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516. XSLT

Version 1.2

This comprehensive four-day course develops in-depth knowledge and skills in transforming XML documents using eXtensible Stylesheet Language Transformations, or XSLT. Students work through extensive hands-on exercises in transformations from XML to plain text, HTML, and XML, with good grounding in XPath along the way. Intermediate and advanced techniques are also covered including variables and parameters, callable templates, sorting and grouping, tail recursion, working with multiple documents, and XSLT extensions. The course teaches XPath and XSLT 1.0 but looks forward to the 2.0 releases of both specifications with pointers about what new features to expect.

Prerequisites

- Ability to read and to write well-formed XML -- Course 501 is excellent preparation.
- Ability to read a DTD not strictly required, but preferred.

Learning Objectives

- Write simple and complex queries into XML document content using XPath.
- Harness the built-in template rules to process just the right source information, getting maximum leverage from the XSLT processor.
- Control the exact production of text, HTML and XML elements, and whitespace.
- Use mode and priority to control template matching.
- Use looping and conditional processing to manage output production.
- Declare, bind and reference XSLT variables and parameters.
- Use callable templates to capture common transformations and styling.
- Filter and sort XSLT output.
- Use XSLT keys and other techniques to achieve grouping in transformation output and to derive aggregate information on groups.
- Produce refined transformation output including auto-numbering, formatted numeric output, and aggregate values such as sums and counts.
- Implement more complex processes using tail recursion in callable templates.
- Use the XSLT document function to manage multiple source documents.
- Import and include multiple transform definitions to foster reuse of transformation logic.
- Use XSLT extensions to empower transforms with more sophisticated and reusable logic.

Timeline: 4 days.

Chapter 1. Getting Started with XSLT

XSL and XSLT
Rule-Based Transformations
Templates
Producing Text, HTML, and XML

Chapter 2. XPath

Addressing XML Content
XPath in XSLT
Tree Structure
XPath Expressions
Type Model
Context
Axis, Node Test, and Predicate
Abbreviations
Proximity Position
XPath Functions
Comparisons Between Various Types

Chapter 3. Templates and Production

Template Matching
Built-In Template Rules
Recursion Through Templates
Template Context
Output Methods
Controlling Whitespace
Literal Replacement Elements
Formalizing Text, Elements and Attributes
Defining Target Vocabulary
Generating Processing Instructions

Chapter 4. Dynamic Content and Flow Control

Deriving Source Content
Getting Source Values
Attribute Value Templates
Copying Source Elements and Trees
Looping
Conditionals

Chapter 5. Variables and Template Management

Variables
Using Variables to Capture Context Information
Result Tree Fragments
Parameters
Calling Templates Explicitly
Global Variables and Stylesheet Parameters
Template Modes

Chapter 6. Sorting and Grouping

Sorting
Data Type for Sorting
Grouping
Uses for Grouping
Using the Preceding-Sibling Axis
Using XSLT Keys
Iterating Over Groups
Iterating Within a Group

Chapter 7. Advanced XSLT

Auto-Numbering
Number Formatting
XSLT Performance
Debugging and Diagnostics
Computing Aggregate Values
Tail Recursion

Chapter 8. Multiple Documents and Transforms

Merging Multiple Source Documents
The XSLT Document Function
Reusing Transformation Logic
Including Transforms
Importing Transforms

Chapter 9. Extensions

Extension Namespaces and Exclusions
Extension Elements

Extension Functions
EXSLT
Redirects
Node-Set Conversion

Appendix A. Learning Resources

System Requirements

Hardware Requirements (Minimum)	500 MHz, 128 meg RAM, 50 meg disk space.
Hardware Requirements (Recommended)	1.0 GHz, 256 meg RAM, 50 meg disk space.
Operating System	Tested on Windows XP Professional. Course software should be viable on all systems which support W3C-compliant XML tools.
Network and Security	Limited privileges required -- please see our standard security requirements at **http://capcourse.com/Guides/Security.html**.
Software Requirements	All free downloadable tools.