



College of Information Studies

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XML

Week 6

INFM 603

Agenda

- Questions
- Events in JavaScript
- XML
- Speed dating

User Interaction Events

- Non-obvious hypertext
 - onclick
- Rollovers
 - onmouseover (rollover in), onmouseout
- Context-Sensitive Help
 - onfocus (when clicking in an entry box), onblur
- Validation
 - onsubmit (return false to prevent submission)

Registering Event Listeners

- Inline
 - `<p onclick = “paragraphClicked()”>`
- Registration
 - `form2.goButton.onclick = buttonClicked;`
- Disable event handlers higher in a DOM tree
 - `window.event.cancelBubble = true;`

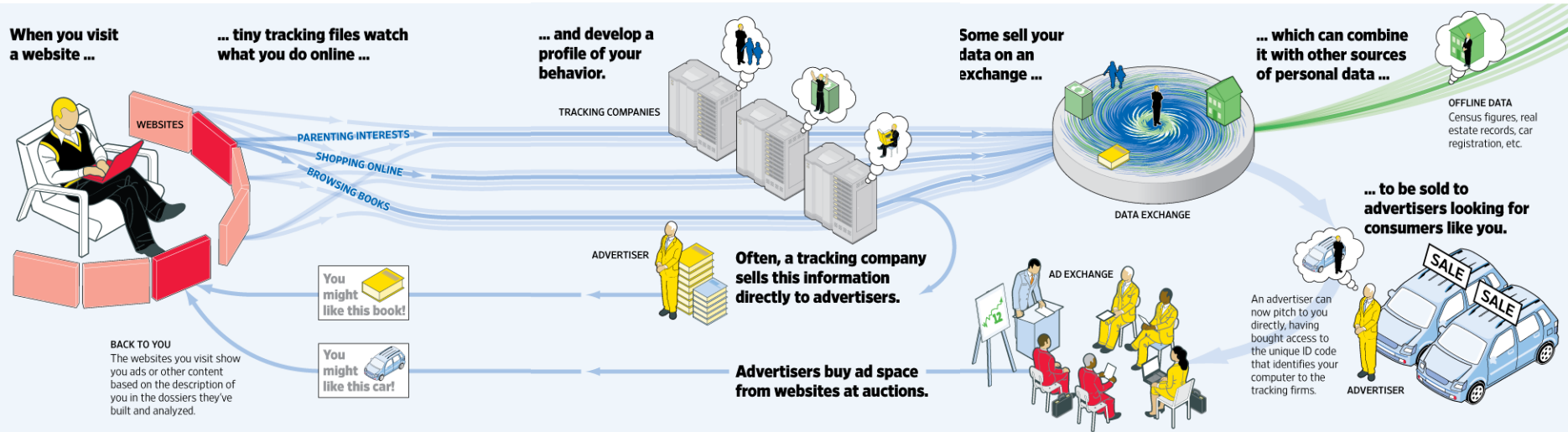
Some Other Events

- Process a DOM tree after it is fully loaded
 - onload
- Intercept ordinary user actions
 - onkeypress, onresize, onselect, onunload

Observable Behavior

- Cursor position
 - onmousemove event
 - `Window.event.clientX`, `window.event.clientY`
- Scrollbar position
 - onscroll event
 - `window.pageXOffset`, `window.pageYOffset`

