

415- WestLake Capstone Series: XML Developer

Understand the Role of XML Applications

Since XML has been touted as the next dominant language on the Web, it has been speculated that XML will render HTML and traditional databases obsolete. While this is unlikely (both databases and HTML will continue to have essential roles in Web applications), XML will assume the role of middleman, providing logical data to Web applications for dynamic conversion into HTML.

In conjunction with the associated technologies of XSL (extensible Stylesheet Language), XML Schemas, CSS, and JavaScript, XML provides the link to a Web page's data, and the logical description that allows it to be displayed optimally. You will learn how to use the different components of an XML application, and how to build XML applications that make best use of these different components.

Additionally, you will see the possibilities of XML-database integration. You will learn how to import and export XML from your database using Active Server Pages (ASP), and how to perform XSL transformations on the server so that output can be generated in HTML, Wireless Markup Language, PDF, and other formats.

Create and Display XML documents on a Browser

Design XML datasheets using your own custom markup language! Since XML documents must conform to strict rules of formation and syntax, you will learn how to build a well-formed XML document, and how to use internet Explorer's built-in XML parser to view and test your documents.

Set standards for your XML documents: Incorporate Document Type Definitions (DTDs)

A DTD describes the structure of your XML document, by defining the acceptable XML tags for your application and their relationships. By including a DTD with your XML document, you can ensure that any application that processes your data knows the purpose and structure of the tags you have created. In addition, DTDs can be external, allowing many XML documents to link to them and share a predefined structure. You will learn to build both internal and external DTDs for your XML applications.

Write XML Schemas

DTDs, as an SGML-based standard, lack the intuitive simplicity of XML. The W3C Schema proposal allows you to improve upon your DTDs by including data types, content controls, and sophisticated element relationship specifications. Schemas will increasingly replace DTDs in the next few years. Be ready for when they do! You will master the syntax of the W3C XML Schema proposal, as well as techniques for applying and validating the schemas you build.

Transform Your Data into multiple outputs with XSLT

extensible Stylesheet Language Transformation (XSLT) allows you to generate output from your XML data. This output can be HTML, text, WML, XML, and more. You will learn the powerful XSLT standards, and will build complete, complex applications using XSLT. Tags you will learn and use include `xsl:stylesheet`, `xsl:template`, `xsl:apply-templates`, `xsl:value-of`, `xsl:sort`, `xsl:for-each`, `xsl:variable`, and `xsl:attribute`. In addition, you will learn the powerful functions and expressions of XPath, to enable you to have extraordinary control over the elements you select and the data you present.

Use HTML to Create Dynamic Data-driven XML Applications

An HTML page can act as a wrapper for an XML application, applying stylesheets dynamically by making XML data available to client-side scripting with JavaScript. You will build HTML front-ends for your XML, XSL, and CSS pages, and will learn to dynamically update your XSL stylesheets with JavaScript. JavaScript, in conjunction with XML, allows dynamic effects such as re-sortable lists (based on which field a user clicks), expanding and contracting tree structures (allowing users to display data in exactly the structure they need), and dynamic visibility changes (allowing users to "drill down" to display additional information).

Develop XML-ASP Integration

There are many options for server-side XML processing (including Java Servlets, JSP, and ASP). The simplest of these to implement is Active Server Pages (ASP). You will receive a basic introduction to ASP-XML integration, including the central Microsoft.XMLDOM component that implements the full XML DOM. The concepts this section covers apply to any server-side technology. Specifically, students will be transforming the XML on the server side, producing html output. In addition, you will learn how to take the contents of a database and use ASP to mark it up as and XML datasheet.

Master the XML DOM

In order to unlock the full potential of XML, you must be comfortable navigating the complex Document Object Model (DOM) of an XML document. In class, you will learn how to access the XML DOM with JavaScript and XSL; how to build a search interface for your XML datasheet; how to produce visual representations of your XML hierarchy; and how to add, remove, and modify nodes of your XML. You will even learn how to allow users to specify new data, and how to transmit that data to the server to be saved into your XML file