



XSLT

extensible stylesheet language transformation

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About the Tutorial

EXtensible Stylesheet Language Transformation, commonly known as XSLT, is a way to transform the XML document into other formats such as XHTML.

This tutorial explains the basics of XSLT. It contains chapters discussing all the basic components of XSLT with suitable examples.

Audience

This tutorial has been prepared for beginners to help them in understanding the basic concepts related to XSLT. This tutorial will give you enough understanding on XSLT from where you can take yourself to a higher level of expertise.

Prerequisites

Before proceeding with this tutorial, you should have a basic knowledge of XML, HTML, and JavaScript.

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1. XSLT – Overview

XSL

Before learning XSLT, we should first understand XSL which stands for **EX**tensible **S**tylesheet **L**anguage. It is similar to XML as CSS is to HTML.

Need for XSL

In case of HTML document, tags are predefined such as table, div, and span; and the browser knows how to add style to them and display those using CSS styles. But in case of XML documents, tags are not predefined. In order to understand and style an XML document, World Wide Web Consortium (W3C) developed XSL which can act as XML based Stylesheet Language. An XSL document specifies how a browser should render an XML document.

Following are the main parts of XSL:

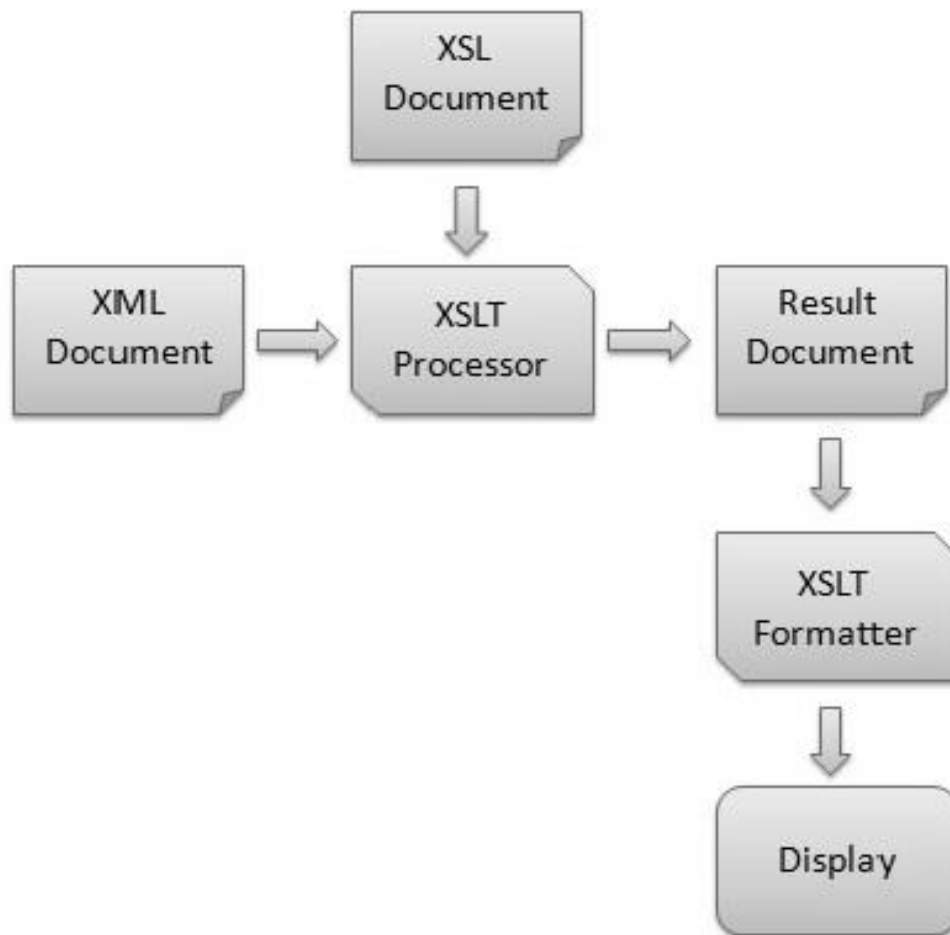
- **XSLT** - used to transform XML document into various other types of document.
- **XPath** - used to navigate XML document.
- **XSL-FO** - used to format XML document.