The Tracking Ecosystem



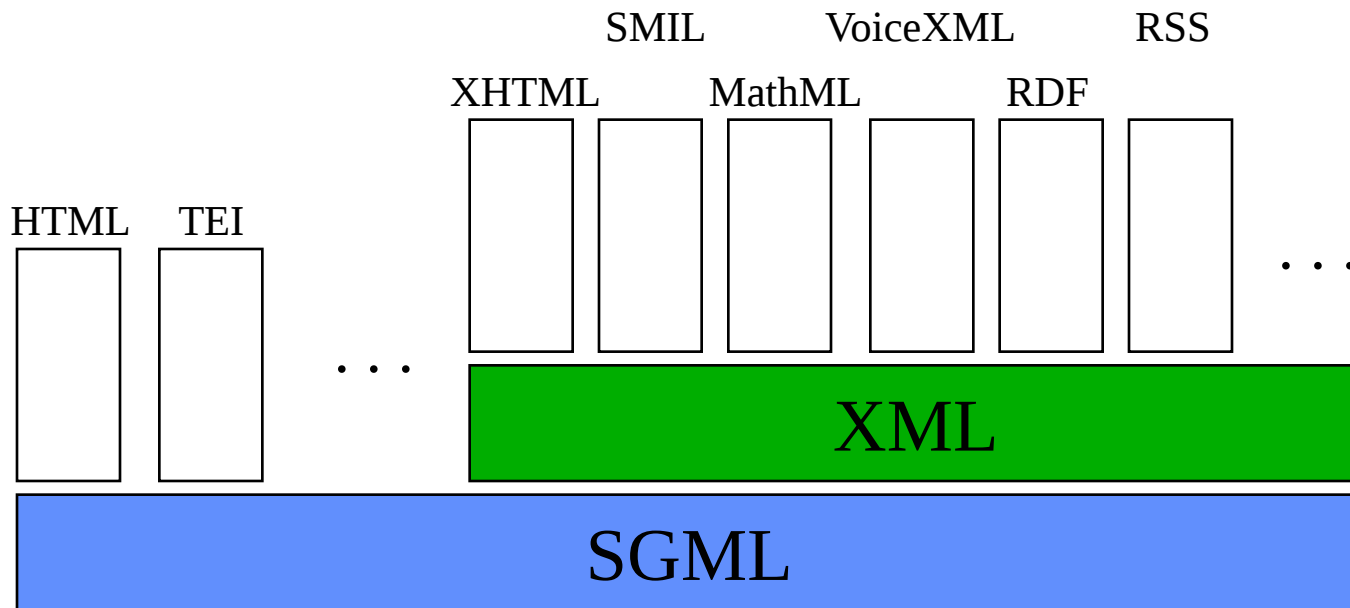
History of Structured Documents

- Early standards were “typesetting languages”
 - NROFF, TeX, LaTeX, SGML
- HTML was developed for the Web
- Specialized standards met other needs
 - Change tracking in Word, annotating manuscripts, ...
- XML seeks to unify these threads
 - One standard format for printing, viewing, processing

eXtensible Markup Language (XML)

- SGML was too complex
- HTML was too simple
- Goals for XML
 - Easily adapted to specific tasks
 - Rendering Web pages
 - Encoding metadata
 - “Semantic Web”
 - Easily created
 - Easily processed
 - Easily read
 - Concise

The XML Family Tree



Some XML Applications

- Text Encoding Initiative
 - For adding annotation to historical manuscripts
 - <http://www.tei-c.org/>
- Encoded Archival Description
 - To enhance automated processing of finding aids
 - <http://www.loc.gov/ead/>
- Metadata Encoding and Transmission Standard
 - Bundles descriptive and administrative metadata
 - <http://www.loc.gov/standards/mets/>

Really Simple Syndication (RSS)



```
<?xml version="1.0"?>
<rss version="2.0">
<channel>
  <title>Lift Off News</title>
  <link>http://liftoff.msfc.nasa.gov/</link>
  <description>Liftoff to Space Exploration.</description>
  <language>en-us</language>
  <pubDate>Tue, 10 Jun 2003 04:00:00 GMT</pubDate>
  <lastBuildDate>Tue, 10 Jun 2003 09:41:01 GMT</lastBuildDate>
  <docs>http://blogs.law.harvard.edu/tech/rss</docs>
  <generator>Weblog Editor 2.0</generator>
  <managingEditor>editor@example.com</managingEditor>
  <webMaster>webmaster@example.com</webMaster>
  <ttl>5</ttl>
  <item>
    <title>Star City</title>
    <link>http://liftoff.msfc.nasa.gov/news/2003/news-starcity.asp</link>
    <description>How do Americans get ready to work with Russians aboard the International Space Station? They take
      a crash course in culture, language and protocol at Russia's Star City.</description>
    <pubDate>Tue, 03 Jun 2003 09:39:21 GMT</pubDate>
    <guid>http://liftoff.msfc.nasa.gov/2003/06/03.html#item573</guid>
  </item>
</channel>
</rss>
```

