Project7 understanding

Using DOM, XPath, and XSLT

Description

The goal of this project is to learn DOM, XPath, and XSLT to query XML data.

Platform

You will do this project on your own PC/laptop. You may use a text editor to develop your Java programs but you may use an IDE, such as IntelliJ Idea or Eclipse, if you want.

Here are some examples:

* [Using XPath in Java](https://uta.instructure.com/files/10649019?wrap=1)
* [Using XPath in Java](https://uta.instructure.com/files/10649023?wrap=1)
* [An XSLT transformation](https://uta.instructure.com/files/10649036?wrap=1)
* [Using XSLT in Java](https://uta.instructure.com/files/10649017?wrap=1)
* [The cs.xml XML document used in Java](https://uta.instructure.com/files/10649035?wrap=1)

Documentation

The following web pages provide some tutorials. Use them as a reference only.

* [DOM Java API (Links to an external site.)](https://www.w3.org/TR/2000/REC-DOM-Level-2-Core-20001113/java-binding.html)
* [XPath Tutorial (Links to an external site.)](http://www.zvon.org/xxl/XPathTutorial/General/examples.html)
* [Java API for javax.xml.xpath (Links to an external site.)](http://java.sun.com/javase/6/docs/api/javax/xml/xpath/package-summary.html)
* [XSLT Tutorial (Links to an external site.)](http://www.w3schools.com/xsl/)
* [Another XSLT tutorial (Links to an external site.)](http://www.zvon.org/xxl/XSLTutorial/Output/contents.html)
* [XSL Transformations (by XML Bible) (Links to an external site.)](http://www.ibiblio.org/xml/books/bible2/chapters/ch17.html)

Project Requirements

You will evaluate DOM, XPath, and XSLT over XML data that represents courses from Reed College, available at [reed.xml (Links to an external site.)](http://aiweb.cs.washington.edu/research/projects/xmltk/xmldata/data/courses/reed.xml) with DTD [reed.dtd (Links to an external site.)](http://aiweb.cs.washington.edu/research/projects/xmltk/xmldata/data/courses/reed.dtd). More specifically:

1. Write a plain Java program dom.java that uses the Java DOM API over the XML data in reed.xml to print the titles of all MATH courses that are taught in room LIB 204
2. Write a plain Java program xpath.java that evaluates the following XPath queries over the XML data in reed.xml:
   1. Print the titles of all MATH courses that are taught in room LIB 204
   2. Print the instructor name who teaches MATH 412
   3. Print the titles of all courses taught by Wieting
3. Write an XSLT program math.xsl to display all MATH courses in Reed College by transforming the XML file reed.xml to XHTML using XSLT. Your XHTML must contain a table, where each table row is a Math course. Modify the Java program [xslt.java](https://uta.instructure.com/files/10649017?wrap=1) to test your XSLT and then load the resulting html output file on your web browser.

What to Submit

Submit your zipped directory project7 with your files dom.java, xpath.java, math.xsl, xslt.java, and the output from your DOM, XPath, and XSLT programs.

DTD file is a structural definition file: no need to use this in the project, it’s just for reference.

DOM for XML parsing is same as DOM for HTML

XPATH: is used to query the XML where directory structure is like a tree and multiple children with same name can be present, syntax is like Linux or OS level code (Extract fragments/elements from single XML documents)

We can use this XPATH tester to check the xpath expression: <https://freeformatter.com/xpath-tester.html>

XSLT: XPATH is used as part of XSLT. XSLT not only extracts the xml elements; it transforms XML elements to look in a particular XML or HTML format (example some table format)

# Chapter 17 of the XML Bible, Second Edition : XSL Transformations

<http://www.ibiblio.org/xml/books/bible2/chapters/ch17.html>

**Where does the XML transformation happen?**

There are three primary ways to transform XML documents into other formats, such as HTML, with an XSLT style sheet:

* 1. The XML document and associated style sheet are both served to the client (Web browser), which then transforms the document as specified by the style sheet and presents it to the user.
* 2. The server applies an XSLT style sheet to an XML document to transform it to some other format (generally HTML) and sends the transformed document to the client (Web browser).
* 3. A third program transforms the original XML document into some other format (often HTML) before the document is placed on the server. Both server and client only deal with the transformed document.

Xslt.java will transform the reed.xml into html file using the style format specified in math.xsl.

Both math.xsl and reed.xml are passed to the xslt.java file

Basically, XSLT is like a style sheet for XML (same as CSS to HTML). We can write .xslt file and reference that file in the XML and reload it to apply those changes to XML directly