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# Course Catalog

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# Table Of Contents

<b>a. Locations</b> .....	<b>4</b>
<b>1. Programming</b> .....	<b>5</b>
<b>A. Altova MissionKit</b> .....	<b>5</b>
i. Mapforce.....	<b>5</b>
ii. Stylevision.....	<b>7</b>
iii. XMLSpy.....	<b>9</b>
<b>B. Java</b> .....	<b>11</b>
i. Design Patterns.....	<b>11</b>
ii. Fundamentals.....	<b>13</b>
iii. JDBC.....	<b>15</b>
iv. Java EE.....	<b>17</b>
v. Java Server Pages (JSP).....	<b>19</b>
vi. Server Faces (JSF).....	<b>21</b>
vii. Swing.....	<b>23</b>
viii. Web Services.....	<b>25</b>
ix. XML.....	<b>27</b>
<b>C. PHP</b> .....	<b>29</b>
i. Boot Camp.....	<b>29</b>
ii. Design Patterns.....	<b>31</b>
iii. Fundamentals.....	<b>33</b>
iv. Object-Oriented Programming (OOP).....	<b>35</b>

v. Oracle.....	<b>37</b>
vi. XML Processing.....	<b>39</b>
<b>D. XML.....</b>	<b>41</b>
i. Altova Mapforce.....	<b>41</b>
ii. Altova Stylevision.....	<b>43</b>
iii. Altova XMLSpy.....	<b>45</b>
iv. Fundamentals (Long).....	<b>47</b>
v. Fundamentals (Short).....	<b>49</b>
vi. Relax NG.....	<b>51</b>
vii. XML Schema.....	<b>53</b>
viii. XSL-FO.....	<b>55</b>
ix. XSLT.....	<b>57</b>
x. XSLT and XSL-FO Combined.....	<b>59</b>
<b>E. oXygen.....</b>	<b>61</b>
i. Relax NG using XML Developer.....	<b>61</b>
ii. XML Fundamentals (Long) using XML Developer.....	<b>63</b>
iii. XML Fundamentals (Short) using XML Developer.....	<b>65</b>
<b>b. Disclaimer.....</b>	<b>67</b>

## a. Locations



Our trainings take place at various locations in the German-speaking countries.

### Public trainings:

You can enroll for public trainings at our training centers across Germany like in Berlin, Dresden, Hamburg, München / Munich, Düsseldorf, Frankfurt, and Stuttgart. Not all public trainings will be organized in all cities but you can still book a particular training for your team in one of our training and conference centers.

In Austria you can attend seminars and trainings in Wien / Vienna while we offer training dates in Switzerland in Zürich / Zurich.

### On-site trainings:

We have mobile and flexible trainers / lecturers who like to visit you and your team for an on-site training or a training in a conference center or hotel near you.

## USA

Chicago	Tel: Fax:
Miami	Tel: +1.305.395.7962 Fax: +1.305.395.7964
New York	Tel: +1.212.380.1181 Fax: +1.305.395.7964

# 1. Programming

## A. Altova MissionKit



### (i) Mapforce



#### Overview

<b>Course ID</b>	2020988
<b>Language</b>	en
<b>Duration</b>	2 D ys
<b>Delivery mode</b>	Classroom
<b>Course Type</b>	
<b>Target Group</b>	Programmers, Web developers
<b>Prerequisites</b>	XML basics
<b>Method</b>	Lecture with examples and exercises.
<b>Course level</b>	Beginning



#### Course Dates

Chicago	Miami	New York
1,400.00 USD	1,350.00 USD	1,400.00 USD
30-31 Jul 24-25 Sep 19-20 Nov	27-28 Aug 22-23 Oct 17-18 Dec	03-04 Sep 29-30 Oct 24-25 Dec

Prices plus local taxes.



#### Course Description

Altova MapForce is an any-to-any graphical data mapping, conversion, and integration tool that maps data between any combination of XML, database, flat file, EDI, Excel, XBRL, and/or Web service, then transforms data instantly or autogenerates royalty-free data integration code for the execution of recurrent conversions. It provides powerful, visual XML mapping functionality for instantly transforming XML data from one XML format to any another XML format based on XML Schema or namespace aware DTDs, and can even generate an XML mapping component from an XML instance file. It includes the FlexText utility for parsing and converting text files such as mainframe text reports, text-based log files, and other legacy text file types in mapping designs. With its visual interface, FlexText lets you insert an existing text file and extract the portions you want to convert in the MapForce mapping interface. This training shows you in many hands-on labs how to develop mapping solutions for the above-mentioned combinations and to make the most of MapForce.



#### Course Outline

### A. XML Mapping

(0.25 Days) MapForce User Interface - Mapping between Components - Multiple XML Files from Single XML Source File, Excel Rows or per Table - Filtering - Sorting - Loops, Groups and Hierarchies - Code Generator

## **B. Database Mapping**

(0.125 Days) Setting up the XML-To-Database Mapping - Table Preview Customization - Components and Table Relationships - Database Actions: Insert, Update, Delete, Ignore - Generating Database Output Values - Table Actions - SQL WHERE / ORDER Component - SQL SELECT Statements as Virtual Tables - Stored Procedures - Querying Databases Directly - Database Query Tab

## **C. Text Mapping**

(0.25 Days) Mapping CSV and Text Files: Mapping CSV Files to XML / XML to CSV, Creating Hierarchies From CSV and Fixed Length Text Files, CSV File Options, Mapping Fixed Length Text Files (to a Database) - MapForce FlexText: Creating Split Conditions, Defining Multiple Conditions per Container/Fragment, Using FlexText Templates in MapForce, Using FlexText as a Target Component

## **D. Web Services Mapping**

(0.125 Days) Creating Web Service Projects from WSDL Files - Calling Web Services

## **E. General Functions**

(0.25 Days) Global Resources - Dynamic Input/Output Files per Component - Intermediate Variables - User-Defined Functions - Built-In Functions - Using the Command Line - Project Management - Chained Mappings / Pass-Through Components - Sequence of Processing Mapping Components - Merging Multiple Files into One Target - Documenting Mapping Projects



## (ii) Stylevision



### Overview

<b>Course ID</b>	2020985
<b>Language</b>	en
<b>Duration</b>	2 D ys
<b>Delivery mode</b>	Classroom
<b>Course Type</b>	
<b>Target Group</b>	Programmers, Web developers
<b>Prerequisites</b>	XML basics
<b>Method</b>	Lecture with examples and exercises.
<b>Course level</b>	Beginning



### Course Dates

Chicago	Miami	New York
1,400.00 USD	1,350.00 USD	1,400.00 USD
27-28 Aug 22-23 Oct 17-18 Dec	20-21 Aug 29-30 Oct 24-25 Dec	03-04 Sep 05-06 Nov 31 Dec - 01 Jan

Prices plus local taxes.



### Course Description

Altova StyleVision is a WYSIWIG tool for designing documents, reports, and forms based on XML, SQL database, and XBRL inputs. It makes the power of XSLT available in an intuitive and visual design tool, and adds rich content such as charts, making it possible for designers and developers to focus on their target designs (in HTML, PDF, Word/ Open XML, and other formats) rather than XSLT details. With StyleVision, a single design can be used to automatically publish in the above-mentioned formats. The same visual design tool also produces Authentic enterprise forms, which empower business users to analyze and update information stored in XML and SQL systems. This training helps you to understand the principles of Stylevision and to design your own documents, forms and reports based on XML and database input.



### Course Outline

#### A. Presentation of XML Data

Creating a New SPS - Dynamic and Static Content - Simple Formatting and Transformations - Creating and Applying Global Templates - Modular stylesheets: Available Module Objects, Creating a Modular Stylesheet

#### B. Advanced Techniques

XPath Overview - Automatic Calculations and Conditions using XPath - Grouping and Sorting - Parameters and variables - Table of Contents - Links and References, Bookmarks - Design Fragments - Multiple Schema Sources

## **C. Font and Paragraph Formatting**

Working with CSS Styles - External Stylesheets - External and Internal CSS styles - Font Styles - Page Layout Properties, Containers, Background - Keeps and Breaks - Paragraph Formatting and Alignment - PDF Bookmarks - Document Sections

## **D. Altova Authentic forms**

Stylesheets for the Authentic View: Overview - Creating Forms Based on XML Schema - Form Objects: Fields, Tables, Lists, and Calendars - Working with Databases: Connecting to a Database, Select the Database Data, XML Databases, DB Filters

## **E. Design Objects**

Inserting XML Content as Text - Sorting and grouping - Using Data Input Elements - Lists and Tables - Graphics - Bookmarks and Hyperlinks - Automatic Calculations - XPath-Conditions

## **F. Charts and Reports**

Chart Basics - Typology of Charts: Pie Charts, Bar Charts, Line Charts, Value Line Charts, Area Charts, Candlestick Charts, Gauge Charts, Overlay Charts - Changing the Appearance of a Chart - Graphics - Tables





### (iii) XMLSpy



#### Overview

<b>Course ID</b>	2020300
<b>Language</b>	en
<b>Duration</b>	3 D ys
<b>Delivery mode</b>	Classroom
<b>Course Type</b>	
<b>Target Group</b>	Programmers, Web developers
<b>Prerequisites</b>	XML Fundamentals
<b>Method</b>	Lecture with examples and exercises.
<b>Course level</b>	Beginning



#### Course Dates

Chicago	Miami	New York
1,800.00 USD	1,700.00 USD	1,800.00 USD
07-09 Sep 02-04 Nov 28-30 Dec	03-05 Aug 28-30 Sep 23-25 Nov	10-12 Aug 05-07 Oct 30 Nov - 02 Dec

Prices plus local taxes.



#### Course Description

Altova XMLSpy is a very advanced XML editor for modeling, editing, transforming, and debugging XML-related technologies. It offers a very complex XML interface, a graphical XML Schema designer, a code generator, file converters, debuggers, full database integration, support for XSLT, XPath, XQuery, WSDL and SOAP. This training walks you through the application while providing you with a fundamental knowledge of various XML technologies.



#### Course Outline

##### A. General features of XMLSpy

(0.5 Days) XML Documents - Editing Views - DTDs and XML Schemas - Project Management and Altova Global Resources - Databases and Data Integration - Text Files - File/Directory Comparisons - Templates

##### B. XML Schema-Editor

(0.75 Days) Element Declarations - Attribute Declarations - Complex Type Definitions - Attribute Group Definitions - Model Group Definitions - Simple Type Definitions - Schemas and Namespaces: Access and Composition - Editor: Editing in Text View, Grid View, and Schema View - XML Schema features in XMLSpy

##### C. XPath Editor

(0.25 Days) Path Expressions: Axes, Steps, Node Tests - Predicates and Filters - Function Calls

## **D. Queries using XQuery**

(0.25 Days) FLWOR Expressions: For and Let Clauses, Where Clause, Order By and Return Clauses - Direct Element Constructors - Computed Constructors - Ordered and Unordered Expressions - Comparison Expressions - Conditional Expressions

## **E. Transformations using XSLT**

(0.75 Days) Stylesheet Structure - Template Rules and XPath-Patterns - Named Templates - Repetition - Conditional Processing - Variables and Parameters - Creating Nodes and Sequences - Sorting and Grouping

## **F. Web Services**

(0.25 Days) WSDL documents - PortType - Binding - Service and Ports - Validating the WSDL Document - Connecting to a Web Service and Opening Files - Sending a SOAP Request from the WSDL File - Creating WSDL Documentation - SOAP document structure - SOAP Debugger - SOAP Validation

## **G. Altova Authentic and Altova Stylevision**

(0.25 Days) Opening an XML Document in Authentic View - Authentic View Interface - Entering Data in Authentic View - Tables in Authentic View - Altova Stylevision

## A. Java



### (i) Design Patterns



#### Overview

<b>Course ID</b>	2020917
<b>Language</b>	en
<b>Duration</b>	2 D ys
<b>Delivery mode</b>	Classroom
<b>Course Type</b>	
<b>Target Group</b>	Programmers, Web developers
<b>Prerequisites</b>	Java Basics
<b>Method</b>	Lecture with examples and exercises.
<b>Course level</b>	Advanced



#### Course Dates

Chicago	Miami	New York
1,600.00 USD	1,550.00 USD	1,600.00 USD
13-14 Aug 08-09 Oct 03-04 Dec	20-21 Aug 15-16 Oct 10-11 Dec	30-31 Jul 24-25 Sep 19-20 Nov

Prices plus local taxes.



