07 – HTML, XHTML, XML & XSLT

LBSCI 700 | Spring 2019

Queens College, CUNY

07-xml.pdf

HTML vs. XHTML

HTML vs. XML

XML & XSLT

Recap

Last Things

XHTML

What is XHTML?

- XHTML is EXtensible HyperText Markup Language
- XHTML is almost identical to HTML
- XHTML is stricter than HTML
- XHTML is HTML defined as an XML application
- XHTML is supported by all major browsers

Why XHTML?

- Many pages on the internet contain "bad" HTML.
- Smaller devices often lack the resources or power to interpret "bad" markup.
- XHTML is HTML redesigned as XML, where documents must be marked up correctly (be "well-formed").
- XHTML combines the strengths of HTML and XML.

HTML vs. XHTML

- XHTML elements must be **properly nested**
- XHTML elements must always be **closed**
- XHTML elements must be in **lowercase**
- XHTML documents must have **one root element**

Tag Closure – Empty Elements

HTML (sloppy)

A break:

A horizontal rule: <hr>

An image: <img src="logo.gif" alt="SLIS logo">

XHTML

A break:

A horizontal rule: <hr />

An image:

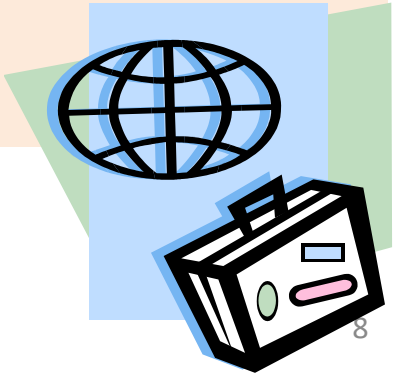
Lower Case

HTML (sloppy)

```
<BODY>
<P>This is a paragraph</P>
</BODY>
```

XHTML

```
<body>
 <p>This is a paragraph</p>
</body>
```



Additional Differences

- Attribute names must be in **lower case**.
- Attribute values must be **quoted**
- The XHTML DTD defines **mandatory** elements

*DTD stands for Document Type Definition.

Attribute – Lower Case

HTML (sloppy)

```
<table WIDTH="100%">
```

XHTML

```
<table width="100%">
```

xmlns Attribute

- The xmlns attribute specifies the xml namespace for a document.
- The xmlns attribute is required in XHTML, invalid in HTML 4.01, and optional in HTML5.

Mandatory Elements

- DOCTYPE declaration
- html, head, and body elements

Template:

```
<!DOCTYPE Doctype goes here>
 <html xmlns="http://www.w3.org/1999/xhtml">
<head>
<title>Title that shows in blue title bar of browser</title>
 </head>
<body>
</body>
</html>
```

*DOCTYPE not XHTML so has no closing tag.

*The namespace "xmlns=http://www.w3.org/1999/xhtml" is default, and will be added to the <html> tag even if you do not include it.

XML

What is XML?

- XML is EXtensible Markup Language
- XML was designed to carry data, not to display data
- XML tags are not predefined. You must define your own tags
- HTML tags tell a browser how to display the document, while XML tags give a reader some idea what some of the data means.

XML vs. HTML

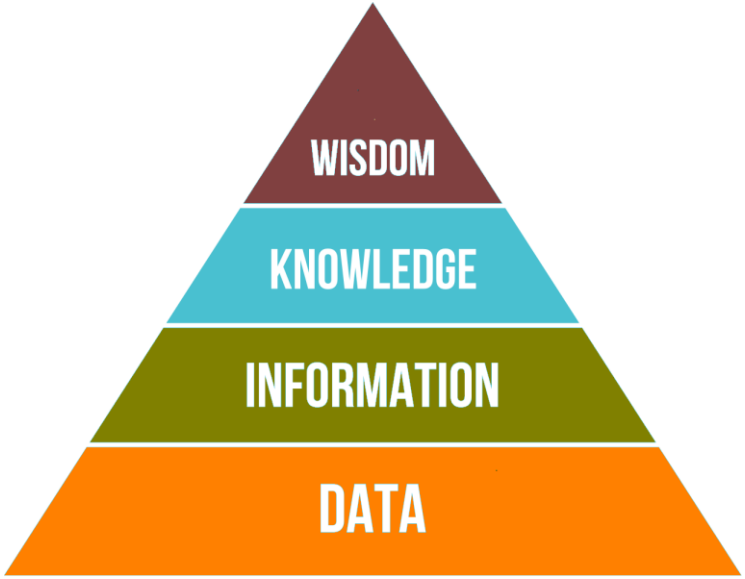
- XML is not a replacement of HTML
- XML and HTML were designed with different goals

  -- XML is used to transport and store data, with focus on what data is

  -- HTML is used to display data, with focus on how data looks

XML Does Not Do Anything

- XML was created to structure, store and transport data/information between computer systems
- HTML is about display data/information, while XML is about carrying data/information



The DIKW Hierarchy (Rowley, 2007, p. 163)

Why XML?

- XML is Extensible
- XML stores data in plain text format
  -- It simplifies data sharing
  -- It simplifies data transport
  -- It simplifies data availability
  -- It simplifies platform changes
- XML is a W3C Recommendation

XML Syntax Rules

- XML Documents Must Have a **Root** Element
- The XML Prolog (optional)

<?xml version="1.0" encoding="UTF-8"?>

- Tags are **case sensitive**.

