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The Extensible Markup Language (XML) defines a way of marking up text to describe the structure of data. XML allows you to create your own markup language: you define the tags that give meaning to your data. The World-Wide Web Consortium (W3C) creates and maintains the definition of XML, making it a standard for creating markup languages. Industries and organizations use XML to write rules defining their own markup languages.

In this three-day course students will learn how to create well-formed XML documents. In addition, they will learn about the most important supplementary technologies that support XML, including XML Schema for validation as well as XSLT for transformation.

## **Course Objectives:**

- Explain what XML is, and how it is used in application and document development.
- Write well-formed documents that conform to XML's basic rules of syntax.
- Validate XML documents with XML Schemas.
- Use XML Namespaces to distinguish between XML tags.
- Transform an XML document into an HTML document using XSLT.
- Use XPath to navigate a document tree.
- Explain how programs can use DOM and SAX to parse XML documents.

Audience: Application developers, web developers and administrators, and XML authors.

**Prerequisites:** HTML. Familiarity with web and data processing concepts. Programming experience is helpful, but not necessary.

## Number of Days: 3 days

1	Course Introduction		Empty and Non-Empty Elements
	Course Objectives		Nesting and Hierarchy of Tags
	Overview		Processing Instructions and the XML
	Suggested References		Declaration
2	Getting Started with XML		Other XML Constructs
	Data and Document Structure		Entity and Character References
	XML	4	Namespaces
	Well-Formed XML		Why Namespaces?
	Valid vs. Well-Formed XML		Namespace Prefixes and Declaration
	XML Schema		Multiple Namespace Declarations
	Presentation Style		Declaring Namespaces in the Root
	XSL-FO and XSLT		Element
	Using XML		Default Namespaces
3	Writing Well-Formed XML	5	Validating XML with XML Schemas
	XML Fundamentals		Schema Overview
	Tag Attributes		Associating XML with a Schema
	Naming Rules		Simple and Built-in Types



Complex Types **Element Declarations** Attribute Declarations Choices Named Type and Anonymous Types Intro to XSLT 6 Stylesheet, Source, and Result **XSLT** Processors **Processor Implementations XPath Basics** xsl:stylesheet xsl:template xsl:value-of xsl:apply-templates xsl:output 7 **XPath Nodetypes** XPath Expressions XPath Context XPath Location Steps Element and Root Nodes Text and Attribute Nodes Comment and Processing Instruction Nodes Namespace Nodes Wildcards Whitespace Default Template Rules **XPath Axes and Predicates** 8 Location Paths and Location Steps Peer Axis Types More Peer Axis Types Descendant Axis Types Ancestor Axis Types Node Tests Predicates Functions 9 **XSLT Flow Control** xsl:if xsl:choose xsl:for-each xsl:sort Named Templates Mode

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**XML** in Applications Reasons and Places for Using XML **DOM Parsers** SAX Parsers Web Services

Appendix A - Using XML Schema 11 with Namespaces Qualified and Unqualified XML Associating Qualified XML with a Schema Associating a Schema with a Namespace Controlling Element and Attribute Oualification Merging Schema with the Same Namespace Merging Schema with Different Namespaces Appendix B - Validating XML with

## 12 DTDs

XML DTDs DOCTYPE Element Conditions and Quantifiers Attributes Attribute Types **REQUIRED**, IMPLIED, and FIXED Parsed General Entities **Parsed Parameterized Entities DTDs** and **Namespaces**