#### Course Description

A design pattern is a general reusable solution to a commonly occurring problem within a given context in software design. A design pattern is not a finished design that can be transformed directly into source or machine code. It is a description or template for how to solve a problem that can be used in many different situations. Patterns are formalized best practices that the programmer must implement themselves in the application. Object-oriented design patterns typically show relationships and interactions between classes or objects, without specifying the final application classes or objects that are involved. This training presents a selection of the GoF (Gang of Four) patterns which can be used in Java and all other object-oriented programming languages. After the training you will be capable of defining the basic usage scenarios and situations where these patterns can be helpful and you will be able to apply these patterns to real-world design problems.



#### Course Outline

### A. Creational Patterns

Abstract Factory (Provide an interface for creating families of related or dependent objects without specifying their concrete classes.) - Builder (Separate the construction of a complex object from its representation allowing the same construction process to create various representations.) - Factory Method (Define an interface for creating a single object, but let subclasses decide which class to instantiate.) - Prototype (Specify the kinds of objects to create using a prototypical instance, and create new objects by copying this prototype.) - Singleton (Ensure a class has only one instance, and provide a global point of access to it.)

## **B. Structural patterns**

Adapter (Convert the interface of a class into another interface clients expect.) - Bridge (Decouple an abstraction from its implementation allowing the two to vary independently.) - Composite (Compose objects into tree structures to represent part-whole hierarchies.) - Decorator (Attach additional responsibilities to an object dynamically keeping the same interface.) - Facade (Provide a unified interface to a set of interfaces in a subsystem.) - Flyweight (Use sharing to support large numbers of similar objects efficiently.) - Proxy (Provide a surrogate or placeholder for another object to control access to it.)

## **C. Behavioral Patterns**

Chain of Responsibility (Avoid coupling the sender of a request to its receiver by giving more than one object a chance to handle the request.) - Command (Encapsulate a request as an object, thereby letting you parameterize clients with different requests.) - Interpreter (Given a language, define a representation for its grammar along with the interpreter.) - Iterator (Provide a way to access the elements of an aggregate object sequentially without exposing its underlying representation.) - Mediator (Define an object that encapsulates how a set of objects interact.) - Memento (Without violating encapsulation, capture and externalize an object's internal state allowing the object to be restored to this state later.) - Observer (Define a one-to-many dependency between objects where a state change in one object results in all its dependents being notified and updated automatically.) - State (Allow an object to alter its behavior when its internal state changes.) - Strategy (Define a family of algorithms, encapsulate each one, and make them interchangeable.) - Template Method (Define the skeleton of an algorithm in an operation, deferring some steps to subclasses.) - Visitor (Represent an operation to be performed on the elements of an object structure.)



## (ii) Fundamentals



### Overview

<b>Course ID</b>	2020315
<b>Language</b>	en
<b>Duration</b>	5 D ys
<b>Delivery mode</b>	Classroom
<b>Course Type</b>	
<b>Target Group</b>	Programmers, developers
<b>Prerequisites</b>	General computer knowledge
<b>Method</b>	Lecture with examples and exercises.
<b>Course level</b>	Beginning



### Course Dates

Chicago	Miami	New York
2,550.00 USD	2,350.00 USD	2,550.00 USD
14-18 Sep 09-13 Nov	07-11 Sep 02-06 Nov 28 Dec - 01 Jan	24-28 Aug 19-23 Oct 14-18 Dec

Prices plus local taxes.



### Course Description

Java is a general-purpose, concurrent, class-based, object-oriented computer programming language that is specifically designed to have as few implementation dependencies as possible. It is intended to let application developers "write once, run anywhere" (WORA), meaning that code that runs on one platform does not need to be recompiled to run on another. Java is one of the most popular programming languages in use, particularly for client-server web applications. This training provides the Java novice with the necessary fundamental knowledge about the syntax and principles of the Java programming language so that it is possible to choose from a wide range of further trainings with more specialized contents.



### Course Outline

#### A. Language and Principles

(0.5 Days) The Java Programming Environment - Fundamental Programming Structures in Java - Variables - Operators - Input and Output - Control Flow - Arrays

#### B. Objects and Classes

(2 Days) Introduction to Object-Oriented Programming - Using Predefined Classes - Defining Your Own Classes - Static Fields and Methods - Method Parameters - Object Construction - Packages - The Class Path - Documentation Comments - Classes, Superclasses, and Subclasses - Generic Array Lists - Object Wrappers and Autoboxing - Enumeration Classes - Reflection - Interfaces and Inner Classes - Object Cloning - Inner Classes

## **C. Graphics Programming / Streams and Files**

(0.5 Days) Graphics Programming: Introducing Swing, Creating a Frame, Positioning a Frame, Displaying Information in a Component, Working with 2D Shapes, Using Color, Using Special Fonts for Text, Displaying Images - Streams and Files: Streams, Text Input and Output, Reading and Writing Binary Data, ZIP Archives, Object Streams and Serialization, Working with Files

## **D. User Interface Components with Swing**

(0.5 Days) Swing and the Model-View-Controller Design Pattern - Introduction to Layout Management - Text Input - Choice Components - Menus - Dialog Boxes - Event Handling: Basics of Event Handling, Actions, Mouse Events, The AWT Event Hierarchy

## **E. Exceptions, Assertions, Logging, and Debugging**

(0.25 Days) Dealing with Errors - Catching Exceptions - Using Assertions - Logging - Using a Debugger

## **F. Applications**

(0.5 Days) Deploying Applications and Applets - JAR Files - Java Web Start - Applets

## **G. Generic Programming**

(0.25 Days) Generic Programming - Generic Methods - Bounds for Type Variables - Generic Code and the Virtual Machine - Restrictions and Limitations - Inheritance Rules for Generic Types - Wildcard Types - Reflection and Generics

## **H. Database Programming**

(0.5 Days) The Design of JDBC - The Structured Query Language - JDBC Configuration - Executing SQL Statements - Query Execution - Scrollable and Updatable Result Sets - Row Sets - Metadata - Transactions



### (iii) JDBC



#### Overview

<b>Course ID</b>	2020949
<b>Language</b>	en
<b>Duration</b>	2 D ys
<b>Delivery mode</b>	Classroom
<b>Course Type</b>	
<b>Target Group</b>	Programmers, Web developers
<b>Prerequisites</b>	Java Basics
<b>Method</b>	Lecture with examples and exercises.
<b>Course level</b>	Advanced



#### Course Dates

Chicago	Miami	New York
1,400.00 USD	1,350.00 USD	1,400.00 USD
27-28 Aug 22-23 Oct 17-18 Dec	30-31 Jul 24-25 Sep 19-20 Nov	20-21 Aug 29-30 Oct 24-25 Dec

Prices plus local taxes.



#### Course Description

JDBC is a Java-based data access technology which consists of an API that defines how a client may access a relational database. It provides methods for querying and updating data in a database. JDBC allows multiple implementations to exist and be used by the same application. The API provides a mechanism for dynamically loading the correct Java packages and registering them with the JDBC Driver Manager. The Driver Manager is used as a connection factory for creating JDBC connections. JDBC connections support creating and executing statements. These may be update statements such as SQL's CREATE, INSERT, UPDATE and DELETE, or they may be query statements such as SELECT. Additionally, stored procedures may be invoked through a JDBC connection. This training shows you how to execute various DB-related operations from your Java application.



#### Course Outline

##### A. JDBC Introduction

(0.25 Days) JDBC Architecture - Establishing a Connection - Connecting with DataSource Objects - Handling SQLExceptions

## **B. Performing SQL Operations**

(0.75 Days) Retrieving and Modifying Values from Result Sets: ResultSet Interface, Retrieving Column Values from Rows, Cursors, Updating Rows in ResultSet Objects, Using Statement Objects for Batch Updates, Inserting Rows in ResultSet Objects - Using Prepared Statements: Overview of Prepared Statements, Creating a PreparedStatement Object, Supplying Values for PreparedStatement Parameters - Using Transactions: Auto-Commit Mode, Committing Transactions, Preserving Data Integrity, Setting and Rolling Back to Savepoints, Releasing Savepoints - Using Stored Procedures

## **C. RowSet Objects**

(0.25 Days) Using JdbcRowSet Objects - Using CachedRowSetObjects - Using JoinRowSet Objects - Using FilteredRowSet Objects - Using WebRowSet Objects

## **D. Using SQLXML Objects**

(0.25 Days) Creating SQLXML Objects - Retrieving SQLXML Values in ResultSet - Accessing SQLXML Object Data - Storing SQLXML Objects - Initializing SQLXML Objects - Releasing SQLXML Resources

## **E. JDBC and Object-Relational Extensions in Oracle**

(0.5 Days) Using Array Objects: Creating Array Objects, Retrieving and Accessing Array Values in ResultSet, Storing and Updating Array Objects, Releasing Array Resources - - Using Customized Type Mappings - Using Structured Objects: Overview of Structured Types, Using DISTINCT Type in Structured Types, Using References to Structured Types, Using User-Defined Types as Column Values, Inserting User-Defined Types into Tables





## (iv) Java EE



### Overview

<b>Course ID</b>	2020919
<b>Language</b>	en
<b>Duration</b>	5 D ys
<b>Delivery mode</b>	Classroom
<b>Course Type</b>	
<b>Target Group</b>	Programmers, Web developers
<b>Prerequisites</b>	Knowledge in software development, project experience
<b>Method</b>	Lecture with examples and exercises.
<b>Course level</b>	Practitioner



### Course Dates

Chicago	Miami	New York
2,550.00 USD	2,350.00 USD	2,550.00 USD
17-21 Aug 12-16 Oct 07-11 Dec	10-14 Aug 05-09 Oct 30 Nov - 04 Dec	03-07 Aug 28 Sep - 02 Oct 23-27 Nov

Prices plus local taxes.



### Course Description

Java Platform, Enterprise Edition or Java EE is Oracle's enterprise Java computing platform. The platform provides an API and runtime environment for developing and running enterprise software, including network and web services, and other large-scale, multi-tiered, scalable, reliable, and secure network applications. Java EE extends the Java Platform, Standard Edition (Java SE), providing an API for object-relational mapping, distributed and multi-tier architectures, and web services. Java EE includes several API specifications, such as JDBC, RMI, e-mail, JMS, web services, XML, etc., and defines how to coordinate them. The platform incorporates a design based largely on modular components running on an application server. This training provides you with an overview of the Java EE technologies with presentations, case studies and examples as well as some hands-on labs. All in all, it takes you on a tour through the different layers of an enterprise application covering the main technologies and showing their relationships and interdependencies.



### Course Outline

#### A. Web Services

(0.75 Days) Types of Web Services - Introduction to Web Services - Building Web Services with JAX-WS - Building RESTful Web Services with JAX-RS

## **B. Java Servlet Technology**

(0.5 Days) Servlet Lifecycle - Sharing Information - Creating and Initializing a Servlet - Writing Service Methods - Filtering Requests and Responses - Invoking Other Web Resources - Accessing the Web Context - Maintaining Client State - Finalizing a Servlet

## **C. Persistence**

(0.75 Days) Introduction to the Java Persistence API - Running the Persistence Examples - The Java Persistence Query Language - Using the Criteria API to Create Queries - Creating and Using String-Based Criteria Queries - Controlling Concurrent Access to Entity Data with Locking - Using a Second-Level Cache with Java Persistence API Applications

## **D. Java Server Faces-Technologie**

(1.5 Days) JavaServer Faces Technology - Introduction to Facelets - Expression Language - Using JavaServer Faces Technology in Web Pages - Using Converters, Listeners, and Validators - Developing with JavaServer Faces Technology - JavaServer Faces Technology: Advanced Concepts - Using Ajax with JavaServer Faces Technology - Composite Components: Advanced Topics and Example - Creating Custom UI Components and Other Custom Objects - Configuring JavaServer Faces Applications

## **E. Enterprise Beans**

(1 Day) Getting Started with Enterprise Beans - Message-Driven Beans - Using the Embedded Enterprise Bean Container - Using Asynchronous Method Invocation in Session Beans -

## **F. Security**

(0.25 Days) Introduction to Security in the Java EE Platform - Getting Started Securing Web Applications - Getting Started Securing Enterprise Applications

## **G. Case Studies**

(0.25 Days) Duke's Bookstore Case Study Example - Duke's Tutoring Case Study Example -Duke's Forest Case Study Example



## (v) Java Server Pages (JSP)



### Overview

<b>Course ID</b>	2020925
<b>Language</b>	en
<b>Duration</b>	3 D ys
<b>Delivery mode</b>	Classroom
<b>Course Type</b>	
<b>Target Group</b>	Programmers, Web developers
<b>Prerequisites</b>	Java Basics
<b>Method</b>	Lecture with examples and exercises.
<b>Course level</b>	Advanced



### Course Dates

Chicago	Miami	New York
1,900.00 USD	1,800.00 USD	1,900.00 USD
17-19 Aug 12-14 Oct 07-09 Dec	10-12 Aug 05-07 Oct 30 Nov - 02 Dec	03-05 Aug 28-30 Sep 23-25 Nov

Prices plus local taxes.



