

## Comprehensive XML

### Course Summary

#### Description

This course provides the student with in-depth coverage of the Extensible Markup Language. Better known as XML, this language is fast becoming the de facto business language of the Internet. XML allows for powerful and ubiquitous B2B and B2C business solutions to be created, implemented and maintained. This course explores XML and related technologies, such as Document Type Definitions (DTDs), XML Schema, XML namespace, XSL, XSLT, and XHTML and demonstrates how to incorporate these technologies with Java with SAX and DOM.

This course is an accelerated combination of the Introduction to XML and XML Programming with Java courses.

#### Objectives

At the completion of this course, the student will be familiar with the following XML topics:

- Well-formed and valid XML
- Document Type Definitions (DTDs) and Schemas
- XML elements, attributes, entities, and namespaces
- Cascading Style Sheets (CSS)
- Extensible Stylesheet Language Transformations (XSLT)
- Extensible Hypertext Markup Language (XHTML)
- Java SAX/DOM Programming
- Integrating XSLT with Java
- Using XML with wireless Palms.

#### Topics

- What is XML?
- Well-formed XML
- Introducing the Document Type Definition
- XML elements
- XML attributes
- XML entities
- XML namespaces
- XML schemas
- XHTML
- Java & XSLT
- SAX Programming
- DOM Programming
- Working with JAXP
- XML and the Wireless Web

#### Audience

This course is designed for those who need to write XML documents and incorporate them into their Java-based applications.

#### Prerequisites

An understanding of HTML is helpful and a working knowledge of Java is also assumed.

#### Duration

Five days

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### Course Outline

- I. What is XML?**
  - A. XML Introduction and overview
  - B. Short history of markup languages
  - C. HTML document anatomy
  - D. XML document anatomy
- II. Well-Formed XML**
  - A. What is well-formed XML?
  - B. XML document structure
  - C. Introduction to Cascading Style Sheets (CSS)
- III. Introducing the Document Type Definition**
  - A. What is valid XML?
  - B. The document type declaration
  - C. The internal DTD
  - D. The external DTD
  - E. Element structure in the DTD
  - F. The CDATA section
- IV. XML Elements**
  - A. What is an element?
  - B. Element declarations
  - C. The element content model
  - D. Adding more CSS properties
- V. XML Attributes**
  - A. What is an attribute?
  - B. Attribute declarations
  - C. Attribute types
  - D. Attribute defaults
  - E. Enumerated attributes
  - F. Attributes and CSS
  - G. Additional XML declaration attributes
- VI. XML Entities**
  - A. What is an entity?
  - B. Character references
  - C. Entity declarations
  - D. Parameter entities
  - E. Conditional sections in DTDs
- VII. XML Namespaces**
  - A. What is an XML namespace?
  - B. The namespace myth
  - C. Defining namespaces in DTDs
  - D. Multiple namespaces
  - E. Attributes and namespaces
- VIII. XML Schema**
  - A. What is XML schema?
  - B. The simple element type
  - C. Complex type elements
  - D. Annotations in schema
  - E. Attributes in schema
  - F. Occurrence constraints
  - G. Content models in schema
  - H. Other XML schema features
- XI. XHTML**
  - A. What is XHTML?
  - B. HTML and XML
  - C. Conforming HTML
  - D. Well-formed XHTML
  - E. HTML in XHTML
  - F. XML in XHTML
- XII. Java and XSLT**
  - A. Languages for processing XML documents
  - B. Why Java works well with XML
  - C. Components of an XML application
  - D. XML parsers
    - i. IBM's XML parser
    - ii. The Apache XML parser
  - E. Document-oriented vs. Event driven document processing
  - F. Transforming XML documents
  - G. XSL and CSS
  - H. Using XSL sheets to transform an XML document
  - I. Invoking the XSLT component of the parser
  - J. The XSLT classes and interfaces
  - K. Key XSLT methods
  - L. Modifying an XML document into different formats

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### Course Outline (cont'd)

#### XIII. The Simple API for XML (SAX)

- A. The types of events generated
- B. The org.xml.sax and org.xml.sax.helpers packages
- C. The interfaces and classes in the SAX API
- D. Key SAX methods
- E. The IBM SAX parser
- F. The Oracle SAX parser
- G. Ordering of events when a document is parsed
- H. Parsing an XML document using SAX

#### XIV. The Document Object Model

- A. The Document Object Model (V1.0 and V2.0)
- B. The org.w3c.dom package
- C. The DOM interfaces and classes
- D. Key DOM methods
- E. IBM's DOM parser
- F. Oracle's DOM parser

#### XV. Processing XML Documents Using the DOM

- A. Reading vs. Parsing an XML document
- B. Parsing XML documents with the DOM
- C. Printing from a parsed structure
- D. Displaying an XML document in a JTree control
- E. Creating an XML document from scratch
- F. Adding and deleting nodes from a document
- G. Manipulating DOM structures
- H. Searching XML documents

#### XVI. Integrating XML with Databases

- A. Storing XML documents in a database column
- B. Creating XML documents from a database table
- C. Inputting data into tables from XML documents
- D. The XML schema proposal vs. DTDs

#### XVII. Integrating XML with Servlets

- A. Brief servlet overview
- B. Servlets for creating and processing XML documents
- C. Oracle's XSQL servlet for handling queries

#### XVIII. XML and the Wireless Web

- A. Using XML with wireless Palms