Announcements

- 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
<?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
  <?xml version="1.0" ?>
  <!DOCTYPE article >
  <article>
  <title>The Universe</title>
  <author>John Smith</author>
  </article>
  ```
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.
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
  - MathML
    - Used to describe mathematical notations
  - WAP and WML
    - For handheld devices
References

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- http://www.w3.org/XML/
- http://www.w3schools.com/xml/xml_whatis.asp
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