### Course Description

JavaServer Pages (JSP) is a technology that helps software developers create dynamically generated web pages based on HTML, XML, or other document types. Architecturally, JSP may be viewed as a high-level abstraction of Java servlets. JSPs are translated into servlets at runtime; each JSP's servlet is cached and re-used until the original JSP is modified. JSP can be used independently or as the view component of a server-side model-view-controller design, normally with JavaBeans as the model and Java servlets (or a framework such as Apache Struts) as the controller. JSP allows Java code and certain pre-defined actions to be interleaved with static web markup content, with the resulting page being compiled and executed on the server to deliver a document. This training shows you in many hands-on labs how to develop web applications using JavaServer Pages.



### Course Outline

#### A. Introduction to JavaServer Pages

(1 Day) The Life Cycle of a JSP Page: Translation and Compilation, Execution, Buffering, Handling JSP Page Errors - Creating Static Content: Response and Page Encoding - - Creating Dynamic Content: Using Objects within JSP Pages, Using Implicit Objects, - Using Application-Specific Objects, Using Shared Objects

#### B. Unified Expression Language

(0.5 Days) Immediate and Deferred Evaluation Syntax: Immediate Evaluation, Deferred Evaluation - Value and Method Expressions: Value Expressions, Method Expressions - Defining a Tag Attribute Type - Deactivating Expression Evaluation - Literal Expressions - Resolving Expressions - Implicit Objects - Operators - Functions

## **C. JavaBeans Components**

(0.75 Days) JavaBeans Component Design Conventions - Creating and Using a JavaBeans Component - Setting JavaBeans Component Properties - Retrieving JavaBeans Component Properties

## **D. Using Custom Tags**

(0.75 Days) Declaring Tag Libraries - Including the Tag Library Implementation



## (vi) Server Faces (JSF)



### Overview

<b>Course ID</b>	2020868
<b>Language</b>	en
<b>Duration</b>	2 D ys
<b>Delivery mode</b>	Classroom
<b>Course Type</b>	
<b>Target Group</b>	Programmers, Web developers
<b>Prerequisites</b>	Java Basics
<b>Method</b>	Lecture with examples and exercises.
<b>Course level</b>	Advanced



### Course Dates

Chicago	Miami	New York
1,400.00 USD	1,350.00 USD	1,400.00 USD
13-14 Aug 08-09 Oct 03-04 Dec	20-21 Aug 15-16 Oct 10-11 Dec	30-31 Jul 24-25 Sep 19-20 Nov

Prices plus local taxes.



### Course Description

JavaServer Faces (JSF) is a Java specification for building component-based user interfaces for web applications. It was formalized as a standard through the Java Community Process and is part of the Java Platform, Enterprise Edition. JSF is often used together with Ajax, a Rich Internet application technology. Ajax is a combination of technologies that make it possible to create rich user interfaces. Because JSF supports multiple output formats, Ajax-enabled components can easily be added to enrich JSF-based user interfaces. The JSF 2.0 specification provides built in support for Ajax by standardizing the Ajax request lifecycle, and providing simple development interfaces to Ajax events. This training shows you how to use JSF for creating dynamic and interactive front-ends for Java web applications.



### Course Outline

#### A. Introduction

Software Installation - Directory Structure - Build Instructions - Sample Application Analysis - Beans - JSF Pages - Navigation - Servlet Configuration - The Welcome File - Visual Development Environments - JSF Framework Services - Rendering Pages - Decoding Requests - The Life Cycle - Automation of the Build Process with Ant - Using the Deployment Manager with Ant

## **B. Managed Beans**

Definition of a Bean - Bean Properties - Value Binding Expressions - Message Bundles - Backing Beans - Bean Scopes - Request Scope - Session Scope - Application Scope - Configuring Beans - Setting Property Values - Initializing Lists and Maps - Chaining Bean Definitions - String Conversions - The Syntax of Value Binding Expressions - Using Brackets - Map and List Expressions - Resolving the Initial Term - Composite Expressions - Method Binding Expressions

## **C. Navigation**

Static Navigation - Dynamic Navigation - Advanced Navigation Issues - Redirection - Wildcards - Using from-action - The Navigation Algorithm

## **D. Standard JSF Tags**

Forms - Form Elements and JavaScript - Text Fields and Text Areas - Using Text Fields and Text Areas - Displaying Text and Images - Hidden Fields - Buttons and Links - Selection Tags - Checkboxes and Radio Buttons - Menus and Listboxes - Items - Messages - Panels

## **E. Data Tables**

h:dataTable Attributes - Headers and Footers - JSF Components in Table Cells - Editing Table Cells - Styles for Rows and Columns - Styles by Column - Styles by Row - Database Tables - JSTL Result vs. Result Sets - Table Models - Editing Table Models - Sorting and Filtering - Scrolling Techniques - Scrolling with a Scrollbar - Scrolling with Page Widgets

## **F. Conversion and Validation**

Using Standard Converters - Conversion of Numbers and Dates - Conversion Errors - A Complete Converter Example - Using Standard Validators - Validating String Lengths and Numeric Ranges - Checking for Required Values - Displaying Validation Errors - Bypassing Validation - A Complete Validation Example - Programming with Custom Converters and Validators - Implementing Custom Converter Classes - Implementing Custom Validator Classes - Registering Custom Validators - Validating with Bean Methods - Validating Relationships Between Multiple Components - Implementing Custom Tags - Custom Converter Tags - Custom Validator Tags

## **G. Subviews and Tiles**

Common Layouts - Monolithic JSF Pages - Common Content Inclusion - Content Inclusion in JSP-Based Applications - JSF-Specific Considerations - Installing Tiles - Parameterizing Tiles - Extending Tiles - Nested Tiles - Tile Controllers

## **H. Custom Components**

Implementing Custom Components with Classes - Tags and Components - The Custom Component Developers Toolbox - Encoding: Generating Markup - Decoding: Processing Request Values - Using Converters - Implementing Custom Component Tags - Using an External Renderer - Calling Converters from External Renderers - Supporting Value Change Listeners - Supporting Method Bindings - Encoding JavaScript to Avoid Server Roundtrips - Using Child Components and Facets - Processing SelectItem Children - Processing Facets - Including Content - Encoding CSS Styles - Using Hidden Fields - Saving and Restoring State - Firing Action Events - Using the Tabbed Pane



## (vii) Swing



### Overview

<b>Course ID</b>	2020926
<b>Language</b>	en
<b>Duration</b>	3 D ys
<b>Delivery mode</b>	Classroom
<b>Course Type</b>	
<b>Target Group</b>	Programmers, Web developers
<b>Prerequisites</b>	Java Basics
<b>Method</b>	Lecture with examples and exercises.
<b>Course level</b>	Advanced



### Course Dates

Chicago	Miami	New York
1,800.00 USD	1,700.00 USD	1,800.00 USD
17-19 Aug 12-14 Oct 07-09 Dec	10-12 Aug 05-07 Oct 30 Nov - 02 Dec	03-05 Aug 28-30 Sep 23-25 Nov

Prices plus local taxes.



### Course Description

Swing is the primary Java GUI widget toolkit. It is part of Oracle's Java Foundation Classes (JFC) — an API for providing a graphical user interface (GUI) for Java programs. Swing was developed to provide a more sophisticated set of GUI components than the earlier Abstract Window Toolkit (AWT). Swing provides a native look and feel that emulates the look and feel of several platforms, and also supports a pluggable look and feel that allows applications to have a look and feel unrelated to the underlying platform. It has more powerful and flexible components than AWT. In addition to familiar components such as buttons, check boxes and labels, Swing provides several advanced components such as tabbed panel, scroll panes, trees, tables, and lists. Unlike AWT components, Swing components are not implemented by platform-specific code. Instead they are written entirely in Java and therefore are platform-independent. This training helps you to understand the structure of the Swing classes and their handling in order to develop interactive user interfaces. The course makes heavily use of hands-on labs and exercises.



### Course Outline

#### A. Swing Components

(1.25 Days) Graphics Programming: Introducing Swing, Creating a Frame, Positioning a Frame, Displaying Information in a Component, Working with 2D Shapes, Using Color, Using Special Fonts for Text, Displaying Images - Swing and the Model-View-Controller Design Pattern - Text Input - Choice Components - Menus - Dialog Boxes - Lists - Tables - Trees - Text Components - Progress Indicators - Component Organizers and Decorators - Key Bindings - Splash Screens

## **B. Layout Management**

(0.5 Days) Using Layout Managers - BorderLayout - BoxLayout - CardLayout - FlowLayout - GridBagLayout - GridLayout - GroupLayout - GroupLayout - SpringLayout - Custom Layout Managers - Absolute Positioning

## **C. Advanced AWT**

(0.75 Days) The Rendering Pipeline - Shapes - Areas - Strokes - Paint - Coordinate Transformations - Clipping - Transparency and Composition - Rendering Hints - Readers and Writers for Images - Image Manipulation - Printing - The Clipboard - Drag and Drop

## **D. Event Handling**

(0.25 Days) Basics of Event Handling, Actions, Mouse Events, The AWT Event Hierarchy

## **E. Internationalization**

(0.25 Days) Locales - Number Formats - Date and Time - Collation - Message Formatting - Text Files and Character Sets - Resource Bundles





## (viii) Web Services



### Overview

<b>Course ID</b>	2020944
<b>Language</b>	en
<b>Duration</b>	2 D ys
<b>Delivery mode</b>	Classroom
<b>Course Type</b>	
<b>Target Group</b>	Programmers, Web developers
<b>Prerequisites</b>	Java Basics
<b>Method</b>	Lecture with examples and exercises.
<b>Course level</b>	Advanced



### Course Dates

Chicago	Miami	New York
1,400.00 USD	1,350.00 USD	1,400.00 USD
20-21 Aug 15-16 Oct 10-11 Dec	13-14 Aug 08-09 Oct 03-04 Dec	06-07 Aug 01-02 Oct 26-27 Nov

Prices plus local taxes.



### Course Description

A web service is a method of communication between two electronic devices over the World Wide Web. A web service is a software function provided at a network address over the web or the cloud, it is a service that is "always on" as in the concept of utility computing. XML web services use Extensible Markup Language (XML) messages that follow the SOAP standard and have been popular with the traditional enterprises. In such systems, there is often a machine-readable description of the operations offered by the service written in the Web Services Description Language (WSDL).



