

433: Java and XML (3 days)

Course Description...

Master the essentials of XML and Java XML APIs. Explore fundamentals of XML including document structure, DTDs and XML Schema. Discover the relationship between Java and XML, including generating XML from Java and the mapping between Java and XML objects. Explore a detailed hands-on examination of the two main JAXP APIs - SAX 2.0 and DOM 2.0.

Who Should Attend...

This course is primarily intended for Java programmers who need to understand how to use XML and the Java XML APIs with a high level of proficiency and competence. Students include: Application developers; XML Document Authors; Advanced Webmasters; Leaders looking toward the future of XML implementations.

Prerequisites...

Students should have proficiency with Java equivalent to

- 430: Essential Java

Learning Objectives...

This course provides a basic introduction to XML and the Java XML APIs. The course is a balanced mixture of theory and practical labs designed to take students from the basic fundamentals of XML right through to mastery of the standard Java XML APIs. The course starts with the fundamentals of XML including document structure, DTDs and XML Schema. It then moves on to the basic relationship between Java and XML, including generating XML from Java and the mapping between Java and XML objects. Finally, students are taken through a detailed and hands-on examination of the two main JAXP APIs - SAX 2.0 and DOM 2.0. The course concludes with a look at some Java and XML related topics.

Hands-On Labs:

The hands-on labs are a key learning element of this course. Each lab reinforces the material presented in lecture allowing the student to gain confidence by successfully translating theory into practice. Taken as a whole, the labs identify the essential skills that will be used on the job in the development of Java applications.

Course Outline...

What is XML?

- The requirement for self describing data
- The role of XML in modern systems
- SGML and the origins of XML
- The XML standard and how it relates to the other standards (XSL, XPath, DOM, SAX, etc)
- Some real life XML applications

The XML Document

- Structure of the XML document
- Structure of prolog, body and epilog
- Elements, tags and attributes
- Entities, CDATA sections and PIs
- Well formed XML
- XML syntax and parsing



The Document Type Definition (DTD)

- The role and functions of a DTD
- Specifying internal and external DTDs
- Specifying elements and attributes
- Specifying internal and external Entities
- DTD conformance and valid XML documents

Namespaces and Datatypes

- DTD shortcomings and proposed replacements
- Namespaces, modularization and DTDs
- XML primitive versus user generated datatypes
- Defining and using datatypes

XML Schemas

- The concept of an XML schema
- XML schema structure
- Specifying element types and content models
- Declaring attributes and types

XML and Java

- How Java and XML work together
- JAXP: the Java XML API
- Data Modeling: relating XML and Java structures
- Generating XML from Java
- Basic parsing concepts
- Getting and using XML parsers for Java
- Event Driven and tree-based parsing
- The role of SAX and DOM

The SAX 2.0 Interface

- Basic SAX design goals and implementation
- The parser interface and methods
- The Content Handler interface and methods
- SAXExceptions and the ErrorHandler Interface
- The EntityResolver Interface and methods
- The DTDHandler Interface and methods
- Using SAX with validating parsers
- Other SAX features and interfaces

The DOM 2.0 Interface

- What the DOM standard is
- The DOM Java Binding
- The DOM Node Tree
- The Node interface and methods
- Entity, Document and other DOM subclasses
- Building and traversing a DOM tree
- Modifying and transforming DOM trees
- Using DOM to generate or transform XML
- Using DOM with validating parsers

Other Java XML Topics

- Overview of the JDOM API
- Where XML fits into the J2EE architecture
- Namespace and Schema support in JAXP
- Future developments in the Java APIs

Please contact your ROI representative to discuss course tailoring!!!