



Oracle Database 12c: Advanced PL/SQL

Learn To

- Write powerful PL/SQL programs.
- Explore programming efficiency.
- Use external C and Java routines.
- Apply PL/SQL designing best practices.
- Create PL/SQL applications that use collections.
- Implement a virtual private database with fine-grained access control.
- Write code to interface with external C and Java applications.
- Write code to interface with large objects and use SecureFile LOBs.
- Write and tune PL/SQL code effectively to maximize performance.
- Gain an understanding of the Oracle Database Exadata Express Cloud Service.



Objectives

- Design PL/SQL packages and program units that execute efficiently
- Write code to interface with external applications and the operating system
- Create PL/SQL applications that use collections
- Write and tune PL/SQL code effectively to maximize performance
- Implement a virtual private database with fine-grained access control
- Write code to interface with large objects and use SecureFile LOBs
- Gain an understanding of the Oracle Database Exadata Express Cloud Service

Topics

- ❖ Introduction
 - Course Objectives
 - Course Agenda
 - Describe the development environments
 - Identify the tables, data, and tools used in this course
- ❖ PL/SQL Programming Concepts: Review
 - Identify PL/SQL block structure
 - Packages, procedures and functions
 - Cursors
 - Handle exceptions
 - Dependencies



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❖ **Designing PL/SQL Code**

- Describe the predefined data types
- Create subtypes based on existing types for an application
- List the different guidelines for cursor design
- Describe cursor variables
- White List

❖ **Overview of Collections**

- Overview of collections
- Use Associative arrays
- Navigate using associative methods
- Use Nested tables
- Use Varrays
- Compare nested tables and varrays

❖ **Using Collections**

- Write PL/SQL programs that use collections
- Use Collections effectively
- Enhancements to PL/SQL Type Binds

❖ **Manipulating Large Objects**

- Working with LOBs
- Overview of SecureFile LOBs

❖ **Using Advanced Interface Methods**

- Calling External Procedures from PL/SQL
- Benefits of External Procedures
- Understand how an external routine is called from PL/SQL
- C advanced interface methods
- Java advanced interface methods



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- ❖ Performance and Tuning
 - Understand and influence the compiler
 - Tune PL/SQL code
 - Enable intra unit inlining
 - Identify and tune memory issues
 - Recognize network issues
- ❖ Improving Performance with Caching
 - Describe result caching
 - Use SQL query result cache
 - Use PL/SQL function cache
 - Review PL/SQL function cache considerations
- ❖ Analyzing PL/SQL Code
 - Finding Coding Information
 - PL/Scope Concepts
 - DBMS_METADATA Package
 - PL/SQL Enhancements
- ❖ Profiling and Tracing PL/SQL Code
 - Tracing PL/SQL Execution
 - Tracing PL/SQL: Steps
- ❖ 12: Implementing VPD with Fine-Grained Access Control
 - Understand how fine-grained access control works overall
 - Describe the features of fine-grained access control
 - Describe an application context
 - Create an application context
 - Set an application context



- List the DBMS_RLS procedures
- Implement a policy
- Query the dictionary views holding information on fine-grained access
- ❖ Safeguarding Your Code Against SQL Injection Attacks
 - SQL Injection Overview
 - Reducing the Attack Surface
 - Filtering Input with DBMS_ASSERT
- ❖ Oracle Cloud Overview
 - Introduction to Oracle Cloud & Oracle Cloud Services
 - Cloud Deployment Models
 - Evolving from On-premises to Exadata Express
 - What is in Exadata Express?
 - Exadata Express for Users & Developers
 - Oracle Exadata Express Cloud Service
 - Getting Started with Exadata Express
 - Service Console & Web Access through Service Console