### Course Outline

#### A. Introduction to Web Services

(0.25 Days) What Are Web Services? - Types of Web Services - Deciding Which Type of Web Service to Use

#### B. Building Web Services with JAX-WS

(0.75 Days) Creating a Simple Web Service and Clients with JAX-WS - Requirements of a JAX-WS Endpoint - Coding the Service Endpoint Implementation Class - Building, Packaging, and Deploying the Service - Testing the Methods of a Web Service Endpoint - A Simple JAX-WS Application Client - A Simple JAX-WS Web Client - Types Supported by JAX-WS: Schema-to-Java Mapping, Java-to-Schema Mapping - Web Services Interoperability and JAX-WS

## **C. Building RESTful Web Services with JAX-RS**

(0.5 Days) What Are RESTful Web Services? - Creating a RESTful Root Resource Class - - Developing RESTful Web Services with JAX-RS - Overview of a JAX-RS Application - Responding to HTTP Methods and Requests - Extracting Request Parameters

## **D. JAX-RS: Advanced Topics**

(0.5 Days) - Annotations for Field and Bean Properties of Resource Classes - Subresources and Runtime Resource Resolution - Integrating JAX-RS with EJB Technology and CDI - Conditional HTTP Requests - Runtime Content Negotiation - Using JAX-RS With JAXB



## (ix) XML



### Overview

<b>Course ID</b>	2020945
<b>Language</b>	en
<b>Duration</b>	2 D ys
<b>Delivery mode</b>	Classroom
<b>Course Type</b>	
<b>Target Group</b>	Programmers, Web developers
<b>Prerequisites</b>	Java Basics
<b>Method</b>	Lecture with examples and exercises.
<b>Course level</b>	Advanced



### Course Dates

Chicago	Miami	New York
1,400.00 USD	1,350.00 USD	1,400.00 USD
27-28 Aug 22-23 Oct 17-18 Dec	03-04 Sep 29-30 Oct 24-25 Dec	10-11 Sep 05-06 Nov 31 Dec - 01 Jan

Prices plus local taxes.



### Course Description

The Java programming language XML APIs consist of the following APIs which are covered in the Java XML training: a) Java Architecture for XML Binding (JAXB) allows Java developers to map Java classes to XML representations. JAXB provides two main features: the ability to marshal Java objects into XML and the inverse, i.e. to unmarshal XML back into Java objects. The Java API for XML Processing, or JAXP provides the capability of validating and parsing XML documents using b) the Document Object Model parsing interface or DOM interface, and c) the Streaming API for XML or StAX interface. d) The XQJ API enables Java programmers to execute XQuery against an XML data source. It provides an interface to the XQuery Data Model. You will learn to use these technologies in many hands-on labs and exercises after familiarizing yourself with the most important aspects of the different XML technologies.



### Course Outline

#### A. Introduction to XML Standards

(0.25 Days) XML - Validation and Modelling using DTD and XML Schema - Transformation using XSLT - Querying XML using XPath and XQuery

#### B. Java API for XML Processing (JAXP) and DOM

(0.5 Days) Overview of the Document Object Model (DOM) - Creating Documents, Elements, Attributes and other Nodes - Reading XML - Validating XML Documents - Querying XML using XPath and DOM Methods - Manipulating XML Data

### **C. Java API for XML Processing (JAXP) and XSLT**

(0.25 Days) Using XSLT from Java - Passing Parameters to XSLT Stylesheets

### **D. Java Architecture for XML Binding (JAXB)**

(0.5 Days) JAXB Architecture - JAXB Binding Framework - Binding XML Schemas - Customizing JAXB Bindings - Representing XML Content - Marshaling and Unmarshaling

### **E. Java API for XQuery (XQJ)**

(0.25 Days) Creating and Executing XQuery Expressions - Casting Atomic XQuery Items to Java Primitives - Processing Result Sequencec (XDM)

### **F. Streaming XML processing (StAX)**

(0.25 Days) Creating Documents, Elements, Attributes and other Nodes - Reading XML Documents

## A. PHP



### (i) Boot Camp



#### Overview

<b>Course ID</b>	2020331
<b>Language</b>	en
<b>Duration</b>	5 D ys
<b>Delivery mode</b>	Classroom
<b>Course Type</b>	
<b>Target Group</b>	Programmers, Web developers
<b>Prerequisites</b>	HTML, knowledge of web design program
<b>Method</b>	Lecture with examples and exercises.
<b>Course level</b>	Beginning



#### Course Dates

Chicago	Miami	New York
2,700.00 USD	2,500.00 USD	2,700.00 USD
03-07 Aug 28 Sep - 02 Oct 23-27 Nov	07-11 Sep 02-06 Nov 28 Dec - 01 Jan	17-21 Aug 12-16 Oct 07-11 Dec

Prices plus local taxes.



#### Course Description

Dieses PHP-Seminar zeigt angehenden PHP-Programmierern die Grundlagen der Syntax, der Objektorientierung und erarbeitet die Anwendungsentwicklung in PHP mit einem Überblick über die PHP-Funktionsbibliothek, die XML-Verarbeitung und natürlich den Datenbankeinsatz mit MySQL. Im Gegensatz zum PHP-Grundkurs-Seminar richtet es sich an Teilnehmer, die bereits grundlegende Kenntnisse in einer Programmiersprache haben und fordert ein höheres Lerntempo. Dahe sind die Bereiche der allgemeinen Syntax von PHP und der PHP-Objektorientierung nicht in der Länge zu finden wie in einem gewöhnlichen Anfänger-Seminar. Auch sollen die Teilnehmer zum Seminarende in der Lage sein, Anwendungen in PHP mit Datenbank- und XML-Einsatz unter Verwendung gängiger Entwurfsmuster (Design Patterns) aus dem Standard- und Enterprise-Katalog zu programmieren.



#### Course Outline

##### A. Syntax

(0.75 Days) Basic Syntax - Types - Variables and Predefined Variables - Constants - Expressions - Operators - Control Structures - Functions - Arrays

##### B. Classes and Objects

(1 Day) Classes and Objects: Constructors and Destructors, Visibility, Inheritance, Class Abstraction, Interfaces - Magic Methods - Namespaces - Exceptions and Predefined Exceptions - Predefined Interfaces and Classes - Object Serialization

## **C. Forms**

(0.25 Days) HTML Form Design - Validation - Data Transmission and Processing - File Upload - Master/Detail Forms - Tunneled and Branched Forms - Cookies - Session Handling

## **D. PHP Functions and Class Library**

(0.5 Days) Date and Time - File System Operations - String Operations and Text Processing

## **E. Database Access**

(0.5 Days) PHP Data Objects vs. DB-specific PHP Functions - Connections and Connection Management - Transactions and Auto-Commit - Prepared Statements and Stored Procedures - Errors and Error Handling

## **F. XML Handling**

(0.5 Days) Processing and Creating XML using SimpleXML and DOM (Document Object Model) - XSLT and XPath in PHP - Validation using DTD and XML Schema in PHP - Reading and Writing XML using XMLWriter and XMLReader

## **G. Design Patterns and PHP**

(1 Day) Behavioral Patterns: Command, Template Method, Strategy, Visitor, Chain of Responsibility, Iterator - Structural Patterns: Composite, Decorator, Front Controller - Creational Patterns: Singleton, Factory Method, Abstract Factory, Lazy Initialization

## **H. Enterprise Application Patterns and PHP**

(0.5 Days) Domain Logic Patterns: Transaction Script, Domain Model Table Module, Service Layer - Data Source Architectural Patterns: Table Data Gateway, Row Data Gateway, Active Record, Data Mapper - Web Presentation Patterns: Model View Controller, Front Controller, Template View, Transform View, Application Controller



## (ii) Design Patterns



### Overview

<b>Course ID</b>	2020336
<b>Language</b>	en
<b>Duration</b>	2 D ys
<b>Delivery mode</b>	Classroom
<b>Course Type</b>	
<b>Target Group</b>	Programmers, Web developers
<b>Prerequisites</b>	PHP Basics
<b>Method</b>	Lecture with examples and exercises.
<b>Course level</b>	Advanced



### Course Dates

Chicago	Miami	New York
1,400.00 USD	1,350.00 USD	1,400.00 USD
13-14 Aug 08-09 Oct 03-04 Dec	20-21 Aug 15-16 Oct 10-11 Dec	30-31 Jul 24-25 Sep 19-20 Nov

Prices plus local taxes.



### Course Description

A design pattern is a general reusable solution to a commonly occurring problem within a given context in software design. A design pattern is not a finished design that can be transformed directly into source or machine code. It is a description or template for how to solve a problem that can be used in many different situations. Patterns are formalized best practices that the programmer must implement themselves in the application. Object-oriented design patterns typically show relationships and interactions between classes or objects, without specifying the final application classes or objects that are involved. This training presents a selection of the GoF (Gang of Four) patterns which can be used in PHP and for web application development. After the training you will be capable of defining the basic usage scenarios and situations where these patterns can be helpful and you will be able to apply these patterns to real-world design problems.



### Course Outline

#### A. Creational Patterns

Singleton (Ensure a class has only one instance, and provide a global point of access to it.) - Factory Method (Define an interface for creating a single object, but let subclasses decide which class to instantiate. Factory Method lets a class defer instantiation to subclasses.) - Abstract Factory (Provide an interface for creating families of related or dependent objects without specifying their concrete classes.) - Prototype (Specify the kinds of objects to create using a prototypical instance, and create new objects by copying this prototype.)

## **B. Structural Patterns**

Composite (Compose objects into tree structures to represent part-whole hierarchies. Composite lets clients treat individual objects and compositions of objects uniformly.) - Decorator (Attach additional responsibilities to an object dynamically keeping the same interface. Decorators provide a flexible alternative to subclassing for extending functionality.) - Facade (Provide a unified interface to a set of interfaces in a subsystem. Facade defines a higher-level interface that makes the subsystem easier to use.)

## **C. Behavioral Patterns**

Strategy (Define a family of algorithms, encapsulate each one, and make them interchangeable.) - Chain of Responsibility (Avoid coupling the sender of a request to its receiver by giving more than one object a chance to handle the request.) - Command (Encapsulate a request as an object, thereby letting you parameterize clients with different requests.) - Iterator (Provide a way to access the elements of an aggregate object sequentially without exposing its underlying representation.) - Template Method (Define the skeleton of an algorithm in an operation, deferring some steps to subclasses.) - Visitor (Represent an operation to be performed on the elements of an object structure.)





### (iii) Fundamentals



#### Overview

<b>Course ID</b>	2020287
<b>Language</b>	en
<b>Duration</b>	5 D ys
<b>Delivery mode</b>	Classroom
<b>Course Type</b>	
<b>Target Group</b>	Programmers, Web developers
<b>Prerequisites</b>	HTML basics, programming experience is an advantage
<b>Method</b>	Lecture with examples and exercises.
<b>Course level</b>	Beginning



#### Course Dates

Chicago	Miami	New York
2,850.00 USD	2,650.00 USD	2,850.00 USD
07-11 Sep 02-06 Nov 28 Dec - 01 Jan	03-07 Aug 28 Sep - 02 Oct 23-27 Nov	10-14 Aug 05-09 Oct 30 Nov - 04 Dec

Prices plus local taxes.



#### Course Description

PHP is a server-side scripting language designed for web development but also used as a general-purpose programming language. PHP is now installed on more than 244 million websites and 2.1 million web servers. PHP code is interpreted by a web server with a PHP processor module which generates the resulting web page: PHP commands can be embedded directly into an HTML source document using both a procedural and an object-oriented programming style. This training makes heavily use of hands-on labs for teaching you all the necessary techniques to develop object-oriented web applications like designing the HTML front-end, accessing relational databases like MySQL or transforming XML data.



#### Course Outline

##### A. Syntax

(1 Day) Basic Syntax - Types - Variables and Predefined Variables - Constants - Expressions - Operators - Control Structures - Functions - Arrays

## **B. Classes and Objects**

(1.5 Days) Classes and Objects: Constructors and Destructors, Visibility, Inheritance, Class Abstraction, Interfaces - Magic Methods - Namespaces - Exceptions and Predefined Exceptions - Predefined Interfaces and Classes - Object Serialization

## **C. Forms**

(0.5 Days) HTML Form Design - Validation - Data Transmission and Processing - File Upload - Master/Detail Forms - Tunneled and Branched Forms - Cookies - Session Handling

## **D. PHP Functions and Class Library**

(1 Day) Date and Time - File System Operations - String Operations and Text Processing - XML Handling

## **E. Database Access**

(1 Day) PHP Data Objects vs. DB-specific PHP Functions - Connections and Connection Management - Transactions and Auto-Commit - Prepared Statements and Stored Procedures - Errors and Error Handling



## (iv) Object-Oriented Programming (OOP)



### Overview

<b>Course ID</b>	2020332
<b>Language</b>	en
<b>Duration</b>	2 D ys
<b>Delivery mode</b>	Classroom
<b>Course Type</b>	
<b>Target Group</b>	Programmers, Web developers
<b>Prerequisites</b>	PHP Basics
<b>Method</b>	Lecture with examples and exercises.
<b>Course level</b>	Advanced



### Course Dates

Chicago	Miami	New York
1,400.00 USD	1,350.00 USD	1,400.00 USD
17-18 Sep 19-20 Nov	10-11 Sep 12-13 Nov	20-21 Aug 15-16 Oct 10-11 Dec

Prices plus local taxes.



