Oracle Database 12c: Program with PL/SQL

Course Overview

The official curriculum for the Oracle Database 12c: Program with PL/SQL course (often aligning with Exam 1Z0-144 or 1Z0-149) is a comprehensive track that combines PL/SQL Fundamentals and the development of Stored Program Units

Course Description

This course begins with an explanation of the intent and usage of the PL/SQL programming language for database applications. Important reasons why one should incorporate PL/SQL modules within the application architecture right from the initial design and planning phase are presented. Next one learns how to begin building executable PL/SQL program units. One learns about each of the major segments of a working program and how these interact with each other during program execution, including the important error or exception handling capabilities of the language.

Learning Curriculum

Module 1

Introduction & Core Concepts

PL/SQL Overview: Understanding the architectural differences between SQL and PL/SQL.Benefits of PL/SQL: Learning how procedural extensions improve performance, security, and modularity.Development Environments: Getting started with Oracle SQL Developer and optional tools like SQL*Plus

Module 2

Basic Block Structure & Identifiers

Anonymous Blocks: Writing basic, unnamed application code blocks with standard structural components (DECLARE, BEGIN, EXCEPTION, END).Declaring Variables: Defining standard scalar datatypes, CONSTANT values, and NOT NULL constraints.Screen Output: Utilizing the built-in DBMS_OUTPUT.PUT_LINE procedure to generate feedback

Module 3

Execution Control & Interaction

SQL Statements in PL/SQL: Executing Data Manipulation Language (DML) statements and using the INTO clause for row retrieval.Control Structures: Directing logical flows using conditional statements (IF-THEN-ELSE, CASE) and explicit loops (LOOP, WHILE, FOR).Composite Datatypes: Working with internal structures like PL/SQL records and collections.

Module 4

Explicit Cursors & Exception Handling

Explicit Cursors: Managing row-by-row query processing using database cursors, parameters, and attributes.Advanced Cursor Control: Locking active rows with FOR UPDATE and referencing positions with WHERE CURRENT OF.Exception Handlers: Trapping and dealing with runtime errors using predefined, non-predefined, and user-defined exceptions

Module 5

Stored Subprograms & Reusability

Stored Procedures: Designing, testing, and calling reusable parameter-driven procedures.Stored Functions: Creating and invoking user-defined functions directly inside SQL statements while managing side effects.PL/SQL Packages: Consolidating related subprograms, variables, and exceptions into single, persistent database objects.Advanced Package Features: Implementing custom configurations, overloading subprograms, and working with initialization blocks

Module 6

Triggers, Dynamic SQL, & Maintenance

Database Triggers: Creating statement-level and row-level DML triggers, alongside INSTEAD OF mechanisms to handle business challenges.Dynamic SQL: Constructing and executing runtime SQL queries using standard application techniques.Dependency Management: Recognizing and tracking compile-time and runtime dependencies across complex schema objects.Compiler Optimization: Tuning PL/SQL performance using native compiler configurations and conditional compilation parameters.

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