+33 (0)1 48 10 09 46
formation@ambient-it.net
140 Avenue Jean Lolive 93500 Pantin - France

Updated on 25/07/2025

Sign up

PL/SQL Training

3 days (21 hours)

Presentation

Master PL/SQL in its entirety thanks to this comprehensive, structured and resolutely practical training course. From basic syntax to advanced programming, you'll learn how to write, organize and optimize your PL/SQL blocks to automate business logic in Oracle Database and build robust, high-performance, secure applications.

You'll start with the fundamentals: block structure, variables, conditional statements and loops. The aim is to master the syntax, understand the execution cycle of a PL/SQL block and interact efficiently with database data.

You'll then move on to cursors, procedures, functions and packages: essential building blocks for encapsulating your business logic, structuring your code and improving its reusability and maintainability in a professional context.

The focus is on error handling, triggers, advanced data manipulation with collections, and optimizations with BULK COLLECT, FORALL and dynamic SQL. You'll also learn how to profile, trace and secure your scripts.

As with all our training courses, this one will be presented with the latest PL/SQL updates.

Objectives

- Understand the architecture and role of PL/SQL in Oracle, its complementarity with SQL, and typical use cases in database development and administration.
- Design, structure and maintain robust PL/SQL blocks, including variables, flow controls cursors, exceptions, procedures, functions and packages
- master error handling, triggers, collections, dynamic SQL, and optimization techniques with BULK COLLECT and FORALL
- Be able to integrate and execute complex base-side processing, while guaranteeing performance, readability, modularity and traceability of PL/SQL code

- Apply good structuring, documentation, security and testing practices within a project logic, in order to become operational in a real Oracle environment.

Target audience

- SQL Developers
- Data Base Administrator

Prerequisites

- Master the basics of the SQL language

PL/SQL training program

Introduction to PL/SQL

- Differences between SQL and PL/SQL
- Advantages of PL/SQL in Oracle
- PL/SQL block structure
- SQL*Plus, SQL Developer, TOAD
- Compiling and executing blocks
- Anonymous vs. stored mode

Syntax and basic structures

- DECLARE, BEGIN, EXCEPTION, END
- Syntax rules and best practices
- Declaring variables (VARCHAR2, NUMBER, DATE, etc.)
- Constants
- Operations on variables
- IF...THEN, ELSIF, ELSE
- Simple CASE and Searched CASE
- Loops: LOOP, WHILE, FOR

Cursors

- Use with DML commands
- Attributes: %FOUND, %NOTFOUND, %ROWCOUNT
- Declaration and opening
- Retrieving lines (FETCH)
- Closing the cursor

- Defining dynamic cursors
- Passing arguments
- Line locking via cursors

Procedures and functions

- Basic syntax
- Parameters: IN, OUT, IN OUT
- Calling procedures
- Difference from procedures
- Returning a value
- Use in SQL queries
- Internal documentation (HOW TO)
- Modularizing PL/SQL code

Packages

- Specification vs. body
- Encapsulating business logic
- Compilation and dependencies
- Object visibility (public/private)
- Reusability
- Performance enhancement
- Version management

Exception handling

- Pre-defined (NO_DATA_FOUND, TOO_MANY_ROWS, etc.)
- User-defined
- EXCEPTION block
- Use of RAISE, RAISE_APPLICATION_ERROR
- Creation of an error handling package
- Error tracing/logging

Triggers

- BEFORE / AFTER
- ROW / STATEMENT
- INSERT / UPDATE / DELETE
- Syntax and options
- OLD and NEW: status values
- Avoiding edge effects
- Mutual triggers and solutions

Advanced programming

- TABLE, VARRAY, NESTED TABLE
- RECORDs and RECORD arrays
- Using REF CURSOR
- Dynamic SQL with EXECUTE IMMEDIATE
- COMMIT, ROLLBACK, SAVEPOINT
- Transaction control in PL/SQL code

Optimization and best practices

- Avoiding SQL round-trips ? PL/SQL
- Bulk processing : BULK COLLECT, FORALL
- DBMS_PROFILER
- DBMS_UTILITY and DBMS_OUTPUT
- Error concealment
- Execution rights (AUTHID CURRENT_USER)

Useful Oracle utilities

- Debug display
- Secure dynamic SQL
- Scheduled job launch
- Background job management
- UTL_FILE: file manipulation
- UTL_MAIL: send e-mails
- UTL_HTTP: external HTTP requests

Companies concerned

This course is aimed at both individuals and companies, large or small, wishing to train their teams in a new advanced computer technology, or to acquire specific business knowledge or modern methods.

Positioning on entry to training

Positioning at the start of training complies with Qualiopi quality criteria. As soon as registration is finalized, the learner receives a self-assessment questionnaire which enables us to assess his or her estimated level of proficiency in different types of technology, as well as his or her expectations and personal objectives for the forthcoming course, within the limits imposed by the selected format. This questionnaire also enables us to anticipate any connection or security difficulties within the company (intra-company or virtual classroom) which could be problematic for the follow-up and smooth running of the training session.

Teaching methods

Practical training: 60% hands-on, 40% theory. Training material distributed in digital format to all participants.

Organization

The course alternates theoretical input from the trainer, supported by examples, with brainstorming sessions and group work.

Validation

At the end of the session, a multiple-choice questionnaire verifies the correct acquisition of skills.

Certification

A certificate will be awarded to each trainee who has completed the entire course.