

# Announcements

- ❖ Check class announcements daily
- ❖ You must implement programming projects by yourself
- ❖ Remember to complete the course evaluations

# Assignment #4

❖ Let's address any questions

# XML

- ❖ XML → eXtensible Markup Language
- ❖ XML
  - ❖ Allows data to be structured, stored and transmitted in a hierarchical fashion
  - ❖ XML and HTML are based on SGML (Standard Generalized Markup Language)
- ❖ Example

```
<?xml version="1.0" encoding="ISO-8859-1"?>
<semester>
  <course courseNum="bio101">
    <name>Intro to Biology</name>
    <instructor>Prof Cell</instructor>
  </course>
</semester>
```
- ❖ References
  - ❖ <http://www.w3.org/XML/>
  - ❖ [http://www.w3schools.com/xml/xml\\_what\\_is.asp](http://www.w3schools.com/xml/xml_what_is.asp)

# XML

- ❖ Markup elements (tags) enclosed in < >
- ❖ Written as plain text
- ❖ XML tags can be defined to describe any kind of data
- ❖ Comments as in HTML
- ❖ No predefined tags
- ❖ Tags defined by author of the XML document
- ❖ XML documents form a tree structure
- ❖ XML documents must have a root element
- ❖ Multiple spaces are respected (not reduced to a single space as in HTML)
- ❖ XML elements can have attributes in the start tag which provide additional information about an element
- ❖ Attribute values must be quoted (single or double)
- ❖ XML elements must be properly nested
- ❖ We can “load” an XML document in JavaScript
- ❖ Document Type Declaration (DOCTYPE Declaration)
  - ❖ Defines the permitted structure of an XML document
  - ❖ Usually contains or has a reference to a file with information about the elements in the documents and their relationship

# Traditional Server/Client Interaction

- ❖ Nothing happens until we submit data
- ❖ We must wait until the server request is processed (can do anything with the page)
- ❖ A page must be completely loaded even if most of the content identical to previous page
- ❖ Compare with a desktop application
- ❖ Can we do better? Can the page be updated without requiring a page load?
- ❖ AJAX is the answer

# AJAX

- ❖ AJAX → Asynchronous JavaScript and XML
- ❖ Combination of technologies
- ❖ Adds a layer between the browser and the web server, handling server requests and processing the results
  - ❖ Layer Name → Ajax Framework/Ajax Engine
- ❖ The requests are not synchronized with user actions (e.g., clicking on links, buttons, etc.)  
User can continue interacting with the browser while request is being processed

# AJAX

- ❖ In the traditional client/server model we submit server requests by clicking on a link or via submit (this generates the HTTP request for us)
  - ❖ Notice we get as a result a new web page
- ❖ XMLHttpRequest
  - ❖ JavaScript object that will issue the HTTP request
  - ❖ No page load is generated as a result of the request
  - ❖ Can only issue request to URLs within the same domain
  - ❖ Cannot directly access a remote server
- ❖ There is nothing the server needs to do just because the request is associated with AJAX. The server is just receiving an HTTP request
- ❖ AJAX application just care about receiving an HTTP response
- ❖ **EXAMPLE:** directoryLookup.html, directory.php, processMemo.php

# AJAX Reference

- ❖ “Ajax in 10 Minutes” by Phil Ballard, ISBN 0-672-32868-2

# Images

- ❖ **Two types of Images:** Bitmap and Vector
- ❖ **Bitmap Images**
  - ❖ Pixels in a grid
  - ❖ **File Formats for Bitmap Images**
    - ❖ JPEG (Joint Photographic Experts Group)
    - ❖ GIF (Graphics Interchange Format)
    - ❖ PNG (Portable Network Graphics)
    - ❖ Others
  - ❖ **GIF**
    - ❖ Appropriate for images with large flat areas and single colors (e.g., diagrams)
    - ❖ Provides support for transparency
  - ❖ **JPEG**
    - ❖ Photographs

# Images

## ❖ **Vector Images (Raster Images)**

- ❖ Each component object defined by mathematical statements.
- ❖ Resolution independent.
- ❖ Appropriate for logos and graphics without photographic elements.
- ❖ Common Formats
  - ❖ CDR (CorelDRAW)
  - ❖ SWF (Shockwave Flash)

## ❖ **Rasterizing**

- ❖ Conversion of a vector image to a bitmap.

## ❖ **Resolution of images for the web**

- ❖ Use images between 72 and 96 ppi (pixels per inch)

# Web 2.0

- ❖ What is Web 2.0?
- ❖ Reference:

<http://www.deitel.com/eBook/Contents/tabid/2480/Default.aspx>