Oracle® PL/SQL Training

Module 1: Introduction and Overview

PL/SQL fundamentals

- Declaring and anchoring variables to database definitions
- Flow control constructs

Oracle 11*g* and 12*c* PL/SQL features

- PL/Scope in Oracle 11*g*
- Returning implicit cursor results from stored procedures in Oracle 12*c*
- Declaring local functions within SELECT statements in Oracle 12*c*

Module 2: Data Manipulation Techniques

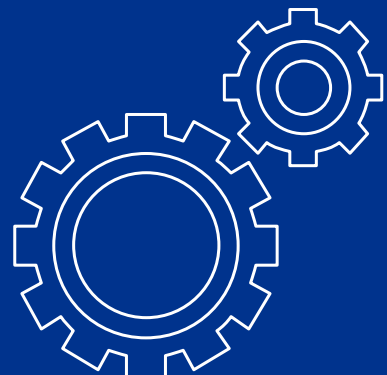### Maintaining data with DML statements

- 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 programmes
- Defining REF CURSORS in packages

Module 3: 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

Module 4: Achieving Maximum Reusability
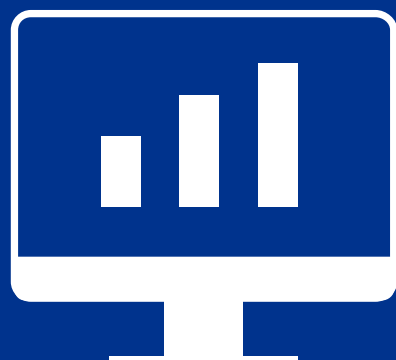
Writing stored procedures and functions
- Calling and invoking server-side logic
- Passing input and output parameters
- Implementing an autonomous transaction

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

Module 5: Exploiting Complex Datatypes

Collection types

- PL/SQL tables, nested tables, VARRAYs
- Stepping through dense and non-consecutive 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

Module 6: 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

Module 7: 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