What is XSLT

XSLT, Extensible Stylesheet Language Transformations, provides the ability to transform XML data from one format to another automatically.

How XSLT Works

An XSLT stylesheet is used to define the transformation rules to be applied on the target XML document. XSLT stylesheet is written in XML format. XSLT Processor takes the XSLT stylesheet and applies the transformation rules on the target XML document and then it generates a formatted document in the form of XML, HTML, or text format. This formatted document is then utilized by XSLT formatter to generate the actual output which is to be displayed to the end-user.



Advantages

Here are the advantages of using XSLT:

- Independent of programming. Transformations are written in a separate xsl file which is again an XML document.
- Output can be altered by simply modifying the transformations in xsl file. No need to change any code. So Web designers can edit the stylesheet and can see the change in the output quickly.

2. XSLT – Syntax

Let's suppose we have the following sample XML file, students.xml, which is required to be transformed into a well-formatted HTML document.

students.xml

```
<?xml version="1.0"?>
<class>
  <student rollno="393">
    <firstname>Dinkar</firstname>
    <lastname>Kad</lastname>
    <nickname>Dinkar</nickname>
    <marks>85</marks>
  </student>
  <student rollno="493">
    <firstname>Vaneet</firstname>
    <lastname>Gupta</lastname>
    <nickname>Vinni</nickname>
    <marks>95</marks>
  </student>
  <student rollno="593">
    <firstname>Jasvir</firstname>
    <lastname>Singh</lastname>
    <nickname>Jazz</nickname>
    <marks>90</marks>
  </student>
</class>
```

We need to define an XSLT style sheet document for the above XML document to meet the following criteria:

- Page should have a title **Students**.
- Page should have a table of student details.
- Columns should have following headers: Roll No, First Name, Last Name, Nick Name, Marks
- Table must contain details of the students accordingly.

Step 1: Create XSLT document

Create an XSLT document to meet the above requirements, name it as students.xsl and save it in the same location where students.xml lies.

students.xsl

```
<?xml version="1.0" encoding="UTF-8"?>
<!-- xsl stylesheet declaration with xsl namespace:
Namespace tells the xslt processor about which element is to be processed and
which is used for output purpose only
-->
<xsl:stylesheet version="1.0"
xmlns:xsl="http://www.w3.org/1999/XSL/Transform">
<!-- xsl template declaration:
template tells the xslt processor about the section of xml document which is to be
formatted. It takes an XPath expression.
In our case, it is matching document root element and will tell processor to
process the entire document with this template.
-->
<xsl:template match="/">
<!-- HTML tags
Used for formatting purpose. Processor will skip them and browser will simply
render them.
-->
  <html>
  <body>
  <h2>Students</h2>
  <table border="1">
    <tr bgcolor="#9acd32">
      <th>Roll No</th>
      <th>First Name</th>
      <th>Last Name</th>
      <th>Nick Name</th>
      <th>Marks</th>
    </tr>
    <!-- for-each processing instruction
      Looks for each element matching the XPath expression
    -->
```

```

<xsl:for-each select="class/student">
  <tr>
    <td>
      <!-- value-of processing instruction
      process the value of the element matching the XPath expression
      -->
      <xsl:value-of select="@rollno"/>
    </td>
    <td><xsl:value-of select="firstname"/></td>
    <td><xsl:value-of select="lastname"/></td>
    <td><xsl:value-of select="nickname"/></td>
    <td><xsl:value-of select="marks"/></td>
  </tr>
</xsl:for-each>
</table>
</body>
</html>
</xsl:template>

</xsl:stylesheet>