### Course Description

Object-oriented programming (OOP) is a programming paradigm that represents concepts as "objects" that have data fields (attributes that describe the object) and associated procedures known as methods. Objects, which are usually instances of classes, are used to interact with one another to design applications. PHP 5 introduced private and protected member variables and methods, along with abstract classes, final classes, abstract methods, and final methods. It also introduced a standard way of declaring constructors and destructors, and a standard exception handling model. Furthermore, PHP 5 added interfaces and allowed for multiple interfaces to be implemented. After completing this training you will understand the fundamental concepts of Object-oriented Programming and you will know how to use these concepts in your PHP code. After a short introduction into each OOP-feature hands-on labs with programming exercises will help you to understand how to program classes and how to use them in your application and you will see that object-oriented software development will facilitate and speed up your programming style.



### Course Outline

#### A. Classes and Objects

(0.75 Days) Introduction - The OOP Basics - Classes and Objects - Properties and Methods - Class Constants - Constructors and Destructors - Visibility - Static Members - Namespaces - Objects and References - Cloning - Type Hinting - Relationships between Classes/Objects

## **B. Inheritance, Abstraction and Implementation**

(0.5 Days) Object Inheritance - Class Abstraction - Object Interfaces - Polymorphism - Dynamic Dispatch - OOP Design Principles

## **C. Reflection in PHP**

(0.125 Days) Dynamic Examination of Classes, Methods and Objects using PHP Functions - Reflection API - Dynamic Initialization of Objects and Invoking of Methods

## **D. Advanced PHP Techniques**

(0.25 Days) Magic Methods - Overloading - Object Iteration - Comparing Objects - Autoloading Classes - Object Serialization

## **E. Planning and Documenting using UML**

(0.125 Days) Overview of UML (Unified Modelling Language) - Class Diagrams for the Static and Structural View - Activity Diagrams and Sequence Diagrams or the Behavioral View



## (v) Oracle



### Overview

<b>Course ID</b>	2020312
<b>Language</b>	en
<b>Duration</b>	1 Day
<b>Delivery mode</b>	Classroom
<b>Course Type</b>	
<b>Target Group</b>	Programmers, Web developers
<b>Prerequisites</b>	PHP Basics
<b>Method</b>	Lecture with examples and exercises.
<b>Course level</b>	Advanced



### Course Dates

Chicago	Miami	New York
1,250.00 USD	1,200.00 USD	1,250.00 USD
18-18 Sep 13-13 Nov	04-04 Sep 30-30 Oct	28-28 Aug 23-23 Oct 18-18 Dec

Prices plus local taxes.



### Course Description

This PHP Oracle training is for PHP programmers developing applications for Oracle Database. It bridges the gap between the world of PHP and the universe of Oracle and shows how to use the PHP scripting language with Oracle Database. This training gives you the fundamental building blocks needed to create high-performance PHP Oracle Web applications.



### Course Outline

#### A. PHP OCI8 Extension

(0.5 Days) Connecting to Oracle Using OCI8 - Connection Types - Connection and Environment Errors - Transactions and Connections - Authorization and Authentication - Executing SQL Statements With OCI8 - Fetch Functions - Insert, Update, Delete, Create and Drop in PHP OCI8 - PHP Error Handling - Using Bind Variables in Prepared Statements - Improving Performance by Prefetching and Caching - Monitoring OCI8 SQL Statements - LIMIT, Auto-Increment, Last Insert ID and Multiple Inserts

#### B. PHP Data Objects

(0.5 Days) Connecting to Oracle Using PDO - Executing SQL Statements - Using Bind Variables in Prepared Statements - Transactions - PL/SQL-Integration in PDO

## **C. PL/SQL and PHP**

(0.5 Days) PL/SQL Overview - Blocks, Procedures, Packages and Triggers - Using PL/SQL With OCI8: Calling PL/SQL Code, Array Binding and PL/SQL Bulk Processing, Using REF CURSORS for Result Sets, Oracle Collections in PHP, Using PL/SQL and Oracle Object Types in PHP, Getting Output With DBMS\_OUTPUT, PL/SQL Backtraces in a PL/SQL Exception Handler

## **D. Using Large Objects in OCI8**

(0.25 Days) Working With LOBs in Oracle and PL/SQL - Inserting and Updating LOBs - Fetching LOBs - Temporary LOBs - Uploading and Displaying an Image - Working With BFILES

## **E. Using XML With Oracle and PHP**

(0.25 Days) Fetching Relational Rows as XML - Fetching Rows as Fully Formed XML - Using the SimpleXML Extension in PHP - Fetching XMLType Columns - Inserting Into XMLType Columns - Fetching an XMLType from a PL/SQL Function - XQuery XML Query Language



## (vi) XML Processing



### Overview

<b>Course ID</b>	2020290
<b>Language</b>	en
<b>Duration</b>	2 D ys
<b>Delivery mode</b>	Classroom
<b>Course Type</b>	
<b>Target Group</b>	Programmers, Web developers
<b>Prerequisites</b>	PHP Basics
<b>Method</b>	Lecture with examples and exercises.
<b>Course level</b>	Advanced



### Course Dates

Chicago	Miami	New York
1,600.00 USD	1,550.00 USD	1,600.00 USD
30-31 Jul 24-25 Sep 19-20 Nov	06-07 Aug 01-02 Oct 26-27 Nov	13-14 Aug 08-09 Oct 03-04 Dec

Prices plus local taxes.



### Course Description

Extensible Markup Language (XML) is a markup language that defines a set of rules for encoding documents in a format that is both human-readable and machine-readable. It is defined in the XML 1.0 Specification produced by the W3C, and several other related specifications, all gratis open standards. Many application programming interfaces (APIs) have been developed to aid software developers with processing XML data, and several schema systems exist to aid in the definition of XML-based languages. After each training module you will be familiar with the fundamentals of such XML-related standards as DTD, XML Schema, XSLT or XPath. To build up your knowledge about using these technologies from a PHP application, the hands-on labs show you how to create, access, query and transform XML documents with the aid of built-in PHP functions and classes.



### Course Outline

#### A. Overview of XML Standards and XML Technologies

(0.25 Days) XML Standards and XML Processing Options - Modelling and Validating using DTD and XML Schema - Navigation and Filtering using XPath

#### B. SimpleXML

(0.25 Days) Loading and Processing XML in PHP - Using XPath - Error Handling

### **C. SAX and PHP XML Parser**

(0.25 Days) SAX Technology in PHP - SAX Events and Event Handlers for Elements, Attributes and other Nodes - Parsing Documents - Error Handling

### **D. DOM (Document Object Model)**

(0.5 Days) Writing XML Documents using DOM in PHP - Processing and Querying XML - Validating using XML Schema and DTD - Filtering and Querying using XPath - Error Handling

### **E. XML Processing using XSLT**

(0.5 Days) XSLT Fundamentals: Templates, Control Structures, Parameters - Transforming XML from PHP using XSLT Stylesheets - Configuring the XSLT Processor - Passing Parameters to Stylesheets - Error Handling

### **F. PHP Modules for XML Processing**

(0.25 Days) Reading and Writing of XML Data using XML Reader and XML Writer



## A. XML



### (i) Altova Mapforce



#### Overview

<b>Course ID</b>	2020987
<b>Language</b>	en
<b>Duration</b>	2 D ys
<b>Delivery mode</b>	Classroom
<b>Course Type</b>	
<b>Target Group</b>	Programmers, Web developers
<b>Prerequisites</b>	XML basics
<b>Method</b>	Lecture with examples and exercises.
<b>Course level</b>	Beginning



#### Course Dates

Chicago	Miami	New York
1,400.00 USD	1,350.00 USD	1,400.00 USD
30-31 Jul 24-25 Sep 19-20 Nov	27-28 Aug 22-23 Oct 17-18 Dec	03-04 Sep 29-30 Oct 24-25 Dec

Prices plus local taxes.



#### Course Description

Altova MapForce is an any-to-any graphical data mapping, conversion, and integration tool that maps data between any combination of XML, database, flat file, EDI, Excel, XBRL, and/or Web service, then transforms data instantly or autogenerates royalty-free data integration code for the execution of recurrent conversions. It provides powerful, visual XML mapping functionality for instantly transforming XML data from one XML format to any another XML format based on XML Schema or namespace aware DTDs, and can even generate an XML mapping component from an XML instance file. It includes the FlexText utility for parsing and converting text files such as mainframe text reports, text-based log files, and other legacy text file types in mapping designs. With its visual interface, FlexText lets you insert an existing text file and extract the portions you want to convert in the MapForce mapping interface. This training shows you in many hands-on labs how to develop mapping solutions for the above-mentioned combinations and to make the most of MapForce.



#### Course Outline

### A. XML Mapping

(0.25 Days) MapForce User Interface - Mapping between Components - Multiple XML Files from Single XML Source File, Excel Rows or per Table - Filtering - Sorting - Loops, Groups and Hierarchies - Code Generator

## **B. Database Mapping**

(0.125 Days) Setting up the XML-To-Database Mapping - Table Preview Customization - Components and Table Relationships - Database Actions: Insert, Update, Delete, Ignore - Generating Database Output Values - Table Actions - SQL WHERE / ORDER Component - SQL SELECT Statements as Virtual Tables - Stored Procedures - Querying Databases Directly - Database Query Tab

## **C. Text Mapping**

(0.25 Days) Mapping CSV and Text Files: Mapping CSV Files to XML / XML to CSV, Creating Hierarchies From CSV and Fixed Length Text Files, CSV File Options, Mapping Fixed Length Text Files (to a Database) - MapForce FlexText: Creating Split Conditions, Defining Multiple Conditions per Container/Fragment, Using FlexText Templates in MapForce, Using FlexText as a Target Component

## **D. Web Services Mapping**

(0.125 Days) Creating Web Service Projects from WSDL Files - Calling Web Services

## **E. General Functions**

(0.25 Days) Global Resources - Dynamic Input/Output Files per Component - Intermediate Variables - User-Defined Functions - Built-In Functions - Using the Command Line - Project Management - Chained Mappings / Pass-Through Components - Sequence of Processing Mapping Components - Merging Multiple Files into One Target - Documenting Mapping Projects



## (ii) Altova Stylevision



### Overview

<b>Course ID</b>	2020986
<b>Language</b>	en
<b>Duration</b>	2 D ys
<b>Delivery mode</b>	Classroom
<b>Course Type</b>	
<b>Target Group</b>	Programmers, Web developers
<b>Prerequisites</b>	XML basics
<b>Method</b>	Lecture with examples and exercises.
<b>Course level</b>	Beginning



### Course Dates

Chicago	Miami	New York
1,400.00 USD	1,350.00 USD	1,400.00 USD
03-04 Sep 29-30 Oct 24-25 Dec	10-11 Sep 05-06 Nov 31 Dec - 01 Jan	17-18 Sep 12-13 Nov

Prices plus local taxes.



### Course Description

Altova StyleVision is a WYSIWIG tool for designing documents, reports, and forms based on XML, SQL database, and XBRL inputs. It makes the power of XSLT available in an intuitive and visual design tool, and adds rich content such as charts, making it possible for designers and developers to focus on their target designs (in HTML, PDF, Word/ Open XML, and other formats) rather than XSLT details. With StyleVision, a single design can be used to automatically publish in the above-mentioned formats. The same visual design tool also produces Authentic enterprise forms, which empower business users to analyze and update information stored in XML and SQL systems. This trainings helps you to understand the principles of Stylevision and to design your own documents, forms and reports based on XML and database input.



