**Assignment No. : 3**

**TITLE:**

XML and XSL

**PROBLEM STATEMENT:**

Write a program to design book catalog by using XML and CSS to display tile, author, price and year of the book.

**OUTCOMES:**

*To be able to,*

1. Design static webpage using XML.

2. Apply CSS to XML pages.

**SOFTWARE & HARDWARE REQUIREMENTS:**

**Software:** Notepad/text editor, Any Browser

**THEORY:**

XML stands for Extensible Markup Language. It is nothing but the text-based markup language which is derived from Standard Generalized Markup Language(SGML). XML tags identify the data and are used to store and organize the data, rather than specifying how to display it like HTML tags, which are used to display the data. XML is not going to replace HTML in the near future, but it introduces new possibilities by adopting many successful features of HTML.

There are three important characteristics of XML that makes it useful in a variety of systems and solutions −

 XML is extensible − XML allows you to create your own self-descriptive tags, or language, that suits your application.

 XML carries the data, does not present it − XML allows you to store the data irrespective of how it will be presented.

 XML is a public standard − XML was developed by an organization called the World Wide Web Consortium (W3C) and is available as an open standard.

**TECHNOLOGY/TOOL: XML**

The XML document have an XML declaration and it is written as−

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

Where version is the version of an XML document and UTF specifies the character encoding used in the document.

Each XML-element needs to be enclosed with start and end elements as shown below −

**<element>………</element>**

An XML document can have only one root element.

<root>

<x>...</x>

<y>...</y>

</root>

XML Attributes:

Using a name/value pair, an attribute specifies a single property for an element. An XML element can have one or more attributes. For example −

**<**a **href = "http://www.google.com/">** XMLTutorial </a**>**

Here, **href** is the attribute name and http://www.google.com/ is attribute value.

**XSL**: stands for E**X**tensible **S**tylesheet **L**anguage.

XSL is Style Sheets for XML

XML does not use predefined tags, and therefore the meaning of each tag is not well understood.

A <table> element could indicate an HTML table, a piece of furniture, or something else - and browsers do not know how to display it! So, XSL describes how the XML elements should be displayed.

**Style Sheet Declaration**

The root element that declares the document to be an XSL style sheet is <xsl:stylesheet>. **Note:** <xsl:stylesheet> and <xsl:transform> are completely synonymous and either can be used!

The correct way to declare an XSL style sheet according to the W3C XSLT Recommendation is:

**<xsl:stylesheet version="1.0" xmlns:xsl="http://www.w3.org/1999/XSL/Transform">**

**<xsl:template> Element**

An XSL style sheet consists of one or more set of rules that are called templates.

The <xsl:template> element is used to build templates.

The **match** attribute is used to associate a template with an XML element. The match attribute can also be used to define a template for the entire XML document. The value of the match attribute is an XPath expression (i.e. match="/" defines the whole document).

**<xsl:for-each> Element**

The <xsl:for-each> element allows you to do looping in XSLT.

The XSL <xsl:for-each> element can be used to select every XML element of a specified node-set.

**<xsl:sort> Element**

The <xsl:sort> element is used to sort the output.

To sort the output, simply add an <xsl:sort> element inside the <xsl:for-each> element in the XSL file. The **select** attribute of it indicates what XML element to sort on.

**The <xsl:value-of> Element**

The <xsl:value-of> element is used to extract the value of a selected node.

The <xsl:value-of> element can be used to extract the value of an XML element and add it to the output stream of the transformation

**DESIGN/EXECUTION STEPS:**

Following steps are used to Create and Execute web application,

1. Write the XML code in notepad / text editor and save with .xml extension.

2. Write the CSS code in notepad/ text editor and save with .xsl extension.

3. Import .xsl file in XML page.

4. Open XML page in the browser.

**CONCLUSION/ANALYSIS:** Hence, we have designed static web pages using XML and CSS.

**ORAL QUESTIONS:**

1. Explain difference between HTML and XML?

2. What is XML DOM?

3. Explain difference between CDATA and PCDATA?

4. What is mean by simple element and complex element?

5. What is XPATH?

6. Explain XSL and XSLT?