XML500 : XQuery

Code : XML500 **Duration :** 3 days **Category :** XML


```
xquery version "1.0";
<ul type="square">{
  for $course in doc("courses.xml")/courses/course
  where $course/@duration=1
  order by $course/title
  return <li>{data($course/title)}</li>
}</ul>
```

Audience :

This course is designed for developers who wish to apply XQuery in practice for the selection of XML data.

Prerequisites :

To participate in this course basic knowledge of XML and HTML syntax is required. Experience with programming and Structured Query Language (SQL) is beneficial for a good understanding.

Realization :

The theory is discussed on the basis of presentation slides. Demos are used to clarify the theory. The theory is interspersed with hands-on exercises. Usage is made of modern XQuery tools and the course material is in English.

XQuery

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xquery version "1.0";
<ul type="square">{
  for $course in doc("courses.xml")/courses/course
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Contents :

In this course the query language XQuery for accessing and querying XML data is the central subject. The participants will learn the application and scope of XQuery. Attention is paid to the syntax of XQuery, the XQuery specification and the parts of XQuery. Also the relationships of XQuery with other XML vocabularies such as XPath, XSLT and XML Schema are discussed. Furthermore the data types, built-in functions of XQuery and the different XQuery expressions are discussed. The so called flower expressions which are characteristic for XQuery are treated in detail. Finally attention is paid to some more advanced applications of XQuery like joins, the use of XQuery in combination with other technologies and for the accessing of relational data.

Module 1 : XQuery Introduction

What is XQuery?
XQuery Motivation
XML versus relational model
Requirements Query Language for XML
Three parts of XQuery
XQuery Language Characteristics
Types of Queries
Physical Representations to Query
Where is XQuery used?
XQuery's position
XQuery and other technologies
XQuery Specifications

Module 2 : XQuery Syntax

Basic Syntax Rules
XQuery Functions
Structure of an XQuery Module
Example XQuery Module
XQuery Expressions
Example Books.xml
Path Expressions
Predicates
Element Constructors
Other Query Expressions
FLWR Expressions
Conditional Expressions
XQuery Comparisons

Module 3 : Node Selection with XPath

XPath 2.0 Expressions
XPath 2.0 Data Model
XPath 1.0 Data Types
XPath 2.0 Changes
XPath 2.0 sequences
XPath Context
XPath Location Steps
What is an Axis?
Peer Axis Types
Descendent Axis Types
Ancestor Axis Types
Location Path Syntax
Predicates
For expressions
Quantified expressions
Conditional expressions
Functions

Module 4 : XQuery Data Types

XPath 2.0 data Model
Infoset and PSVI
Three Building Blocks
Items
Atomic Types
Atomic Values
XQuery Type Hierarchy
XML Schema Types
String Types
Date and Time Types
Numeric Types
Binary Data Types

Module 5 : Joins and Node Generation

Expressing Joins
Constructing Nodes
FLWR Expressions
For versus Let
Element Constructors
Attribute Constructors
Text Constructors
Other Constructors
Sample Queries

Module 6 : Functions and operators

Functions and Operators
XPath 1.0 Functions
XQuery 1.0 Functions
Functions with Regular Expressions
Enhanced String Functions
Functions for Sequences
XPath 1.0 Operators
XQuery 1.0 Operators
Comparision Operators
Types Issues
Constructor Functions
User Defined Functions

Module 7 : Advanced Concepts

String Search
Queries using Namespaces
Listing Namespaces
Listing Target URI's
Recursive parts Explosion
Access to relational Data