### Course Outline

#### A. Presentation of XML Data

Creating a New SPS - Dynamic and Static Content - Simple Formatting and Transformations - Creating and Applying Global Templates - Modular stylesheets: Available Module Objects, Creating a Modular Stylesheet

#### B. Advanced Techniques

XPath Overview - Automatic Calculations and Conditions using XPath - Grouping and Sorting - Parameters and variables - Table of Contents - Links and References, Bookmarks - Design Fragments - Multiple Schema Sources

## **C. Font and Paragraph Formatting**

Working with CSS Styles - External Stylesheets - External and Internal CSS styles - Font Styles - Page Layout Properties, Containers, Background - Keeps and Breaks - Paragraph Formatting and Alignment - PDF Bookmarks - Document Sections

## **D. Altova Authentic forms**

Stylesheets for the Authentic View: Overview - Creating Forms Based on XML Schema - Form Objects: Fields, Tables, Lists, and Calendars - Working with Databases: Connecting to a Database, Select the Database Data, XML Databases, DB Filters

## **E. Design Objects**

Inserting XML Content as Text - Sorting and grouping - Using Data Input Elements - Lists and Tables - Graphics - Bookmarks and Hyperlinks - Automatic Calculations - XPath-Conditions

## **F. Charts and Reports**

Chart Basics - Typology of Charts: Pie Charts, Bar Charts, Line Charts, Value Line Charts, Area Charts, Candlestick Charts, Gauge Charts, Overlay Charts - Changing the Appearance of a Chart - Graphics - Tables



### (iii) Altova XMLSpy



#### Overview

<b>Course ID</b>	2020299
<b>Language</b>	en
<b>Duration</b>	3 D ys
<b>Delivery mode</b>	Classroom
<b>Course Type</b>	
<b>Target Group</b>	Programmers, Web developers
<b>Prerequisites</b>	XML Fundamentals
<b>Method</b>	Lecture with examples and exercises.
<b>Course level</b>	Beginning



#### Course Dates

Chicago	Miami	New York
1,800.00 USD	1,700.00 USD	1,800.00 USD
07-09 Sep 02-04 Nov 28-30 Dec	03-05 Aug 28-30 Sep 23-25 Nov	10-12 Aug 05-07 Oct 30 Nov - 02 Dec

Prices plus local taxes.



#### Course Description

Altova XMLSpy is a very advanced XML editor for modeling, editing, transforming, and debugging XML-related technologies. It offers a very complex XML interface, a graphical XML Schema designer, a code generator, file converters, debuggers, full database integration, support for XSLT, XPath, XQuery, WSDL and SOAP. This training walks you through the application while providing you with a fundamental knowledge of various XML technologies.



#### Course Outline

##### A. General features of XMLSpy

(0.5 Days) XML Documents - Editing Views - DTDs and XML Schemas - Project Management and Altova Global Resources - Databases and Data Integration - Text Files - File/Directory Comparisons - Templates

##### B. XML Schema-Editor

(0.75 Days) Element Declarations - Attribute Declarations - Complex Type Definitions - Attribute Group Definitions - Model Group Definitions - Simple Type Definitions - Schemas and Namespaces: Access and Composition - Editor: Editing in Text View, Grid View, and Schema View - XML Schema features in XMLSpy

##### C. XPath Editor

(0.25 Days) Path Expressions: Axes, Steps, Node Tests - Predicates and Filters - Function Calls

## **D. Queries using XQuery**

(0.25 Days) FLWOR Expressions: For and Let Clauses, Where Clause, Order By and Return Clauses - Direct Element Constructors - Computed Constructors - Ordered and Unordered Expressions - Comparison Expressions - Conditional Expressions

## **E. Transformations using XSLT**

(0.75 Days) Stylesheet Structure - Template Rules and XPath-Patterns - Named Templates - Repetition - Conditional Processing - Variables and Parameters - Creating Nodes and Sequences - Sorting and Grouping

## **F. Web Services**

(0.25 Days) WSDL documents - PortType - Binding - Service and Ports - Validating the WSDL Document - Connecting to a Web Service and Opening Files - Sending a SOAP Request from the WSDL File - Creating WSDL Documentation - SOAP document structure - SOAP Debugger - SOAP Validation

## **G. Altova Authentic and Altova Stylevision**

(0.25 Days) Opening an XML Document in Authentic View - Authentic View Interface - Entering Data in Authentic View - Tables in Authentic View - Altova Stylevision



## (iv) Fundamentals (Long)



### Overview

<b>Course ID</b>	2020302
<b>Language</b>	en
<b>Duration</b>	5 D ys
<b>Delivery mode</b>	Classroom
<b>Course Type</b>	
<b>Target Group</b>	Programmers, Web developers
<b>Prerequisites</b>	no
<b>Method</b>	Lecture with examples and exercises.
<b>Course level</b>	Beginning



### Course Dates

Chicago	Miami	New York
2,550.00 USD	2,350.00 USD	2,550.00 USD
17-21 Aug 05-09 Oct 23-27 Nov	31 Aug - 04 Sep 19-23 Oct 07-11 Dec	07-11 Sep 26-30 Oct 14-18 Dec

Prices plus local taxes.



### Course Description

Extensible Markup Language (XML) is a simple, very flexible text format designed to meet the challenges of large-scale electronic publishing but also playing an increasingly important role in the exchange of a wide variety of data on the Web and elsewhere. It is defined in the XML 1.0 Specification produced by the W3C, and several other related specifications, all gratis open standards. Many application programming interfaces (APIs) have been developed to aid software developers with processing XML data, and several schema systems exist to aid in the definition of XML-based languages. As of 2009, hundreds of document formats using XML syntax have been developed - both for technical usage scenarios as well as for data exchange between companies. This training provides an overview of the big family of XML technologies incl. hands-on labs, various examples, and case studies.



### Course Outline

#### A. XML Fundamentals and DTD

(0.75 Days) Well-Formed XML Documents - Common Syntactic Constructs - Character Data and Markup - Comments - Processing Instructions - CDATA Sections - Prolog and Document Type Declaration- Start-Tags, End-Tags, and Empty-Element Tags - DTD Fundamentals: Declaration of Elements and Attributes, Attribute-List, Conditional Sections, Mixed Content

## **B. Document Modeling using XML Schema**

(1.25 Days) Principles of Document Modeling - Defining Elements, Attributes and Groups - Complex Documents using Global Complex Types and Derivation - Datatypes: Pre-defined XML Schema Datatypes, User-defined Datatypes - Modular XML Schema Documents using Inclusion, Import and Redefinition - Namespaces

## **C. Localization, Navigation and Filtering using XPath**

(0.25 Days) Axes and Node Tests - Location Paths - Predicates and Filters - Functions

## **D. Transformations using XSLT**

(1.5 Days) Principles of XSLT - Template: Rules and Patterns, Named Templates, Modes - Control structures: Conditional Processing and Repetition - Sorting, Grouping and Numbering - Modular Stylesheets using Inclusion and Import - Variables and Parameters - Output of HTML, XML, and Text

## **E. XML Standards for Web Services**

(0.25 Days) WSDL: Service Definition, Types, Messages and Message Parts, Port Types, Bindings, Ports, Services - SOAP: Message Structure (Envelope, Header, Body), SOAP Processing Model and Attributes, Fault Message

## **F. XML and Relational Databases**

(0.5 Days) Export from Relational Data into XML using SQL - Decomposition of XML into Relational Data - Storing of XML in Relational DBs - Processing, Filtering and Querying of XML - Comparison: Oracle, MS SQL Server, IBM DB2

## **G. Querying XML using XQuery**

(0.5 Days) FLWOR Expressions: For and Let Clauses, Where Clause, Order By and Return Clauses - Constructors: Direct Element Constructors and Computed Constructors for Elements, Attributes and Other Nodes - Conditional Expressions





## (v) Fundamentals (Short)



### Overview

<b>Course ID</b>	2020303
<b>Language</b>	en
<b>Duration</b>	2 D ys
<b>Delivery mode</b>	Classroom
<b>Course Type</b>	
<b>Target Group</b>	Programmers, Web developers
<b>Prerequisites</b>	no
<b>Method</b>	Lecture and discussion
<b>Course level</b>	Beginning



### Course Dates

Chicago	Miami	New York
1,400.00 USD	1,350.00 USD	1,400.00 USD
03-04 Sep 22-23 Oct 10-11 Dec	27-28 Aug 15-16 Oct 03-04 Dec	30-31 Jul 17-18 Sep 05-06 Nov 24-25 Dec

Prices plus local taxes.



### Course Description

Extensible Markup Language (XML) is a simple, very flexible text format designed to meet the challenges of large-scale electronic publishing but also playing an increasingly important role in the exchange of a wide variety of data on the Web and elsewhere. It is defined in the XML 1.0 Specification produced by the W3C, and several other related specifications, all gratis open standards. Many application programming interfaces (APIs) have been developed to aid software developers with processing XML data, and several schema systems exist to aid in the definition of XML-based languages. As of 2009, hundreds of document formats using XML syntax have been developed - both for technical usage scenarios as well as for data exchange between companies. This training provides an overview of the big family of XML technologies. Hands-on labs can be found in our other trainings presenting the same topics in more days and in greater depth. This training, however, makes use of presentations and prepared examples and case studies.



### Course Outline

#### A. XML Fundamentals and DTD

(0.25 Days) Well-Formed XML Documents - Common Syntactic Constructs - Character Data and Markup - Comments - Processing Instructions - CDATA Sections - Prolog and Document Type Declaration- Start-Tags, End-Tags, and Empty-Element Tags - DTD Fundamentals: Declaration of Elements and Attributes, Attribute-List, Conditional Sections, Mixed Content

## **B. Document Modeling using XML Schema**

(0.25 Days) Principles of Document Modeling - Defining Elements, Attributes and Groups - Complex Documents using Global Complex Types and Derivation - Datatypes: Pre-defined XML Schema Datatypes, User-defined Datatypes - Modular XML Schema Documents using Inclusion, Import and Redefinition - Namespaces

## **C. Localization, Navigation and Filtering using XPath**

(0.125 Days) Axes and Node Tests - Location Paths - Predicates and Filters - Functions

## **D. Transformations using XSLT**

(0.25 Days) Principles of XSLT - Template: Rules and Patterns, Named Templates, Modes - Control structures: Conditional Processing and Repetition - Sorting, Grouping and Numbering - Modular Stylesheets using Inclusion and Import - Variables and Parameters - Output of HTML, XML, and Text

## **E. XML Standards for Web Services**

(0.125 Days) WSDL: Service Definition, Types, Messages and Message Parts, Port Types, Bindings, Ports, Services - SOAP: Message Structure (Envelope, Header, Body), SOAP Processing Model and Attributes, Fault Message

## **F. XML and Relational Databases**

(0.125 Days) Export from Relational Data into XML using SQL - Decomposition of XML into Relational Data - Storing of XML in Relational DBs - Processing, Filtering and Querying of XML - Comparison: Oracle, MS SQL Server, IBM DB2



## (vi) Relax NG



### Overview

<b>Course ID</b>	2020978
<b>Language</b>	en
<b>Duration</b>	2 D ys
<b>Delivery mode</b>	Classroom
<b>Course Type</b>	
<b>Target Group</b>	Programmers, Web developers
<b>Prerequisites</b>	XML basics
<b>Method</b>	Lecture with examples and exercises.
<b>Course level</b>	Beginning



### Course Dates

Chicago	Miami	New York
1,400.00 USD	1,350.00 USD	1,400.00 USD
27-28 Aug 22-23 Oct 17-18 Dec	13-14 Aug 08-09 Oct 24-25 Dec	30-31 Jul 24-25 Sep 19-20 Nov

Prices plus local taxes.



### Course Description

RELAX NG (REGular LAnguage for XML Next Generation) is a schema language for XML - a RELAX NG schema specifies a pattern for the structure and content of an XML document. A RELAX NG schema is itself an XML document but RELAX NG also offers a popular compact, non-XML syntax. Although the RELAX NG specification was developed at roughly the same time as the W3C XML Schema specification, the latter was arguably better known and more widely implemented in both open-source and proprietary XML parsers and editors when it became a W3C Recommendation in 2001. Since then, however, RELAX NG support has increasingly found its way into XML software, and its acceptance has been aided by its adoption as a primary schema for popular document-centric markup languages such as DocBook, the TEI Guidelines, OpenDocument, and EPUB. This training helps you to use Relax NG for modelling your own schema documents and to understand the schema documents of the above-mentioned standards. It makes heavily use of hands-on labs and practical exercises alongside of presentations.