```

Step 2: Link the XSLT Document to the XML Document

Update student.xml document with the following xml-stylesheet tag. Set href value to students.xml

```

<?xml version="1.0"?>
<?xml-stylesheet type="text/xsl" href="students.xml"?>
<class>
...
</class>

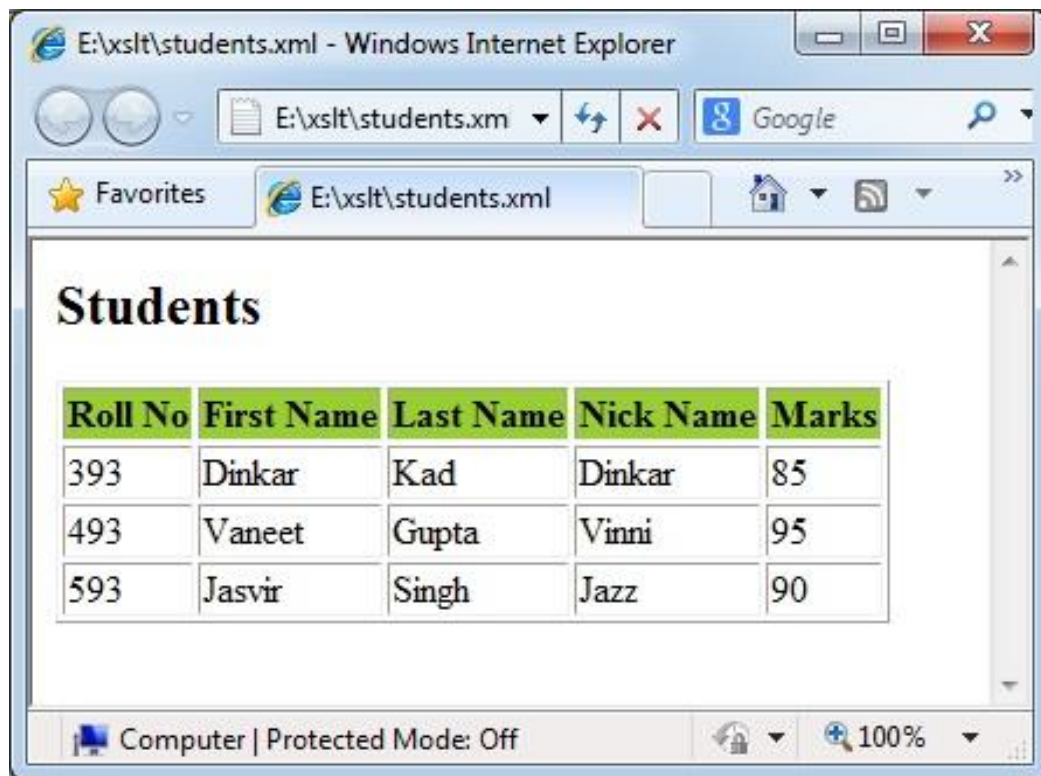
```

Step 3: View the XML Document in Internet Explorer

students.xml

```
<?xml version="1.0"?>
<?xml-stylesheet type="text/xsl" href="students.xsl"?>
<class>
  <student rollno="393">
    <firstname>Dinkar</firstname>
    <lastname>Kad</lastname>
    <nickname>Dinkar</nickname>
    <marks>85</marks>
  </student>
  <student rollno="493">
    <firstname>Vaneet</firstname>
    <lastname>Gupta</lastname>
    <nickname>Vinni</nickname>
    <marks>95</marks>
  </student>
  <student rollno="593">
    <firstname>Jasvir</firstname>
    <lastname>Singh</lastname>
    <nickname>Jazz</nickname>
    <marks>90</marks>
  </student>
</class>
```

Output



Students

Roll No	First Name	Last Name	Nick Name	Marks
393	Dinkar	Kad	Dinkar	85
493	Vaneet	Gupta	Vinni	95
593	Jasvir	Singh	Jazz	90

End of ebook preview

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