COIN-078B : Internet Programming with XML

Assignment 1

Objectives:

- Learn the important W3C XSLT and XPath standards, and how to write an XSLT program to transform your XML documents from one structure to another.
- Construct an output that combines multiple XML applications (XHTML + VML as used in Google Maps).

Note: Please follow the specifications below. Points will be knocked off if not followed.

Read Assignment Guidelines & Requirements

XSLT, a very important W3C standard that provides a way of transforming XML documents from one structure to another. XSLT can be used to create HTML, so your XML documents can be viewed in a web browser, or XSLT can be used to transform your XML documents to any other XML structure, or even non-XML structures. In this assignment you are going to write an XSLT program that will transform an XML document elements.xml to XHTML + VML document. Right click on the loaded page, view source and save it as elements.xml. (Note: do not copy & paste off the browser page as it will include unwanted characters.) The output should contain a heading called "Table of Elements" and a table containing rows of elements. The last row shows the total number of elements. The table columns are **Atomic Number, Symbol, Name, Atomic Weight, Melting Point, Boiling Point, Atomic Radius and State** respectively. If available the units should be extracted from the appropriate attribute and placed in parenthesis under each label. Give the table rows any alternating color you like. Use the XSLT `choose` command, `position()` function & `mod` operator to check odd/even row and add the appropriate bgcolor attribute value. The elements are sorted by symbol.

The last column (State) should contain a circle based on the Melting Point, Boiling Point and Atomic Radius of each element. The height and width of the oval are 10 times of Atomic Radius (rounded) in pixels . The circle is hollow (transparent gas) if both Melting Point and Boiling Point are less than 298 Kelvin (SRT - Standard Room Temperature); white (default liquid) if Melting Point is less than but Boiling Point is higher than the SRT; dark blue (filled solid) if both are higher than the SRT. See the screenshot. Use XSLT `choose`, `if`, `attribute` (to add a specific attribute to the output tag) commands to accomplish this. Turn to pages 44 - 45 to help you do the VML.

> **VML Tips:** Try out the visual differences among the attributes below.
> ```
> <v:oval style="width:10px; height:10px;">
> <v:oval style="width:10px; height:10px;" filled="false">
> <v:oval style="width:10px; height:10px;" fillcolor="blue">
> ```

Note: Use a global (top-level) XSLT variable to hold the SRT value so you only need to modify this variable for SRT on Venus for example.

You'll need to read Chapters 1 & 13 of your textbook to be able to do this assignment. Skip Java code