Project 3

Project Goals

• Know how to use namespaces.
• Understand how to validate XML using DTD.
• Understand how to use attribute lists.
• Know how to use cascading style sheets (CSS) to format an XML document.
• Understand how to create and use extensible style language transformations (XSLT) for transforming an XML document.
• Know how to reference elements for performing transformations using the XML tree.
• Learn how to access and display attributes using XSLT.
• Know how to loop through XML elements.
• Know how to use a series of XML templates to transform an XML document.
• How to use XSLT if and choose statements.
• Understand when and how to use XML expressions.
• Understand output methods.
• Know how to use xsl:text.
• Learn how to transform XML data into a file structure for appending to a database.
• Know how to validate an XML document using a schema.

Reading Assignment
• Tutorial 2, Working with Namespaces
• Tutorial 4, Working with Schemas
• Tutorial 5, Covering cascading style sheets
• Tutorial 6, working with XSLT (*Extensible Style Language Transformations)*
• Tutorial 7, Creating a Computational Style Sheet
• Appendix B, XSLT Elements and Attributes (reference)
• Appendix E, XML Schema Reference

Project Submission

• Zip up the files (**project3.xml, project3schema.xml, and project3.xsd**) in the **project3** folder
• Submit the **project3.zip** file using the Blackboard submission link

REQUIREMENT #1

1) Download the project2.xml starting file.

   a) Create one copy of the file named **project3.xml** and a second copy named **project3schema.xml**

2) Include an internal DTD that will validate the xml using the following specifications

   a) There can be zero to many Exchange elements
      i) The parent element Exchange must have an attribute type of either 'S' for student or 'T' for teacher
      ii) Must be assigned a unique ID
   b) Each Exchange group consists of the following elements in order:
      i) Name
      ii) Address
      iii) Telephone
      iv) Email Address
      v) Application Date
      vi) Available Date
      vii) Birth Country
      viii) Date of Birth – optional; students only
      ix) Age – optional; students only
      x) Gender
      xi) School Name
      xii) School Address
      xiii) Year In School – optional; students only
      xiv) Mother Name – optional; students only
      xv) Father Name – optional; students only
      xvi) Emergency Telephone
      xvii) Fee Paid – requires a value
         (1) Currency attribute is required; specific currency values are not
      xviii) Essay
      xix) Languages Spoken
         (1) must have 2 or more
         (2) Language spoken must have an attribute containing a 1, 2, 3 or 4 - indicating the level of fluency
         (3) Create entities for the element content for the languages spoken
            (a) eng - "English"
            (b) spa - "Spanish"
            (c) jap " - Japanese"
            (d) fre - "French"
      xx) Country Choices
         (1) must have exactly 5
         (2) Each Country Choice must have an attribute containing a 1, 2, 3, 4 or 5 - indicating the preference
         (3) Create entities for the element content for the country choices
            (a) me - "Mexico"
            (b) ca - "Canada"
            (c) us - "United States"
            (d) br - "Brazil"
            (e) jp - "Japan"
            (f) it - "Italy"

xxi) Name, Mother Name, and Father Name have the following child elements:
  (1) Last Name
  (2) First Name
  (3) Middle Initial - optional
xxii) Address and School Address have the following child elements:
  (1) Street
  (2) Apartment - optional
  (3) City
  (4) Either State or Province element; only one is allowed
  (5) Either Zip or Postal Code element; only one is allowed
  (6) Country
xxiii) Application Date, Available Date, Date of Birth have the following child elements:
  (1) Month
  (2) Day
  (3) Year

3) If you are not using Exchanger XML editor, you must verify the document passes your DTD validation by using one of the following validators:
   a) http://www.xmlvalidation.com/
   b) http://www.w3schools.com/xml/xml_validator.asp

4) Correct any errors and revalidate

5) Open in Firefox, Google Chrome, or IE browser. **Notice that XML document will display in the browser <u>even if the XML document does not validate</u>.**

REQUIREMENT #2

1) Open your **project3schema.xml** document
2) Create a **project3.xsd** schema for the **project3schema.xml** document
   a) Use the internal DTD created in **project3.xml** as your starting point for your schema
   b) Use Venetian Blind or Flat Catalog style as your main schema style
   c) Establish minimum and maximum occurrences
      i) Ensure there are at least 4 exchange elements
      ii) Ensure there 2 or more language spoken elements
      iii) Ensure there are exactly 5 country choice elements
      iv) Use the minimum and maximum occurrences specified in the internal DTD to determine all other element restrictions
   d) Include validation for the following:
      i) Refer to the internal DTD to determine all parent/child element relationships to begin
      ii) Validate the exchange type attribute can only have a value of: **S** (student) or **T** (teacher)
      iii) Validate all name, mother name, and father name child elements have alphabetic contents
      iv) Validate that the name, mother name, and father name each contains last name, first name, and optionally middle initial
      v) Validate that the address contains street, apartment optionally, city, state or providence, zip or postal code, and country
      vi) Validate that the school address contains street, apartment optionally, city, state or providence, zip or postal code, and country
      vii) Validate either the state or province element is received. Contents of either must be alphabetic.
      viii) Validate either the zip or postal code element is received. Contents of zip must be 5 digits or 5+4 digits. Contents of postal code must not be longer than 12 characters
      ix) Validate the gender can only have a value of: **M** (male) or **F** (female)
      x) Validate the Language spoken must have a fluency attribute containing a 1, 2, 3 or 4
      xi) Validate the country choice must have a preference attribute containing a 1, 2, 3, 4 or 5
      xii) Validate any date element is given in month, day, year format and is a valid month (1-12), day (1-31), and year
      xiii) Validate the age has a minimum value of 13
      xiv) Validate the country is alphabetic
      xv) Validate the school name is alphabetic
      xvi) Validate the essay is no greater than 1,000 characters
      xvii) Validate the phone number has a format of numeric and symbols: (999) 999-9999
      xviii) Validate the exchange Number is an ID
      xix) Validate the Fee Paid Currency attribute should be one of a list of enumerated currency types. To keep the project a reasonable size, you do not have to include all possible currency types, but you should include at least five currency types, including the ones used in your XML document
   e) Connect the **project3schema.xml** document to the newly created **project3.xsd**
   f) Use Exchanger XML to validate the schema. If you are not using Exchanger XML editor, you must verify the document passes your schema validation by using one of the following validators:
      - http://www.xmlvalidation.com/
      - http://www.w3schools.com/xml/xml_validator.asp
   g) Correct any errors and revalidate

Prior to submission

1) Run all requirements using the project 3 tester:
   a) Project 3 Tester http://itins4.madisoncollege.edu/IT/152121advweb/phpExample/validateFiles.php
   b) Use the Project 3 Test in Google Chrome, Firefox or IE browser and verify the code you added works when opening the document up within a browser.