### Course Outline

#### A. Introduction

Introduction - Data model

## **B. Relax NG vocabulary**

Annotations - Whitespace - datatypeLibrary attribute - type attribute of value element - href attribute - externalRef element - include element - name attribute of element and attribute elements - ns attribute - QName - div element - Number of child elements - mixed element - optional element - zeroOrMore element - Constraints - combine attribute - grammar element - define and ref elements - notAllowed element - empty element

## **C. Semantics**

Name classes - Patterns: choice pattern, group pattern, empty pattern, text pattern, oneOrMore pattern, interleave pattern, element and attribute pattern, data and value pattern, Built-in datatype library, list pattern - Validity

## **D. Restrictions**

Restrictions: Contextual restrictions, attribute pattern, oneOrMore pattern, list pattern, except in data pattern, start element - String sequences - Restrictions on attributes - Restrictions on interleave



## (vii) XML Schema



### Overview

<b>Course ID</b>	2020972
<b>Language</b>	en
<b>Duration</b>	2 D ys
<b>Delivery mode</b>	Classroom
<b>Course Type</b>	
<b>Target Group</b>	Programmers, Web developers
<b>Prerequisites</b>	XML basics
<b>Method</b>	Lecture with examples and exercises.
<b>Course level</b>	Beginning



### Course Dates

Chicago	Miami	New York
1,400.00 USD	1,350.00 USD	1,400.00 USD
27-28 Aug 15-16 Oct 03-04 Dec	03-04 Sep 22-23 Oct 17-18 Dec	10-11 Sep 29-30 Oct 24-25 Dec

Prices plus local taxes.



### Course Description

An XML schema is a description of a type of XML document, typically expressed in terms of constraints on the structure and content of documents of that type, above and beyond the basic syntactical constraints imposed by XML itself. These constraints are generally expressed using some combination of grammatical rules governing the order of elements, Boolean predicates that the content must satisfy, data types governing the content of elements and attributes, and more specialized rules such as uniqueness and referential integrity constraints. XML Schema, published as a W3C recommendation in May 2001, is one of several XML schema languages. By attending this training you will learn how to write complex XML Schema documents and how to make the most out of its syntax. You will learn how to define elements, attributes, define groups of elements and attributes as building blocks and reuse them multiple times in the document design. You will then get to know the data type system which a standard of its own and to select suitable data types for elements and attributes - or to declare specifically derived new types. For complex documents, this training will show you how to define global complex types which may even be used for derivation (inheritance) and other more object-oriented techniques. The training finally shows how to bind Java and .NET classes to XML Schema structures or how to generate corresponding classes or XML Schema definitions.



### Course Outline

#### A. XML Schema - Fundamental Declarations

(0.5 Days) Schema-validity and documents - Overview of XSD - Element Declarations: Local and Global Elements - Attribute Declarations: Local and Global Attributes - Built-in Attribute Declarations - Attribute Uses

## **B. XML Schema Datatypes**

(0.125 Days) Built-in Primitive Datatypes - Simple Type Definitions - Definitions for List Types and Union Types - Type Derivation - Simple Type Restriction using Facets

## **C. Using Complex Types**

(0.5 Days) Complex Types with Simple Content - Complex Types with Complex Content - Locally Declared Types - Derivation Techniques: Extension and Restriction, Content Type Restrictions - Attributes and Complex Types - Model Groups - Attribute Groups - Substitution Groups

## **D. Keys and References in XML Schema**

(0.125 Days) Identity-constraint Definitions - DTD Data Types ID and IDREF/IDREFS - XML Schema Elements xs:Key, xs:Unique and xs:Keyref - XPath Selectors for Keys and References

## **E. Modularity in XML Schema**

(0.125 Days) Inclusion - Import - Redefinition

## **F. Namespaces**

(0.125 Days) Defining Namespaces in XML Schema - Using Namespaces in Import, Inclusion and Redefinition

## **G. XML Schema and object oriented Programming Languages**

(0.25 Days) Binding between XML Schema and Java-/ .NET Classes - Marshalling and Unmarshalling / Serialization and Deserialization of XML and Objects - Generating Classes and XML Schema and Generator Options

## **H. XML Schema and Databases**

(0.25 Days) Usage of XML Schema for Relational Mapping and Modeling - Usage Scenarios of XML Schema in Databases like MS SQL Server and Oracle for XML Storage and Validation



## (viii) XSL-FO



### Overview

<b>Course ID</b>	2020774
<b>Language</b>	en
<b>Duration</b>	2 D ys
<b>Delivery mode</b>	Classroom
<b>Course Type</b>	
<b>Target Group</b>	Programmers, Web developers
<b>Prerequisites</b>	XSLT basics
<b>Method</b>	Lecture with examples and exercises.
<b>Course level</b>	Beginning



### Course Dates

Chicago	Miami	New York
1,400.00 USD	1,350.00 USD	1,400.00 USD
10-11 Sep 29-30 Oct 17-18 Dec	30-31 Jul 17-18 Sep 05-06 Nov 24-25 Dec	27-28 Aug 15-16 Oct 03-04 Dec

Prices plus local taxes.



### Course Description

XSL Formatting Objects, or XSL-FO, is a markup language for XML document formatting which is most often used to generate PDFs. XSL-FO is part of XSL (Extensible Stylesheet Language), a set of W3C technologies designed for the transformation and formatting of XML data. The general idea behind XSL-FO's use is that the user writes a document, not in FO, but in an XML language. Then, the user uses an existing XSLT stylesheet or creates one of his/her own which then transforms / converts the XML into XSL-FO. From there, an FO processor finally renders the FO-document in formats like PDF or PostScript and other output formats depending on the capabilities of the renderer. This training provides you with a substantial knowledge of the FO standard and shows you in many hands-on labs how to create an XSL-FO document so that a real-world XML file can be published as a complex book. You will learn how to define page dimensions and page templates, create paragraphs, blocks like tables and lists, insert images, and how to define a table of contents, and links. The last part of the training shows you how to build modular XSL-FO documents applying advanced techniques of XSLT and how to automatize the transformation process using variables, parameters or attribute groups.



### Course Outline

#### A. Page Templates and their Properties

(0.5 Days) Page Masters - Page Sequence Masters - Regions - Complex Pagination - Page Numbers and other Static Content

## **B. Text-/Block Formatting**

(0.25 Days) Font, Color, Text Decoration, and Size - Block Formatting: Padding, Indentation, Positioning, Space

## **C. Formatting Objects for Tables and Lists**

(0.125 Days) Tables: Simple and Complex Tables, Formatting of Tables using Border, Padding and Positioning - Lists: Simple and Numbered Lists, Complex Lists

## **D. Book Design**

(0.5 Days) Chapters and Sections - Page Breaks - Table of Contents - Running Headers - References and Links

## **E. Graphics**

(0.125 Days) Embedding of Images - Scaling and Positioning of Images

## **F. Complex Transformations and Modularization**

(0.5 Days) Attribute Groups, Variables and Temporary Trees for Modular Programming - XSLT Techniques for Text Formatting





## (ix) XSLT



### Overview

<b>Course ID</b>	2020903
<b>Language</b>	en
<b>Duration</b>	3 D ys
<b>Delivery mode</b>	Classroom
<b>Course Type</b>	
<b>Target Group</b>	Programmers, Web developers
<b>Prerequisites</b>	XML basics
<b>Method</b>	Lecture with examples and exercises.
<b>Course level</b>	Beginning



### Course Dates

Chicago	Miami	New York
1,900.00 USD	1,800.00 USD	1,900.00 USD
10-12 Aug 05-07 Oct 30 Nov - 02 Dec	17-19 Aug 12-14 Oct 07-09 Dec	07-09 Sep 02-04 Nov 28-30 Dec

Prices plus local taxes.



### Course Description

XSLT (Extensible Stylesheet Language Transformations) is a language for transforming XML documents into other XML documents,[1] or other objects such as HTML for web pages, plain text or into XSL Formatting Objects which can then be converted to PDF. The XSLT processor takes one or more XML source documents, plus one or more XSLT stylesheet modules, and processes them to produce an output document. The XSLT stylesheet contains a collection of template rules: instructions and other directives that guide the processor in the production of the output document. This training starts by presenting the basic concepts of XSLT and XML processing. It then covers the variety of XSLT processing options, conditional processing, variables and paramers as well as sorting, grouping and filtering XML contents with the aid of XPath expressions. You will learn how to generate output in (X)HTML, text, and also XML.



### Course Outline

#### A. XSLT Templates

(0.75 Days) Template Rules: Defining Templates, Defining Template Rules, Applying Template Rules, Conflict Resolution for Template Rules - Templates and Modes - Named Templates - Attribute Value Templates - Built-in Template Rules - Overriding Template Rules

#### B. XPath

(0.5 Days) Basic Concepts of XPath - Usage Patterns of XPath in XSLT - Localization and Filtering of Nodes - Axes - Predicates and Filters - Functions

## **C. Complex Processing Flows using XSLT and XPath**

(0.25 Days) Repetition: Conditional Processing with `xsl:if` and `xsl:choose` - Repetition with `xsl:for-each` - Control Structures in XPath

## **D. Numbering, Sorting and Grouping**

(0.5 Days) Numbering: Formatting a Supplied Number, Numbering based on Position in a Document, Number to String Conversion Attributes - Sorting: The `xsl:sort` Element, The Sorting Process, Comparing Sort Key Values, Processing a Sequence in Sorted Order - Grouping: The Current Group, The Current Grouping Key, The `xsl:for-each-group` Element

## **E. XML and Text Construction**

(0.5 Days) Literal Result Elements - Construction of XML: Creating Element Nodes Using `xsl:element`, Creating Attribute Nodes Using `xsl:attribute`, Creating Text Nodes, Processing Instructions, Namespace Nodes, Comments - Copying Nodes - Additional Features: Multiple Source Documents, Reading Text Files - Formatting Dates and Times - Number Formatting - Text Output for SQL and CSV

## **F. Inclusion and Import in XSLT Stylesheets**

(0.25 Days) Combining Stylesheet Modules: Locating Stylesheet Modules, Stylesheet Inclusion, Stylesheet Import - Embedded Stylesheet Modules - Conditional Element Inclusion

## **G. Parameters and Variables**

(0.25 Days) Variables - Parameters - Values of Variables and Parameters - Creating implicit document nodes - Global Variables and Parameters - Local Variables and Parameters - Scope of Variables - Passing Parameters to Templates - Tunnel Parameters



## (x) XSLT and XSL-FO Combined



### Overview

<b>Course ID</b>	2021001
<b>Language</b>	en
<b>Duration</b>	4 D ys
<b>Delivery mode</b>	Classroom
<b>Course Type</b>	
<b>Target Group</b>	Programmers, Web developers
<b>Prerequisites</b>	XML basics
<b>Method</b>	Lecture with examples and exercises.
<b>Course level</b>	Beginning



### Course Dates

Chicago	Miami	New York
1,950.00 USD	1,800.00 USD	1,950.00 USD
31 Aug - 03 Sep 26-29 Oct 21-24 Dec	24-27 Aug 19-22 Oct 14-17 Dec	07-10 Sep 02-05 Nov 28-31 Dec

Prices plus local taxes.



### Course Description

XSLT (Extensible Stylesheet Language Transformations) is a language for transforming XML documents into other XML documents, or other objects such as HTML for web pages or plain text. XSL Formatting Objects, or XSL-FO, is a markup language for XML document formatting which is most often used to generate PDFs. The XSLT stylesheet contains a collection of template rules: instructions and other directives that guide the processor in the production of the output document. The general idea behind XSL-FO's use is that the user writes a document, not in FO, but in an XML language. Then, the user uses an existing XSLT stylesheet or creates one of his/her own which then transforms / converts the XML into XSL-FO. From there, an FO processor finally renders the FO-document in formats like PDF. This training starts by presenting the basic concepts of XSLT and XML processing. It then covers the variety of XSLT processing options, conditional processing, variables and paramers as well as sorting, grouping and filtering XML contents with the aid of XPath expressions. You will learn how to generate output in (X)HTML, text, and also XML. The second part of the training provides you with a substantial knowledge of the FO standard and shows you in many hands-on labs how to create an XSL-FO document so that a real-world XML file can be published as a complex book.