See example at <http://www.nytimes.com/services/xml/rss/>

Atom Feeds

```
<?xml version="1.0" encoding="utf-8"?>
<feed xmlns="http://www.w3.org/2005/Atom">
  <title>Example Feed</title>
  <subtitle>A subtitle.</subtitle>
  <link href="http://example.org/feed/" rel="self"/>
  <link href="http://example.org/" />
  <updated>2003-12-13T18:30:02Z</updated>
  <author>
    <name>John Doe</name>
    <email>johndoe@example.com</email>
  </author>
  <id>urn:uuid:60a76c80-d399-11d9-b91C-0003939e0af6</id>
  <entry>
    <title>Atom-Powered Robots Run Amok</title>
    <link href="http://example.org/2003/12/13/atom03"/>
    <id>urn:uuid:1225c695-cfb8-4ebb-aaaa-80da344efa6a</id>
    <updated>2003-12-13T18:30:02Z</updated>
    <summary>Some text.</summary>
  </entry>
</feed>
```

Synchronized Multimedia Integration Language (SMIL)

- Window controls (in <head>)
 - Controlling layout: <region>, <root-layout>
- Timeline controls (in <body>)
 - Sequence control: <seq>, <excl>, <par>
 - Timing control: <begin>, <end>, <dur>
- Content types (in <body>)
 - <audio>, <video>, , <ref>

XML: A Family of Standards

- Definition: DTD or Schema
 - Known types of entities with “labels”
 - Defines part-whole and is-a relationships
- Markup: XML
 - “Tags” regions of text with labels
- Presentation: XSLT
 - Specifies how each type of entity should be rendered

Some Basic Rules for All XML

- XML is case sensitive
- XML declaration is the first statement
 - `<?xml version="1.0"?>`
- An XML document is a “tree”
 - Must contain one root element
 - Other elements must be properly nested
- **All** start tags must have end tags
- Attribute values must have quotation marks
 - `<item id="33905">`
- Certain characters are “reserved”
 - For example: < is used to represent `<`

XML Example

- View “The Song of the Wandering Aengus”
 - See related materials with this week’s slides
- Built from three files
 - yeats01.xml
 - poem01.dtd
 - poem01.xsl

XML Example

```
<?xml version="1.0"?>
<!DOCTYPE POEM SYSTEM "poem01.dtd">
<?xml-stylesheet type="text/xsl" href="poem01.xsl"?>
<POEM>
    <TITLE>The Song of Wandering Aengus</TITLE>
    <AUTHOR> <FIRSTNAME>W.B.</FIRSTNAME>
                <LASTNAME>Yeats</LASTNAME>
    </AUTHOR>
<STANZA>
    <LINE>I went on to the hazel wood,</LINE>
    <LINEIN>Because a fire was in my head,</LINEIN>
    <LINE>And cut and peeled a hazel wand,</LINE>
</STANZA>
</POEM>
```

Document Type Definition (DTD)

<!ELEMENT poem ((title, author, stanza)*)>

<!ELEMENT title (#PCDATA) >

<!ELEMENT author (firstname, lastname) >

<!ELEMENT firstname (#PCDATA) >

<!ELEMENT lastname (#PCDATA) >

<!ELEMENT stanza (line+ | linein+) >

<!ELEMENT line (#PCDATA) >

<!ELEMENT linein (#PCDATA) >

#PCDATA	span of text
<i>a,b</i>	<i>a</i> followed by <i>b</i>
<i>a b</i>	either <i>a</i> or <i>b</i>
<i>a*</i>	0 or more <i>a</i> 's
<i>a+</i>	1 or more <i>a</i> 's

Specifying Appearance: XSL(T)

```
<xsl:template match="POEM">  
  <HTML>  
    <BODY BGCOLOR="#FFFFFFCC">  
      <xsl:apply-templates/>  
    </BODY>  
  </HTML>  
</xsl:template>
```

```
<xsl:template match="TITLE">  
  <H1>  
    <FONT COLOR="Green">  
      <xsl:value-of/>  
    </FONT>  
  </H1>  
</xsl:template>
```

