

ORACLE DATABASE: ADVANCED PL/SQL

Course Duration: 3 days; Instructor-led

WHAT YOU WILL LEARN

This Oracle Database 12c: Advanced PL/SQL training teaches you how to use the advanced features of PL/SQL to design and tune PL/SQL to interface with the database and other applications. Expert Oracle University instructors will help you explore advanced features of program design, packages, cursors, extended interface methods and collections. In this course, you will be introduced to Oracle Database Exadata Express Cloud Service.

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 Secure File LOBs.
- Write and tune PL/SQL code effectively to maximize performance.
- Gain an understanding of the Oracle Database Exadata Express Cloud Service.

Benefits to You

Discover how to write PL/SQL routines that analyze the PL/SQL applications and caching techniques that can improve performance. By investing in this course, you'll be introduced to the Virtual Private Database (VPD) to implement security policies and explore techniques and tools to strengthen your applications against SQL injection attacks. Expand programming resources by creating PL/SQL programs that interface with C and Java code.

AUDIENCE

- Database Administrator
- Developer

PREREQUISITES

- Basic Knowledge of SQL, PL/SQL

- Familiarity with programming languages
- Oracle Database SQL and PL/SQL New Features
- Oracle Database: Introduction to SQL/PLSQL Accelerated
- Oracle Database 12c: SQL Tuning for Developers
- Oracle Database: Develop PL/SQL Program Units

METHODOLOGY

This program will be conducted with interactive lectures, PowerPoint presentation, discussion and practical exercise.

COURSE OBJECTIVES

After completing this course, students will be able to:

- 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

OUTLINE

Module 1: Introduction

- Course Objectives
- Course Agenda
- Describe the development environments
- Identify the tables, data, and tools used in this course

Module 2: PL/SQL Programming Concepts: Review

- Identify PL/SQL block structure
- Packages, procedures and functions
- Cursors
- Handle exceptions

- Dependencies

Module 3: 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

Module 4: Overview of Collections

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

Module 5: Using Collections

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

Module 6: Manipulating Large Objects

- Working with LOBs
- Overview of Secure File LOBs

Module 7: 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

Module 8: Performance and Tuning

- Understand and influence the compiler
- Tune PL/SQL code
- Enable intra unit inclining
- Identify and tune memory issues
- Recognize network issues

Module 9: Improving Performance with Caching

- Describe result caching
- Use SQL query result cache
- Use PL/SQL function cache
- Review PL/SQL function cache considerations

Module 10: Analyzing PL/SQL Code

- Finding Coding Information
- PL/Scope Concepts
- DBMS_METADATA Package
- PL/SQL Enhancements

Module 11: Profiling and Tracing PL/SQL Code

- Tracing PL/SQL Execution
- Tracing PL/SQL: Steps

Module 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

Module 13: Safeguarding Your Code Against SQL Injection Attacks

- SQL Injection Overview
- Reducing the Attack Surface
- Filtering Input with DBMS_ASSERT

Module 14: 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