



Oracle PL/SQL Programming

40 hours

Course objectives:

This course provides you with the knowledge how to program with Oracle PL/SQL and develop code objects such as stored procedures, functions, triggers and packages. Get to know advanced techniques for efficient code execution and the Oracle 12c new features for PL/SQL.

About this course:

This course starts with PL/SQL for beginners and continues with advanced PL/SQL:

Module 1: PL/SQL for beginners – Oracle's procedural's language

PL/SQL is the Oracle database programming language which greatly extends our ability to perform various operations in the database. It enables us to develop blocks of application code, such as procedures, functions and triggers in the database itself, and is a powerful tool widely used in Oracle based implementations.

Module 2: Advanced and useful PL/SQL tools and techniques

(Including Oracle 12c enhancements and new features)

The PL/SQL language offers a variety of tools and advanced techniques for efficient code execution. These tools address common requirements and frequently performed tasks in PL/SQL and are designed to perform these tasks as efficiently as possible.

Get to know some of the most powerful and useful PL/SQL tools that help make your code elegant and efficient, just the way the Oracle PL/SQL designers intended it.

The course combines all the required theoretical material with hands-on practices and real-world examples of applying the learned tools in actual production databases. We will also go over some of the best Oracle 12c new features for developers.

Who Should Attend:

The target audience for this course is all Oracle professionals. Among the specific groups for whom this course will be helpful are:

- Database administrators
- Application designers and developers
- Implementation specialists
- Data center support engineers
- Chief Information Officers (CIO) and other IT professionals

Course Contents:

PL/SQL for beginners

- Introduction to PL/SQL and procedural languages.
- PL/SQL variables and programming structures.
- Control structures (conditions, loops).
- Working with cursors.



- Using exceptions to handle errors.
- Stored application code
 - Stored procedures
 - User-defined functions
 - Working with packages.
- Using triggers to extend functionality
- PL/SQL performance considerations.
- Advanced features, tips and tricks.
- Real world cases and examples.

Advanced PL/SQL

- Bulk Binding
 - FORALL
 - Bulk DML operations
 - Sparse collections and the INDICES OF clause
 - Handling bulk exceptions
 - BULK COLLECT
 - Bulk cursor queries
 - Using the LIMIT clause
- Using Autonomous Transactions
 - Autonomous transactions and subprograms
 - Autonomous transactions and triggers
- The RETURNING clause
 - Eliminate redundant table access and IO during bulk/single-row SQLs.
- Using Dynamic SQL
 - EXECUTE IMMEDIATE & DBMS_SQL
 - Bind aware dynamic SQL
 - Efficient dynamic SQL tips
 - DBMS_SQL – old, but not obsolete
- Advanced Cursor usage
 - Cursor For Loops
 - Ref Cursors
 - Updatable cursors
- Advanced Collections
 - TABLE OF arrays, VARRAYs and Nested Tables
 - Using Nested Tables to create parameterized views
 - Using composite variables as procedural parameters

- Invoker's Rights vs. Definer's Rights
 - Altering the execution context of subprograms
- Advanced Packages issues
 - Overloading
 - Forward Declarations
 - One-Time-Only procedures
 - Securing package text in the database
 - Using packages to:
 - Enable compound parameters
 - Standardize constants and exceptions.
- Advanced memory and design issues
 - Using DBMS_SHARED_POOL
 - Using PRAGMA SERIALLY_REUSABLE
 - NOCOPY clause
- Using PL/SQL compiler warnings to detect problematic code
- Oracle Supplied Packages: Overview
 - UTL_FILE
 - DBMS_PROFILER
 - DBMS_LOCK
 - DBMS_METADATA
 - Others (as time permits..)
- Useful PL/SQL code, tips and tricks from the real world.
- Selected Oracle 11g and 12c new features