### Course Outline

#### A. XSLT: XSLT Templates

(0.5 Days) Template Rules: Defining Templates, Defining Template Rules, Applying Template Rules, Conflict Resolution for Template Rules - Templates and Modes - Named Templates - Attribute Value Templates - Built-in Template Rules - Overriding Template Rules

## **B. XPath**

(0.125 Days) Basic Concepts of XPath - Usage Patterns of XPath in XSLT - Localization and Filtering of Nodes - Axes - Predicates and Filters - Functions

## **C. XSLT: Complex Processing Flows using XSLT and XPath**

(0.5 Days) Repetition: Conditional Processing with `xsl:if` and `xsl:choose` - Repetition with `xsl:for-each` - Control Structures in XPath - Parameters and Variables: Values of Variables and Parameters, Creating implicit document nodes, Global Variables and Parameters, Local Variables and Parameters

## **D. Numbering, Sorting and Grouping**

(0.25 Days) Numbering: Formatting a Supplied Number, Numbering based on Position in a Document, Number to String Conversion Attributes - Sorting: The `xsl:sort` Element, The Sorting Process, Comparing Sort Key Values, Processing a Sequence in Sorted Order - Grouping: The Current Group, The Current Grouping Key, The `xsl:for-each-group` Element

## **E. XML and Text Construction**

(0.5 Days) Literal Result Elements - Construction of XML: Creating Element Nodes Using `xsl:element`, Creating Attribute Nodes Using `xsl:attribute`, Creating Text Nodes, Processing Instructions, Namespace Nodes, Comments - Copying Nodes - Additional Features: Multiple Source Documents, Reading Text Files - Formatting Dates and Times - Number Formatting - Text Output for SQL and CSV

## **F. Inclusion and Import in XSLT Stylesheets**

(0.125 Days) Combining Stylesheet Modules: Locating Stylesheet Modules, Stylesheet Inclusion, Stylesheet Import - Embedded Stylesheet Modules - Conditional Element Inclusion

## **G. FO: Page Templates and their Properties**

(0.75 Days) Page Masters - Page Sequence Masters - Regions - Complex Pagination - Page Numbers and other Static Content

## **H. FO: Text-/Block Formatting**

(0.5 Days) Font, Color, Text Decoration, and Size - Block Formatting: Padding, Indentation, Positioning, Space - Tables: Simple and Complex Tables, Formatting of Tables using Border, Padding and Positioning - Lists: Simple and Numbered Lists, Complex Lists - Graphics: Embedding of Images - Scaling and Positioning of Images

## **I. FO: Book Design**

(0.75 Days) Chapters and Sections - Page Breaks - Table of Contents - Running Headers - References and Links - Complex Transformations and Modularization: Attribute Groups, Variables and Temporary Trees for Modular Programming - XSLT Techniques for Text Formatting

## A. oXygen



### (i) Relax NG using XML Developer



#### Overview

<b>Course ID</b>	2024731
<b>Language</b>	en
<b>Duration</b>	2 D ys
<b>Delivery mode</b>	Classroom
<b>Course Type</b>	
<b>Target Group</b>	Programmers, Web developers
<b>Prerequisites</b>	XML basics
<b>Method</b>	Lecture with examples and exercises.
<b>Course level</b>	Beginning



#### Course Dates

Chicago	Miami	New York
1,400.00 USD	1,350.00 USD	1,400.00 USD
06-07 Aug 01-02 Oct 26-27 Nov	27-28 Aug 29-30 Oct 24-25 Dec	17-18 Sep 12-13 Nov

Prices plus local taxes.



#### Course Description

RELAX NG (REGular LAnguage for XML Next Generation) is a schema language for XML - a RELAX NG schema specifies a pattern for the structure and content of an XML document. A RELAX NG schema is itself an XML document but RELAX NG also offers a popular compact, non-XML syntax. Although the RELAX NG specification was developed at roughly the same time as the W3C XML Schema specification, the latter was arguably better known and more widely implemented in both open-source and proprietary XML parsers and editors when it became a W3C Recommendation in 2001. Since then, however, RELAX NG support has increasingly found its way into XML software, and its acceptance has been aided by its adoption as a primary schema for popular document-centric markup languages such as DocBook, the TEI Guidelines, OpenDocument, and EPUB. This training helps you to use Relax NG for modelling your own schema documents and to understand the schema documents of the above-mentioned standards. It makes heavily use of hands-on labs and practical exercises alongside of presentations.



#### Course Outline

### A. Introduction

Introduction - Data model

## **B. Relax NG vocabulary**

Annotations - Whitespace - datatypeLibrary attribute - type attribute of value element - href attribute - externalRef element - include element - name attribute of element and attribute elements - ns attribute - QName - div element - Number of child elements - mixed element - optional element - zeroOrMore element - Constraints - combine attribute - grammar element - define and ref elements - notAllowed element - empty element

## **C. Semantics**

Name classes - Patterns: choice pattern, group pattern, empty pattern, text pattern, oneOrMore pattern, interleave pattern, element and attribute pattern, data and value pattern, Built-in datatype library, list pattern - Validity

## **D. Restrictions**

Restrictions: Contextual restrictions, attribute pattern, oneOrMore pattern, list pattern, except in data pattern, start element - String sequences - Restrictions on attributes - Restrictions on interleave



## (ii) XML Fundamentals (Long) using XML Developer



### Overview

<b>Course ID</b>	2024734
<b>Language</b>	en
<b>Duration</b>	5 D ys
<b>Delivery mode</b>	Classroom
<b>Course Type</b>	
<b>Target Group</b>	Programmers, Web developers
<b>Prerequisites</b>	no
<b>Method</b>	Lecture with examples and exercises.
<b>Course level</b>	Beginning



### Course Dates

Chicago	Miami	New York
2,550.00 USD	2,350.00 USD	2,550.00 USD
07-11 Sep 02-06 Nov 21-25 Dec	31 Aug - 04 Sep 26-30 Oct 14-18 Dec	24-28 Aug 19-23 Oct 28 Dec - 01 Jan

Prices plus local taxes.



### Course Description

Extensible Markup Language (XML) is a simple, very flexible text format designed to meet the challenges of large-scale electronic publishing but also playing an increasingly important role in the exchange of a wide variety of data on the Web and elsewhere. It is defined in the XML 1.0 Specification produced by the W3C, and several other related specifications, all gratis open standards. Many application programming interfaces (APIs) have been developed to aid software developers with processing XML data, and several schema systems exist to aid in the definition of XML-based languages. As of 2009, hundreds of document formats using XML syntax have been developed - both for technical usage scenarios as well as for data exchange between companies. This training provides an overview of the big family of XML technologies incl. hands-on labs, various examples, and case studies.



### Course Outline

#### A. XML Fundamentals and DTD

(0.75 Days) Well-Formed XML Documents - Common Syntactic Constructs - Character Data and Markup - Comments - Processing Instructions - CDATA Sections - Prolog and Document Type Declaration- Start-Tags, End-Tags, and Empty-Element Tags - DTD Fundamentals: Declaration of Elements and Attributes, Attribute-List, Conditional Sections, Mixed Content

## **B. Document Modeling using XML Schema**

(1.25 Days) Principles of Document Modeling - Defining Elements, Attributes and Groups - Complex Documents using Global Complex Types and Derivation - Datatypes: Pre-defined XML Schema Datatypes, User-defined Datatypes - Modular XML Schema Documents using Inclusion, Import and Redefinition - Namespaces

## **C. Localization, Navigation and Filtering using XPath**

(0.25 Days) Axes and Node Tests - Location Paths - Predicates and Filters - Functions

## **D. Transformations using XSLT**

(1.5 Days) Principles of XSLT - Template: Rules and Patterns, Named Templates, Modes - Control structures: Conditional Processing and Repetition - Sorting, Grouping and Numbering - Modular Stylesheets using Inclusion and Import - Variables and Parameters - Output of HTML, XML, and Text

## **E. XML Standards for Web Services**

(0.25 Days) WSDL: Service Definition, Types, Messages and Message Parts, Port Types, Bindings, Ports, Services - SOAP: Message Structure (Envelope, Header, Body), SOAP Processing Model and Attributes, Fault Message

## **F. XML and Relational Databases**

(0.5 Days) Export from Relational Data into XML using SQL - Decomposition of XML into Relational Data - Storing of XML in Relational DBs - Processing, Filtering and Querying of XML - Comparison: Oracle, MS SQL Server, IBM DB2

## **G. Querying XML using XQuery**

(0.5 Days) FLWOR Expressions: For and Let Clauses, Where Clause, Order By and Return Clauses - Constructors: Direct Element Constructors and Computed Constructors for Elements, Attributes and Other Nodes - Conditional Expressions





## (iii) XML Fundamentals (Short) using XML Developer



### Overview

<b>Course ID</b>	2024733
<b>Language</b>	en
<b>Duration</b>	2 D ys
<b>Delivery mode</b>	Classroom
<b>Course Type</b>	
<b>Target Group</b>	Programmers, Web developers
<b>Prerequisites</b>	no
<b>Method</b>	Lecture and discussion
<b>Course level</b>	Beginning



### Course Dates

Chicago	Miami	New York
1,400.00 USD	1,350.00 USD	1,400.00 USD
03-04 Sep 29-30 Oct 24-25 Dec	10-11 Sep 05-06 Nov 31 Dec - 01 Jan	27-28 Aug 22-23 Oct 10-11 Dec

Prices plus local taxes.



### Course Description

Extensible Markup Language (XML) is a simple, very flexible text format designed to meet the challenges of large-scale electronic publishing but also playing an increasingly important role in the exchange of a wide variety of data on the Web and elsewhere. It is defined in the XML 1.0 Specification produced by the W3C, and several other related specifications, all gratis open standards. Many application programming interfaces (APIs) have been developed to aid software developers with processing XML data, and several schema systems exist to aid in the definition of XML-based languages. As of 2009, hundreds of document formats using XML syntax have been developed - both for technical usage scenarios as well as for data exchange between companies. This training provides an overview of the big family of XML technologies. Hands-on labs can be found in our other trainings presenting the same topics in more days and in greater depth. This training, however, makes use of presentations and prepared examples and case studies.



### Course Outline

#### A. XML Fundamentals and DTD

(0.25 Days) Well-Formed XML Documents - Common Syntactic Constructs - Character Data and Markup - Comments - Processing Instructions - CDATA Sections - Prolog and Document Type Declaration- Start-Tags, End-Tags, and Empty-Element Tags - DTD Fundamentals: Declaration of Elements and Attributes, Attribute-List, Conditional Sections, Mixed Content

## **B. Document Modeling using XML Schema**

(0.25 Days) Principles of Document Modeling - Defining Elements, Attributes and Groups - Complex Documents using Global Complex Types and Derivation - Datatypes: Pre-defined XML Schema Datatypes, User-defined Datatypes - Modular XML Schema Documents using Inclusion, Import and Redefinition - Namespaces

## **C. Localization, Navigation and Filtering using XPath**

(0.125 Days) Axes and Node Tests - Location Paths - Predicates and Filters - Functions

## **D. Transformations using XSLT**

(0.25 Days) Principles of XSLT - Template: Rules and Patterns, Named Templates, Modes - Control structures: Conditional Processing and Repetition - Sorting, Grouping and Numbering - Modular Stylesheets using Inclusion and Import - Variables and Parameters - Output of HTML, XML, and Text

## **E. XML Standards for Web Services**

(0.125 Days) WSDL: Service Definition, Types, Messages and Message Parts, Port Types, Bindings, Ports, Services - SOAP: Message Structure (Envelope, Header, Body), SOAP Processing Model and Attributes, Fault Message

## **F. XML and Relational Databases**

(0.125 Days) Export from Relational Data into XML using SQL - Decomposition of XML into Relational Data - Storing of XML in Relational DBs - Processing, Filtering and Querying of XML - Comparison: Oracle, MS SQL Server, IBM DB2

## b. Disclaimer



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