



1-800-ROI-9877

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Course 442: XML: A Comprehensive Introduction for Developers (3 days)

This course provides a comprehensive introduction to XML and how to parse, create, transform and bind to XML from Java programs. Students also learn how to design web services using SOAP and WSDL and how to create web services and web service clients.

XML provides a standard, portable data format and therefore serves as the lynchpin of interoperable systems. Developers can interact with XML in many ways – from designing XML documents, defining their schema, parsing XML inputs and creating XML outputs. They can do so at a low-level using SAX and DOM parsers or with higher abstractions such as stylesheet-based transformations, XML-object binding or XML/SOAP web services. In this course, students will gain a comprehensive understanding of XML and how to develop programs that can leverage XML.

Who can benefit?

This is an intermediate level Java programming course, designed for developers who wish to implement integration architectures using XML and/or web services. The student should have practical development experience. Although designed for a Java programmer, XML APIs and concepts are similar across many languages – Perl, Python, .NET etc. – and developers who work primarily in those languages can also benefit from this course.

Prerequisites

Attendees should have proficiency in Java to the level of ROI's course 430: Essential Java.

Learning Objectives

Students will leave this course armed with the skills to:

1. Describe the structure of an XML document using XML schema
2. Parse XML documents from Java programs using SAX and DOM
3. Transform XML documents using TRAX and stylesheets
4. Bind XML data to objects using JAXB
5. Describe web services based on SOAP and WSDL
6. Write and deploy WSDL for WSDL-first web services
7. Create WSDL-first web services
8. Create web service clients

Chapter 1: XML in the Enterprise

- XML: syntax and grammar
- XML Namespaces
- XML Schema
- Simple Types, Complex Types
- Interoperability limitations
- Binary data
- Facets, enumeration, union
- XPath
- XSLT

Chapter 2: Parsing and Creating XML

- Java APIs for XML Parsing
- SAX
- DOM
- JAXB
- Binding XML to objects
- JAXB limitations
- Java Transformation API

Chapter 3: Web Service Ingredients (SOAP and WSDL)

- Service Oriented Architecture (SOA) and Web Services
- Role of SOAP in Web Services
- Structure of a SOAP message
- Why a Header?
- Types of SOAP messages
- Role of WSDL in Web Services
- Interface
- Implementation
- Deploying a WSDL

Chapter 4: Creating a Web Service from WSDL

- Why choose JAX-WS
- Importing a WSDL and generating a web service endpoint
- Best practices in dealing with generated code
- Customizing the generated code
- Structure of a web service WAR
- SOAPHandler and LogicalHandler

Chapter 5: Building Web Service clients

- Generating client code from WSDL
- Customizing the created client code
- SOAPHandler and SOAPMessage
- LogicalHandler
- Changing SOAP messages using DOM, TRaX and JAXB

Please contact your ROI representative to discuss course tailoring!