

## Oracle Database: PL/SQL Fundamentals

**Duration:** 2 Days

### What you will learn

This Oracle Database: PL/SQL Fundamentals training introduces you to PL/SQL. It helps you understand the benefits of this powerful programming language, while teaching you real-world scenarios where these lessons can be applied.

Learn To:

Describe the features and syntax of PL/SQL.

Design a PL/SQL anonymous block that executes efficiently.

Write PL/SQL code to interface with the database.

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

Handle runtime errors.

Describe stored procedures and functions.

Apply declaring identifiers and trapping exceptions.

Create PL/SQL blocks of application code that can be shared by multiple forms, reports and data management applications.

### Benefits to You

Ensure fast, reliable, secure and easy to manage performance. Optimize database workloads, lower IT costs and deliver a higher quality of service by enabling consolidation onto database clouds.

### Gain Experience through Hands-On Practice

In this course, you'll learn from expert Oracle instructors, then engage in demonstrations and hands-on practice to reinforce the fundamental concepts. You'll use Oracle SQL Developer to develop these program units. SQL\*Plus is introduced as optional tools.

### Audience

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 to SQL Ed 1.1

### **Course Objectives**

Describe the features and syntax of PL/SQL

Design PL/SQL anonymous block that execute efficiently

Write PL/SQL code to interface with the database

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

Handle runtime errors

Create and execute simple stored procedures and functions

### **Course Topics**

#### **Introduction**

Course Objectives, Course Agenda and Class Account Information

Describe the Human Resources (HR) Schema

Identify the Appendices Used in this Course

Introduction to PL/SQL Development Environments

Oracle Database 12c SQL Documentation and Additional Resources

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

Understanding the benefits and structure of PL/SQL

Examining PL/SQL Blocks

Generating output messages in PL/SQL

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

Identify valid and invalid identifiers

Declare and initialize variables

List and describe various data types

Identify the benefits of using the %TYPE attribute

Declare, use, and print bind variables

#### **Writing Executable Statements**

List Lexical Units in a PL/SQL Block

Use SQL Functions in PL/SQL

Use Data Type Conversion

Use Nested Blocks as Statements

Reference an Identifier Value in a Nested Block

Qualify an Identifier with a Label

Use Operators in PL/SQL

Using Sequences in PL/SQL Expressions

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

Identify and use the SQL Statements in PL/SQL

Retrieve Data in PL/SQL with the SELECT statement

Avoid Errors by Using Naming Conventions When Using Retrieval and DML Statements

Manipulate Data in the Server Using PL/SQL

The SQL Cursor concept

Use SQL Cursor Attributes to Obtain Feedback on DML

Save and Discard Transactions

## **Writing Control Structures**

Control PL/SQL Flow of Execution

Conditional processing Using IF and CASE Statements

Handle Nulls to Avoid Common Mistakes

Build Boolean Conditions with Logical Operators

Use Iterative Control with Looping Statements

## **Working with Composite Data Types**

Learn the Composite Data Types of PL/SQL Records and Tables

Use PL/SQL Records to Hold Multiple Values of Different Type

Inserting and Updating with PL/SQL Records

Use INDEX BY Tables to Hold Multiple Values of the Same Data Type

## **Using Explicit Cursors**

Define Cursors

Explain Explicit Cursor Operations

Controlling Explicit Cursors

Use Explicit Cursors to Process Rows

Cursors and Records

Cursor FOR Loops Using Subqueries

Explicit Cursor Attributes

The %NOTFOUND and %ROWCOUNT Attributes

## **Handling Exceptions**

Define Exception

Handling Exceptions with PL/SQL

Predefined Exceptions

Trapping Predefined and Non-predefined Oracle Server Errors

Functions that Return Information on Encountered Exceptions

Trapping User-Defined Exceptions

Propagate Exceptions

Basic RAISE Statement

## **Creating Stored Procedures and Functions**

Overview of Stored Procedures and Functions

Differentiate between anonymous blocks and subprograms

Show the CREATE OR REPLACE PROCEDURE | FUNCTION

Understand the Header Area of a Stored Procedure and Function

Create Simple Procedures and Functions

Create a Simple Procedure with an IN Parameter

Execute a Procedure and a Function