

## XML: A Comprehensive Hands-On Introduction - 4 Days

### Course 542 Overview

- You Will Learn How To**
- Leverage the power of Extensible Markup Language (XML) and related technologies
  - Access and modify information within an XML document using the Document Object Model (DOM)
  - Transform XML documents into other formats and apply presentation styles with XSL
  - Ensure XML data is valid and conforms to design requirements using schemas
  - Implement strategies to secure XML data interchange
  - Integrate XML into Web Services and Ajax applications

**Course Benefits** Today, it is no longer enough to just have a presence on the Web; you must maintain constant and immediate access to your customers and business partners in order to remain competitive. XML offers an easier way to conduct business-to-business transactions and a better means for handling data. In this course, you gain comprehensive knowledge and hands-on experience using XML and related technologies including XSL, schemas, XPath, XQuery and DOM.

**Who Should Attend** Those involved in developing enterprise solutions or anyone wanting to gain more knowledge about XML.

**Hands-On Training** Hands-on experience developing XML solutions is provided throughout this course. Exercises include:

- Creating well-formed XML documents
- Searching XML documents with XQuery
- Extracting XML from relational databases
- Designing XML documents from business requirements
- Reading and creating XML documents using the DOM
- Encapsulating business and validation rules in an XML schema
- Rendering an XML document as HTML and PDF
- Investigating Web Services and Ajax applications

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## Course 542 Outline

### Introduction and Overview

#### Demystifying XML

- Surveying the XML landscape
- The business benefits of XML

#### XML in the real world

- Exchanging data with XML: RSS, Ajax, Web Services
- XML best practices

### Designing and Implementing XML Documents

#### XML document structure

- The document root and prologue
- Elements
- Attributes
- Entities
- Namespaces
- Differentiating between well-formed and valid documents
- Exploiting popular XML editing tools

#### XML design and data mapping

- Elements vs. attributes
- Design techniques
- Designing an XML document from a requirements document

#### Distinguishing dialects with namespaces

- Adhering to proper naming conventions
- Eliminating document ambiguity with namespaces
- Defining namespaces using Uniform Resource Identifiers (URI)

### Generating and Updating XML Documents

#### The XML processing models

- Document Object Model
- Event-driven processing
- Navigating a document with XPath
- Querying a document with XQuery
- Differences between event-driven and tree-based models

#### Communicating with databases using XML

- Database storage options
- Retrieving database results as XML
- Reformatting database results with XQuery
- Storing XML with a native XML data type

#### Processing information with the DOM

- Navigating XML documents
- Extracting and modifying data

- Building XML documents from scratch
- Creating element and text nodes

- Enabling an Ajax-powered Web page with XML

### Validating XML Data

#### Constraining XML structure and content

- Defining an XML structure with Document Type Definitions (DTDs)
- Building XML schemas to validate XML structure and data

#### Validation with XML schemas

- XML schema syntax and components
- Writing schemas to restrict XML content
- Specifying valid elements and attributes
- Encapsulating business rules in XML schemas
- Leveraging schema data types

#### Extending schemas

- Importing existing schemas
- Leveraging modular schemas
- Defining custom user-defined types

### Transforming Documents with Extensible Style Language (XSL)

#### The power of XML transformation

- Converting XML documents to adhere to different schemas
- Processing documents with pattern matching
- Specifying output format with templates
- XSL best practices

#### Applying style to data

- Formatting XML data for presentation
- Styling XML for display as HTML and PDF

#### Searching and filtering with XPath

- Formatting and sequencing XML data
- Sorting, grouping and filtering output

### Application Security and Integration

#### Securing XML applications

- Implementing transport security
- Encrypting XML data
- Enabling SOAP security with WS-Security

#### Integrating applications with XML

- Communicating with XML messaging
- Investigating Web Services, SOAP and WSDL