

Oracle PL/SQL Programming

Duration: 5 Days

Description

This Oracle PL/SQL training course will teach you to increase the productivity, performance, scalability, portability, and security of your Oracle database. With this training, you will learn how to execute PL/SQL programs in Oracle, build stored procedures, design and execute modular applications, and increase the efficiency of data movement — essential skills for any Oracle developer.

Delegates will learn how to

- Develop efficient PL/SQL programs to access Oracle databases
- Create stored procedures and functions for reuse and maintenance
- Design modular applications using packages
- Manage data retrieval for front-end applications
- Invoke native dynamic SQL to develop high-level abstract code

Outline

Introduction and Overview

- PL/SQL fundamentals
- Declaring and anchoring variables to database definitions
- Flow control constructs
- Oracle 12c PL/SQL features
- Returning implicit cursor results from stored procedures in Oracle 12c
- Declaring local functions within SELECT statements in Oracle 12c

Data Manipulation Techniques

- Maintaining data with DML statements
- Employing the RETURNING INTO clause
- Solving the fetch-across-commit problem
- Managing data retrieval with cursors
- Implications of explicit and implicit cursors

- Simplifying cursor processing with cursor FOR LOOPS
- Embedding cursor expressions in SELECT statements
- Cursor variables
- Strong vs. weak cursor variables
- Passing cursor variables to other programs
- Defining REF CURSORS in packages

Developing Well-Structured and Error-Free Code

- Error handling using EXCEPTIONS
- Propagation and scope
- "Retrying" problem transactions with EXCEPTION processing
- Debugging PL/SQL blocks
- Simplifying testing and debugging with conditional compilation
- Interpreting compiler messages
- Applying structured testing techniques
- Building and applying a test bed
- Leveraging the debugging facilities in SQL Developer

Achieving Maximum Reusability

- Writing stored procedures and functions
- Calling and invoking server-side logic
- Passing input and output parameters
- Implementing an autonomous transaction
- Coding user-written functions
- Calling PL/SQL functions from SQL
- Building table-valued functions
- Developing safe triggers
- Employing :OLD and :NEW variables
- Avoiding unreliable trigger constructs
- Exploiting schema and database triggers

Exploiting Complex Datatypes

- Collection types
- PL/SQL tables, nested tables, VARRAYs
- Stepping through dense and nonconsecutive collections
- Bulk binding for high performance
- Moving data into and out of PL/SQL blocks
- BULK COLLECT INTO and FORALL
- BULK cursor attributes

- BULK EXCEPTION handling

Invoking Native Dynamic SQL

- Finessing the compiler
- The EXECUTE IMMEDIATE statement
- The RETURNING INTO clause
- Types of dynamic SQL
- Building SQL statements during runtime
- Autogenerating standard code

Package Tips and Techniques

- Package structure: SPEC and BODY
- Eliminating dependency problems
- Overloading for polymorphic effects
- Evaluating application frameworks
- Declaring and using persistent global variables

Prerequisites

Knowledge of Introduction to SQL