CSci 4131: Internet Programming (Spring 2011)
Instructor: Anand Tripathi
Department of Computer Science & Engineering
University of Minnesota Twin Cities
Assignment 6: XML Schema and XSL/XPath
Due Date: May 4, 2011
This assignment must be done individually.

Objective:

The goals of this assignment are to learn the following: XML Schema Development

PART 1 (80 points:)

In this part, you are asked to develop and XML schema to describe a course catalog. The schema will have the following elements as described below:

Root element: will be courseCatalog, which will contain zero or more elements named *course* with contents of *CourseType*, as described below.

CourseType will have the following sequence of elements:
  1. *title* - one element of type string
  2. *instructor* - at least one or up to three elements of type instructorType, as described below
  3. *number* - exactly one element of type *courseNumberType,* as described below
  4. *schedule* - one element of type scheduleType, as described below
  5. semester - exactly one of the strings (Fall|Spring|Summer)
  6. enrollment - exactly one element containing integer value restricted to 0 to 100.

instructorType will have the following sequence of elements, and attributes
   firstname - one element of type string
   lastname - one element of type string
   One optional attribute called *title* of *personTitle* type, as described below.

personTitle will be an enumeration of two strings: *Dr* and *Prof*

courseNumberType will be a string starting with two letters (uppercase) followed by four digits

scheduleType contain at least one or more elements of   named "lecture" of DayTimeType.
DayTimeType will be a subtype of string and it will have one attribute "day", this attribute will be restricted to strings: (Mon Tue, Wed, Th, Fri))
    The string value *DateTimeType* would be restricted to the following form HH:MM-HH:MM.
   For example:
    <schedule>
       <lecture day="Tue">10:30-11:30</lecture>
       <lecture day="Th">10:30-11:30</lecture>

```
        </schedule>
```

Important Change:
Note that we have removed the requirement to include the **BookType** in your schema.
The CourseType will not contain textBook elements.

You can use any of the following links to validate your schema:
http://www.w3.org/2001/03/webdata/xsv
http://www.validome.org/

See these instance examples which should be validated by your schema.

PART 2 (20 points):

In this part of the assignment you will write an XSL style file with XPath commands to be applied to a course.

The XSL stylesheet will print in a tabular form the following information from a course catalog file conforming to the schema
described above:
   Course number   Course Title   enrollment

The table rows will have courses listed in the ascending alphabetical order.

After printing the table, the stylesheet would print the sum of the enrollment count for all the courses.

Items to Submit:

1. XSD file defining the schema which MUST be named **CourseCatalog.xsd**
2. XSL stylesheet file which must be named **Catlog.xsl**