)
- Complete listing at:

https://developer.mozilla.org/en/Core_JavaScript_1.5_Reference/Global_Objects/Math

Array Functions

- Modify the original array
  - push → adds element(s) to array and returns length of new array
  - reverse → reverse order of elements
  - splice → adds/or removes elements
  - shift → removes the first element and returns it
  - unshift → adds element(s) to the front of array
- Do not modify the original array
  - indexOf → returns index of first element in the array corresponding to the argument
  - lastIndexOf → returns the last index of an element in the array corresponding too the argument
  - join → joins all elements into a string
  - slice → extracts a section of array
  - concat → returns array with elements from current array another array
- Complete listing at:

https://developer.mozilla.org/en/Core_JavaScript_1.5_Reference/Global_Objects/Array

String Object

- Created using new String()
- Wraps the primitive string data type and add methods
- Methods
  - charCodeAt → returns Unicode value for the character
  - indexOf → returns index of first occurrence of specified argument value
  - lastIndexOf → returns index of last occurrence of specified argument value
  - concat → combines two strings
  - quote → wraps string in quotes
  - split → splits the string into an array of strings
  - substr → returns a substring starting at an index position and extending a number of characters
  - substring → returns a string between two indexes
  - toLowerCase
  - toUpperCase
- Complete listing at:

https://developer.mozilla.org/en/Core_JavaScript_1.5_Reference/Global_Objects/String

Recursion

- A recursive function is one that “calls itself”.
- One approach to see this process is to visualize that, instead of the function calling itself, the function calls another function that performs the same task as the original one.
- Nature has several examples of recursive phenomena.
- A typical recursive example is the computation of the factorial.
- Definition of factorial (non-recursive)

$$n! = n * n\text{-}1 * n\text{-}2 * \ldots 1$$

Definition of factorial (recursive)

$$n! = n * (n\text{-}1)!$$

- Let’s implement a recursive factorial function.
- Computation of the fibonacci series is another example of recursion
- Let’s draw a call tree that illustrates the set of calls that are taking place.