

XML Foundations Fall 2011

XQuery Part I September 27, 2011

Objectives

- Describe the uses of XQuery
- Describe the uses of XPath
- Write a simple XQuery
- Execute an XQuery from Admin Client

XQuery: Like SQL for XML

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- The XQuery language is used to find and extract elements, attributes, and data from an XML source
 - Think of XQuery as “SQL for XML”
 - But much more capable than SQL – Turing Complete
- An XML source can be
 - An XML database, such as xDB
 - XML stored in a relational database
 - An XML file

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Using XQuery

4-3

XQuery Features




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- Declarative and functional language
 - No side effects
 - No required order of execution
 - Easier to optimize
- Strongly typed language, can handle weak typing
- Optional static typing

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Using XQuery

4-4

- XQuery is a W3C recommendation (as of January 2007)
- XQuery is supported
 - By EMC's xDB
 - By other database vendors
 -   
 - By the Documentum Content Server platform (using the **IDfxQuery** interface)
- Xquery Update Facility (<http://www.w3.org/TR/xquery-update-10/> W3C Recommendation March 17, 2011)
- XQuery Full Text Extensions (<http://www.w3.org/TR/xpath-full-text-10/> W3C Recommendation March 17, 2011)

- XQuery is a „composed“ of other XML (related) standards
 - XML 1.0 or 1.1 itself as literals
 - XPath
 - XML Schema
 - Unicode
 - various RFCs regarding URIs, IRIs
 - XML Namespaces
 - XML Base
 - XML ID
- Think: Xquery = XPath + XML literals + loop constructs

XQuery Features General



- Use XPath to access parts of an XML file
 - XPath is a W3C recommendation for accessing XML elements, attributes, and data
 - XPath and XQuery share the same data model and support the same functions and operators
- Search XML data
 - For loops
 - Where clauses
 - Conditional clauses (using if/then/else)
- Create and use variables to store and process XML data
- Includes over 100 built-in functions and the ability to create new functions
- Strong data typing

XQuery Features Performance



- xDB is highly tuned to process XML data
 - xDB supports the full XQuery standard; many relational databases support only subsets of the standard
 - Unlike a relational database, xDB is optimized specifically for XML content
 - Though relational databases are optimized for SQL query execution, they are not that well optimized for XML and XQuery
 - XQuery works directly with the XML content, stored in an xDB database
- XQuery performance against data in the xDB database is very fast relative to a relational database because of the native XQuery processing and XML-specific indexes