  -- <address> is not the same as <Address>

- All XML Elements Must Have a **Closing Tag**
- Tags must be **properly nested**.

  -- <name><email>…</name></email> is not allowed.

  -- <name><email>…</email><name> is.

- Attribute Values Must Always be **Quoted**

XML vs. HTML Examples

HTML document

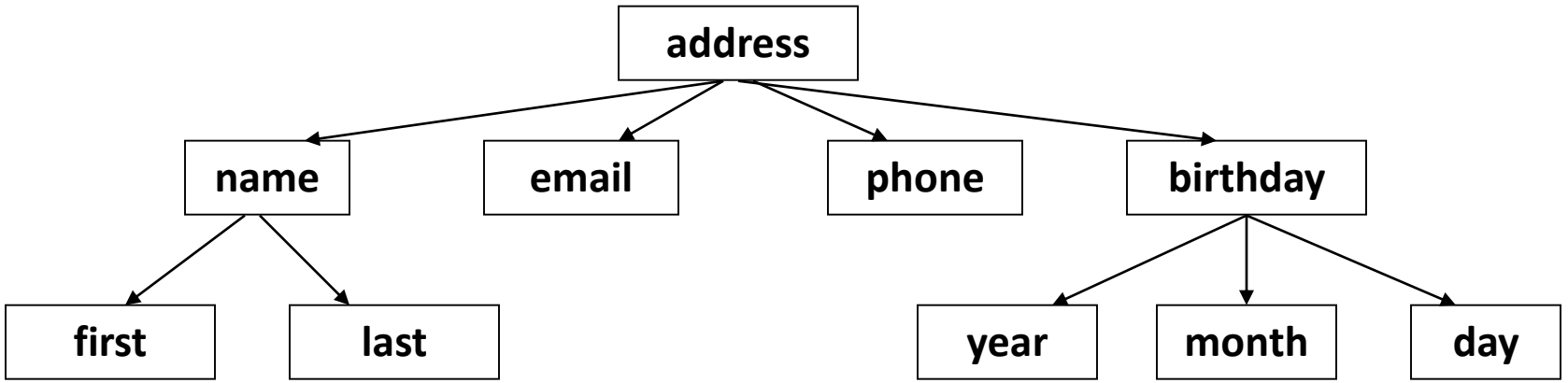
```
<html>
 <head>
  <title>Example</title>
</head>
<body>
   <h1>This is an example.</h1>
   <h2>Information goes here.</h2>
</body>
</html>
```

XML document

```
<?xml version="1.0" encoding="UTF-8"?>
<note>
  <to>Tom</to>
  <from>Jani</from>
  <heading>Reminder</heading>
  <body>See you tomorrow!</body>
</note>
```

XML Trees

- An XML document has a single root node/element.
- An XML branches from the root to child elements.
- All elements can have sub elements (child nodes)



Example

```
<?xml version="1.0" encoding="UTF-8"?>
<address>
    <name>
        <first>Izabella</first>
        <last>Lee</last>
    </name>
    <email>Izabella.Lee@cuny.edu</email>
    <phone>718-123-456</phone>
    <birthday>
        <year>1990</year>
        <month>06</month>    <day>30</day>
    </birthday>
</address>
```

Create and View XML Files

- Create an XML file
  1. Open a text editor such as Notepad
  2. Code an XML document
  3. Save this text as an .xml file
     a. Select “File > Save As”
     b. In the “Save as type” dropdown list, select “All Types”
     c. In the “File name” text box, type the filename and.xml extension
- 3 Ways to View XML Files
  -- Use a text editor
  -- Use a Browser
  -- Use an XML Viewer

XSL & XSLT

What are XSL & XSLT?

- XSL stands for eXtensible Stylesheet Language
- XSL = style sheets for XML
  (CSS = style sheets for HTML)
- XSLT stands for XSL Transformations
- XSLT is used to transform xml documents into other formats
  -- E.g., transform XML into HTML
  -- If the resulting document is in html, it can be viewed by a web browser.

XSL(T) Languages

- XSLT is a language for transforming XML documents.
- XPath is a language for navigating in XML documents.
- XQuery is a language for querying XML documents.

YouTube: Simple XSLT Tutorial
(https://www.youtube.com/watch?v=BujLy71JY1k)

Your Turn:

- Read and understand the examples at https://www.w3schools.com/xml/xsl_transformation.asp
- Use the examples provided to create one XML file and one XSL file in an text editor and save them in one folder on your local computer
- View the saved XML document using a browser to check if this transformation (use XSLT transform an XML document to HTML document) can be processed and implemented successfully.
- The above is one task of your homework 7.

Recap

Recap

- HTML vs. XHTML
- HTML vs. XML
- XML & XSLT

Last Things

About Usability Studies

- Three study groups are proposed
  1. A study on a public library website
  2. A study on an academic library website
  3. A study on a special/museum library website

*Each group has three members.

*Comments/suggestions?

About Midterm Exam

- On campus
- Study guide will be provided in your HW7
- Practice

ToDo

- Start homework
  - -- Look for email
  - -- Check Bb weekly folder
- Note any questions from reading and homework
- Midterm Exam on March 25 (on campus)