

# Announcements

- ❖ Instructor: Nelson Padua-Perez (nelson@cs.umd.edu)
- ❖ Class Web Site:
- ❖ <http://www.cs.umd.edu/class/fall2010/cmssc122/>
- ❖ No posting of code in the forum
- ❖ Check class announcements daily

# Anonymous Functions

- ❖ Dynamically declared at run time without having to provide a name
- ❖ **Example:** AnonymousFunc.html
- ❖ You can pass the anonymous function as a parameter
- ❖ Can be used as a callback function
- ❖ What is callback function?

# JQuery User Interfaces

- ❖ JavaScript library based on JQuery
- ❖ Example: DatePicker.html
- ❖ Example: JQueryFadeToOneFile.html
- ❖ Example: JQueryFadeTo.html

# XML

- ❖ XML → eXtensible Markup Language
- ❖ XML
  - ❖ An XML document is a text-based document
  - ❖ XML is a language for describing data or for creating markup languages
  - ❖ Allows data to be structured, stored and transmitted in a hierarchical fashion
  - ❖ XML tags (element type names) provide a reader an idea of what data means
    - ❖ XML is human-readable

- ❖ Example (Providing information about a course)

```
<?xml version="1.0" encoding="ISO-8859-1"?>  
<semester>  
  <course courseNum="bio101">  
    <name>Intro to Biology</name>  
    <instructor>Prof Cell</instructor>  
  </course>  
</semester>
```

# XML

- ❖ Can have any number of tag names, so data from any domain can be represented
- ❖ Allow us to provide information about a document
- ❖ XML documents are intended for storage or exchange of data
- ❖ You can store data like letters, manuals, etc. and data you might find in databases
- ❖ It is a software and hardware independent tool for carrying information
- ❖ Contains no information about how data should be presented
  - ❖ An XML document is styled using CSS style sheets or XSLT

# XML

- ❖ XML is a meta language
  - ❖ Defines a set of grammar rules
- ❖ Unlike binary formats, XML documents are less affected by data corruption
  - ❖ If one character is damaged we can make sense of the information
- ❖ Advantages
  - ❖ It is text-based
    - ❖ Space efficient so it can be transmitted easily
    - ❖ No special tool is needed to write them
  - ❖ You can generate different types of document from an XML document (through a process call **Transformation**)
    - ❖ HTML
    - ❖ CD, DVD
    - ❖ Video
    - ❖ Another XML document

# XML

- ❖ Markup elements (tags) enclosed in < >
- ❖ **XML element** → everything from the start tag to the end tag (including both tags)
- ❖ General Structure
  - ❖ **Prolog** → **Optionally empty**
    - ❖ XML declaration
      - ❖ If present must be the first line and must not have any characters before it (includes whitespaces)
    - ❖ Processing instructions/comments
    - ❖ Document Type Declaration (DOCTYPE)
  - ❖ **At least one element (root/document element) (REQUIRED)**
  - ❖ **Optional content after**
- ❖ Example:

```
<?xml version="1.0" ?>  
<!DOCTYPE article >  
<article>  
<title>The Universe</title>  
<author>John Smith</author>  
</article>
```

# XML

- ❖ XML tags can be defined to describe any kind of data
- ❖ XML elements can have attributes in the start tag which provide additional information about an element
- ❖ Attribute values must be quoted (single or double)
- ❖ Comments as in HTML
- ❖ No predefined tags
- ❖ Tags defined by author of the XML document
- ❖ XML documents form a tree structure
  - ❖ [http://www.w3schools.com/xml/xml\\_tree.asp](http://www.w3schools.com/xml/xml_tree.asp)
- ❖ Tags are case sensitive
- ❖ Tags may not contain '&' or '<'
- ❖ Tags that do not have end-tags must be terminated by a '/'
  - ❖ `<hr />` is an html example
- ❖ XML names
  - ❖ Initial character must be a letter, colon (:) or underscore (\_)

# XML

- ❖ Multiple spaces are respected (not reduced to a single space as in HTML)
- ❖ Tags elements must be properly nested
  - ❖ `<address><zipcode></zipcode></address>` → valid
  - ❖ `<address><zipcode></address></zipcode>` → not allowed
- ❖ DOCTYPE declaration (Document Type Declaration) components
  - ❖ Name of the root element
  - ❖ DTD → Document Type Definition → Defines the allowed structure of a class of XML documents
    - ❖ In it you declare elements, attributes, allowed in the structure
- ❖ **Note:** DOCTYPE is not the same a DTD
- ❖ **Note:** W3C supports an XML-based alternative to DTD, named XML Schema

# XML vs. HTML

- ❖ XML and HTML derive from a meta language called SGML (Standard Generalized Markup Language)
- ❖ XML → Uses a subset of syntax rules allowed in SGML
- ❖ XML tags are specific to applications and users know what they mean, while HTML tags have fixed meaning and browsers know what they are
- ❖ HTML tags are used for display purposes while XML tags are used to describe data and documents

# Well-Formed XML Documents

- ❖ An XML document that follows the XML syntax rules is said to be well-formed
- ❖ XML Parser/XML Processor → allow us to detect whether a document is Well-Formed
- ❖ Two types of Parsers
  - ❖ **Non-validating XML Parser** → checks whether document satisfies XML syntax rules (well-formed), but does not check for any specific structure of elements/attributes
  - ❖ **Validating XML Parser** → checks whether document is well-formed and also verifies it satisfies the specific structure of elements/attributes

# XSLT

- ❖ Used with XML documents to transform data into a particular context (e.g., HTML, word, pdf, etc.) or another XML document
- ❖ In order to define the transformation an XSLT stylesheet is defined
  - ❖ The stylesheet is an XML document

# Languages based on XML

- ❖ XML is a language for describing data or for creating markup languages
- ❖ Some languages based on XML
  - ❖ XHTML
  - ❖ SVG
    - ❖ XML application language that replaces many uses of bitmap graphics
  - ❖ RSS
    - ❖ Rich Site Summary or Really Simple Syndication
    - ❖ Format for delivering changing web content
      - ❖ News-related sites, weblogs, etc. provide their content as an RSS Feed
      - ❖ Allows you to stay informed without visiting sites
      - ❖ RSS Feed Readers and New Aggregators allow you to grab feeds
      - ❖ <http://www.make-rss-feeds.com/>
      - ❖ List of readers → <http://blogspace.com/rss/readers>
      - ❖ <http://www.washington.edu/ist/help/web/podcasting/rss>
  - ❖ MathML
    - ❖ Used to describe mathematical notations
- ❖ WAP and WML
  - ❖ For handheld devices

# References

- ❖ <http://www.cs.umd.edu/~golbeck/INFM743/xml.ppt>
- ❖ <http://www.xml.com/>
- ❖ XML in 10 Minutes (ISBN: 0-672-32471-7)
- ❖ <http://www.xmlhack.com/>
- ❖ <http://www.w3.org/XML/>
- ❖ [http://www.w3schools.com/xml/xml\\_what\\_is.asp](http://www.w3schools.com/xml/xml_what_is.asp)
- ❖ <http://blogspace.com/rss/readers>
- ❖ <http://www.w3.org/TR/REC-xml/>
- ❖ <http://cyber.law.harvard.edu/rss/rss.html>