Multiple XML Namespaces

```
<?xml version="1.0"?>
<rdf:RDF
  xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#"
  xmlns:rss="http://purl.org/rss/1.0/"
  xmlns:dc="http://purl.org/dc/elements/1.1/">
  <rss:channel rdf:about="http://www.xml.com/xml/news.rss">
    <rss:title>XML.com</rss:title>
    <rss:link>http://xml.com/pub</rss:link>
    <dc:description>
      XML.com features a rich mix of
      information and services for the XML community.
    </dc:description>
    <dc:subject>XML, RDF, metadata, information
      syndication services</dc:subject>
    <dc:identifier>http://www.xml.com</dc:identifier>
    <dc:publisher>O'Reilly & Associates, Inc.</dc:publisher>
    <dc:rights>Copyright 2000, O'Reilly &
      Associates, Inc.</dc:rights>
  </rss:channel>
</rdf:RDF>
```

Example from <http://www.xml.com/pub/a/2000/10/25/dublincore/>

XML DOM Parser (IE)

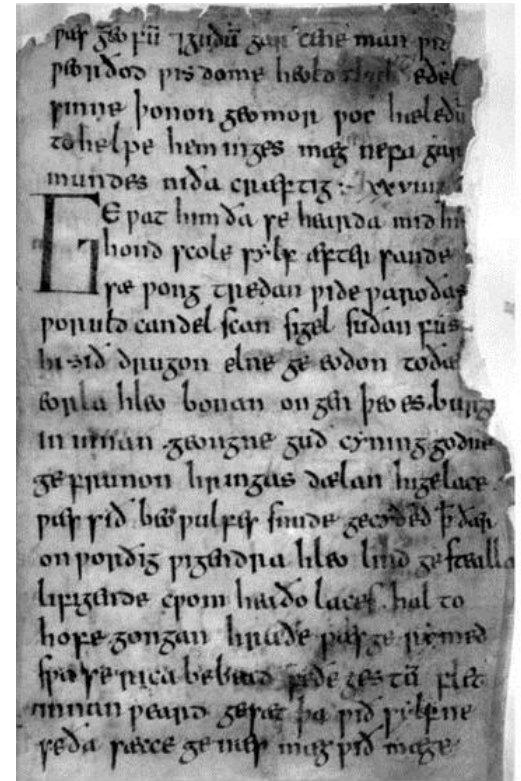
```
doc = new ActiveXObject("Msxml2.DOMDocument.6.0");  
doc.async = false;  
doc.load("sports.xml");  
result = doc.selectNodes ("/sports/game/name");  
for (i in result) {  
    document.writeln(result.item(i).text + "<br />");  
}
```

Resource Description Framework

```
<http://dbpedia.org/resource/Ayn_Rand> <http://dbpedia.org/ontology/deathDate>
    "1982-0306"^^<http://www.w3.org/2001/XMLSchema#date> .
<http://dbpedia.org/resource/Ayn_Rand> <http://dbpedia.org/ontology/birthPlace>
    <http://dbpedia.org/resource/Russian_Empire> .
<http://dbpedia.org/resource/Ayn_Rand> <http://dbpedia.org/ontology/birthPlace>
    <http://dbpedia.org/resource/Saint_Petersburg,_Russia> .
<http://dbpedia.org/resource/Ayn_Rand> <http://dbpedia.org/ontology/birthDate>
    "1905-02-02"^^<http://www.w3.org/2001/XMLSchema#date> .
<http://dbpedia.org/resource/Ayn_Rand> <http://purl.org/dc/elements/1.1/description>
    "novelist, philosopher, playwright, screenwriter"@en .
<http://dbpedia.org/resource/Ayn_Rand> <http://www.w3.org/1999/02/22-rdf-syntax-ns#type>
    <http://xmlns.com/foaf/0.1/Person> .
<http://dbpedia.org/resource/Ayn_Rand> <http://xmlns.com/foaf/0.1/givenName>
    "Ayn"@en .
<http://dbpedia.org/resource/Ayn_Rand> <http://xmlns.com/foaf/0.1/surname>
    "Rand"@en .
<http://dbpedia.org/resource/Ayn_Rand> <http://xmlns.com/foaf/0.1/name>
    "Ayn Rand"@en .
```

Representing Complex Structures

- Concurrent hierarchies
- Standoff annotation



Beowulf, f.173r