

## Oracle Database: PL/SQL Fundamentals Ed 2

**Duration:** 2 Days

### What you will learn

The Oracle Database: PL/SQL Fundamentals Ed 2 course introduces students to the PL/SQL programming language. In the class, students learn to create PL/SQL blocks of application code.

Learn To:

Use various features of PL/SQL.

Write anonymous blocks of code in PL/SQL.

Use various PL/SQL conditional constructs and loops in program blocks.

Interface the PL/SQL code with the database.

Use stored procedures and functions in their program blocks.

Handle Exceptions in PL/SQL code.

### Benefits To You

Students will benefit from this course as it enables programmers with the skill of using this programming language. In the class students will learn to create anonymous PL/SQL blocks, to create procedures, functions and triggers. Students will learn to use explicit cursors in their program blocks. Demonstrations and hands-on practice reinforce the fundamental concepts. Students use Oracle SQL Developer to develop these program units. SQL\*Plus is introduced as optional tools.

### Audience

Database Administrators

Forms Developer

PL/SQL Developer

Portal Developer

System Analysts

Technical Consultant

### Related Training

#### *Required Prerequisites*

Familiarity with data processing concepts and technique

Familiarity with programming languages

Oracle Database 12c: Introduction for Experienced SQL Users

### *Suggested Prerequisites*

Familiarity with data processing concepts and techniques

Familiarity with programming languages

### **Course Objectives**

Design PL/SQL anonymous block that execute efficiently

Use PL/SQL programming constructs and conditionally control code flow (loops, control structures, and explicit cursors)

Handle exceptions in the program units

Create and execute simple stored procedures and functions

Write PL/SQL code to interface with the database

Describe the features and syntax of PL/SQL

### **Course Topics**

#### **Introduction**

Course Objectives, Course Agenda and Class Account Information

The Human Resources (HR) Schema

Appendices Used in this Course

PL/SQL Development Environments

#### **Introduction to PL/SQL**

Understanding the benefits and structure of PL/SQL

Understanding PL/SQL Blocks

Generating output messages in PL/SQL

#### **Declaring PL/SQL Variables**

Identifying valid and invalid identifiers

Declaring and initializing variables

Various data types

Identifying the benefits of using the %TYPE attribute

Using bind variables

#### **Writing Anonymous PL/SQL blocks**

Lexical Units in a PL/SQL Block

Using SQL Functions in PL/SQL

Data Type Conversion

Using Nested Blocks as Statements

Referencing an Identifier Value in a Nested Block

Qualifying an Identifier with a Label

Operators in PL/SQL

Using Sequences in PL/SQL Expressions

## **Using SQL Statements within a PL/SQL Block**

- Using SQL Statements in PL/SQL
- Retrieving Data in PL/SQL with the SELECT statement
- Using Naming Conventions in DML Statements and data retrieval
- Manipulating Data on the Server Using PL/SQL
- SQL Cursors
- Using SQL Cursor Attributes to Obtain Feedback on DML
- Saving and Discarding Transactions

## **Writing Control Structures**

- Controlling PL/SQL Flow of Execution
- Using IF and CASE Statements for conditional processing
- Handling Nulls
- Building Boolean Conditions with Logical Operators
- Using Iterative Control with Loop Statements

## **Working with Composite Data Types**

- Composite Data Types of PL/SQL Records and Tables
- Using PL/SQL Records
- Inserting and Updating PL/SQL Records
- Using INDEX BY Tables
- Using Associative arrays
- Declaring and Using VArrays

## **Using Explicit Cursors**

- Cursors
- Explicit Cursor Operations
- Controlling Explicit Cursors
- Using Explicit Cursors to Process Rows
- Cursors and Records
- Cursor FOR Loops Using Subqueries
- Explicit Cursor Attributes
- %NOTFOUND and %ROWCOUNT Attributes

## **Handling Exceptions**

- Concept of Exception
- Handling Exceptions with PL/SQL
- Predefined Exceptions
- Trapping Predefined and Non-predefined Oracle Server Errors
- Functions that Return Information on Exceptions
- Usage of PRAGMA keyword
- Trapping User-Defined Exceptions
- Propagating Exceptions

## **Creating Stored Procedures and Functions**

- Overview of Stored Procedures and Functions
- Differentiating between anonymous blocks and subprograms
- CREATE OR REPLACE PROCEDURE | FUNCTION
- Understanding the Header Area of a Stored Procedure and Function
- Creating Simple Procedures and Functions
- Creating a Simple Procedure with an IN Parameter
- Executing a Procedure and a Function