

## Oracle Database 12c: PL/SQL I - Introduction

### Course Summary

#### Description

This course introduces one to Oracle database programming using the PL/SQL programming language. One will learn the syntax, structure and features of the language. This course will also lay the foundation for the entire Oracle PL/SQL programming series, allowing one to progress from introductory topics to advanced application design and programming and finally onto writing complex high-performance applications.

PL/SQL may be considered as one of the basic skill sets required for any Oracle professional, nearly as important as the SQL language itself.

#### Target Audience

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

#### Objectives

This course begins with an explanation of the intent and usage of the PL/SQL programming language for database applications. Important reasons why one should incorporate PL/SQL modules within the application architecture right from the initial design and planning phase are presented. Next one learns how to begin building executable PL/SQL program units. One learns about each of the major segments of a working program and how these interact with each other during program execution, including the important error or exception handling capabilities of the language. The final section goes beyond the basics and begins to explore advanced topics that will be useful later in the Oracle PL/SQL developer textbook series. One learns techniques and features that allow modular and reusable programs to be developed, increasing productivity and maintainability of database applications.

#### Topics

- Selection & Setup of the Database Interface
- About Bind & Substitution Variables
- Choosing a Database Programming Language
- PL/SQL Language Fundamentals
- Declare Section
- Begin Section
- Exception Section
- Beyond The Basics: Explicit Cursors
- Beyond The Basics: Nested Blocks
- Beyond The Basics: Declared Subprograms

#### Audience

- Application designers and database developers
- Database administrators
- Web server administrators

#### Prerequisites

Either of the courses *Oracle Database 12c: SQL Fundamentals (Levels I & II)* or *Oracle Database 12c: SQL Complete Library (Levels I, II, & III)* are recommended prerequisites for this course.

#### Duration

Two to Three days

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### Course Outline

#### I. Selection & Setup of the Database Interface

- A. Considering Available Tools
- B. Selecting the Appropriate Tool
- C. Oracle Net Database Connections
- D. Oracle PAAS Database Connections
- E. Setup SQL Developer
- F. Setup SQL\*Plus
- G. Setup JDeveloper

#### II. About Bind & Substitution Variables

- A. Using SQL Developer
- B. Using SQL\*Plus

#### III. Choosing a Database Programming Language

- A. What Is Database Programming?
- B. PL/SQL Performance Advantages
- C. Integration with Other Languages

#### IV. PL/SQL Language Fundamentals

- A. PL/SQL Program Structure
- B. Language Syntax Rules
- C. Embedding SQL
- D. Writing Readable Code
- E. Generating Database Output
- F. SQL\*Plus Input Of A Program Block

#### V. Declare Section

- A. About The Declare Section
- B. Declare Primitive Types
- C. Declaration Options
- D. Not Null
- E. Constant
- F. Data Dictionary Integration
- G. %Type
- H. Declare Simple User-Defined Types
- I. Type ... Table
- J. Type ... Record
- K. Extended User-Defined Types

#### VI. Begin Section

- A. About The Begin Section
- B. Manipulating Program Data
- C. Logic Control & Branching
- D. GOTO
- E. Loop
- F. If—Then—Else
- G. Case

#### VII. Exception Section

- A. About The Exception Section
- B. Isolating the Specific Exception
- C. Pragma EXCEPTION\_INIT
- D. SQLCODE & SQLERRM Example
- E. SQL%ROWCOUNT & Select...Into

#### VIII. Beyond The Basics: Explicit Cursors

- A. About Explicit Cursors
- B. Extended Cursor Techniques
- C. For Update of Clause
- D. Where Current Of Clause
- E. Using For...Loop Cursors

#### IX. Beyond The Basics: Nested Blocks

#### X. Beyond The Basics: Declared Subprograms

- A. Using Declared Subprograms
- B. Declared Procedure
- C. Declared Function