Oracle - Oracle Database 11g: Use XML DB

This course introduces students to Oracle XML DB, a feature of the Oracle Database. Students learn to store, retrieve, generate, and manipulate XML data in Oracle Database 11g.

Students learn about the different storage models for storing XML documents in Oracle XML DB. Students query XMLType data by using SQL/XML standard functions and XQuery. Students generate and manipulate XML data and learn to use Oracle XML DB Repository. In addition, students access and manipulate repository resources using protocols such as SQL, and PL/SQL. Students learn to manage changes in an XML schema after registering it with Oracle XML DB. Students also learn how to import and export XML data.

Oracle SQL Developer is the major development tool in this course. SQL*Plus is also available as an optional tool.

Learn To:
- Store and retrieve XML Data in Oracle XML DB
- Generate XML Data from relational data in the database
- Use XQuery to query, generate, and transform XML data
- Manipulate XML Data in Oracle XML DB
- Use Oracle XML DB Repository
- Export and Import XMLType Data

Suggested Audience

Skills Gained
- Explain the basic concepts of Oracle XML DB
- Store XML Data in Oracle XML DB
- Retrieve XML Data in Oracle XML DB
- Create and use indexes on XML data
- Generate XML from relational data in the database
- Use XQuery to query, generate, and transform XML data
- Manipulate XML Data in Oracle XML DB
- Manage changes to an XML schema that is registered in Oracle XML DB
- Use Oracle XML DB Repository
- Export and import XMLType data using Oracle Data Pump

Who Can Benefit
- Application Developers
• Database Administrators
• Developer
• End Users
• Forms Developer
• PL/SQL Developer
• Support Engineer
• Technical Consultant

Prerequisites
• Experience in basic use of Oracle RDBMS, including SQL DDL, and DML, and PL/SQL
• Oracle Database: SQL Fundamentals I
• Basics of XML
• Oracle Database: SQL Fundamentals II

Course Details

Introduction to Oracle XML DB and XML Review
• Oracle XML DB Features
• Oracle XML DB Concepts and Terminology
• Reviewing the Basic XML Concepts and Terminology

Storing XML Data in Oracle XML DB
• Using XMLType
• Choosing an XMLType Storage Model
• Binary XML Storage
• Object-relational Storage
• CLOB Storage
• XMLType Storage Model Use Case Scenarios
• XMLType Storage Models: Relative Advantages and Disadvantages
• Specifying SQL Constraints and Loading XMLType Data

Using XML Schema with Oracle XML DB
• XML Schema Support in Oracle Database 11g
• XMLType and XML Schema
• Registering, Deleting, Re-compiling, Generating, and Evolving XML Schemas
• Local and Global XML Schemas
• Oracle XML Schema Annotations
• Creating XML Schema-Based XMLType Tables
• Copy-Based XML Schema Evolution
• In-Place XML Schema Evolution
Partitioning XMLType Tables and Columns
- Partitioned Tables and Indexes
- Why Partitioning?
- Ordered Collection Tables
- Equipartitioning
- Advantages of Partitioning an OCT
- Partitioning XMLType Table: During Table Creation
- Maintaining a Partition
- Steps to Partition an XMLTYPE Table Stored as Binary XML

Retrieving XML Data in Oracle XML DB
- Retrieving XML Content: Overview
- XQuery Support in Oracle Database
- Using XMLQuery and XMLTable
- Querying Table or View Data with the XQuery fn:collection Function
- Using XMLQuery to Query Relational Data
- Querying the Database: XMLType Data
- Querying an XMLType Table by Using XMLQuery and XMLTable
- Using XMLEXISTS, XMLCAST, DOC, and COLLECTION

Indexing XMLType Data
- XMLIndex: Overview and Benefits
- Structured and Unstructured Components of XMLIndex
- Logical Parts of the Unstructured Component of an XMLIndex
- Creating an XMLIndex Index Unstructured Component
- Creating Secondary Indexes for the XMLIndex Index Unstructured Component
- Dictionary Views for XMLIndex
- XMLIndex Path Subsetting
- Specifying Paths for XMLIndex

Generating XML Data
- Using XQuery to Generate XML
- Using the XMLELEMENT, XMLATTRIBUTES, and the XMLFOREST Functions
- Generating Nested XML Elements
- Using the XMLCONCAT and the XMLAGG Functions
- Generating Master-Detail Content
- Using the XMLSERIALIZE, XMLCOMMENT, XMLPI, and XMLPARSE Functions
- Using the XMLCOLATTVAL, SYS_XMLGEN, SYS_XMLAGG, and XMLROOT Functions
- Using the DBMS_XMLGEN PL/SQL Package

Transforming and Manipulating XML Data
Working With the Oracle XML DB Repository
- Oracle XML DB Repository: Overview and Architecture
- Hierarchical Structures in the Repository
- Links in Oracle XML DB: Hard and Weak Links
- Oracle XML DB Repository Services
- Oracle XML DB Resource API for PL/SQL (DBMS_XDB)
- Creating Folders and Resources by Using PL/SQL
- Accessing Resources by Using SQL Access and Navigational Access
- Working With Access Control Lists, Compound Documents, and Repository Events

Using Native Oracle XML DB Web Services
- What Is a Web Service?
- Web Service Standards and Architecture
- Oracle XML DB Web Service: Overview
- Adding a Web Services Configuration Servlet
- Verifying the Addition of a Web Services Configuration Servlet
- Granting Access to Web Services
- Viewing the WSDL Using HTTP
- Accessing PL/SQL Stored Procedures Using a Web Service

Exporting and Importing XML Data
- SQL*Loader: Overview
- Loading XMLType Data by Using SQL*Loader
- Loading XMLType Data Stored in a Control File
- Loading XMLType Data Stored in a Separate File
- Oracle Data Pump: Components
- Exporting and Importing XMLType Tables and Columns
- Exporting XML Schema-Based XMLType Tables
- Export and Import Modes

Workshop