

This course will cover the Oracle 11g PL/SQL programming language. Students will be able to control data sharing and locking, develop an understanding of multi-user and concurrent transactions and develop triggers, procedures, functions and packages.

*Prerequisites: Oracle 11g Foundations: SQL Basics & SQL*Plus or equivalent experience.*

Minimum software requirements: Windows Server 2003, Windows XP Pro or Vista Pro; Oracle 11g.

Minimum hardware requirements for all machines: Minimum 512 MB RAM (2 GB preferred); 20 GB of free space on hard drive (before installation). Machines need static IP addresses.

Microsoft PowerPoint and Internet access on instructor's workstation for presentation purposes.

Module 1: Introduction to PL/SQL
History of PL/SQL
Features and Benefits of PL/SQL
Relationship of PL/SQL to SQL
PL/SQL Development Tools
Native Compilation

Module 2: PL/SQL Basics
PL/SQL Anonymous Block
Structure, Lexical Units,
Variable Declarations, Types
and Records
SQL*Plus Development
Environment
Displaying Messages with
DBMS_OUTPUT
Object Naming Rules and
PL/SQL Style Guide and
Coding Conventions

Module 3: Working with Database Data

SELECTing Single Rows
Declaring Variable Datatypes
Dynamically
Modifying Database Data (DML)
Transaction Control Statements

Module 4: Selecting Multiple Rows Using Cursors

Declaring Explicit Cursors
Implicit Cursor Attributes
Using the Cursor FOR LOOP

Module 5: Exception Handling

Writing an Exception Handler Section
Handling Predefined Exceptions, Controlling
Exception Processing - Exception
Propagation
RAISE_APPLICATION_ERROR Use
Preventing Unhandled Exceptions
Exception Propagation
Using PRAGMA EXCEPTION_INIT

Module 6: Advanced Cursors

Cursor Parameters
Taking Advantage of a Weak Cursor Variable
OPEN FOR, FETCH and CLOSE
Using the FOR UPDATE Clause
Using PL/SQL Collections and Nested
Collections

Module 7: Introduction to Procedures and Functions

Creating Stored PL/SQL Objects, Procedures,
Functions

Module 8: Creating Packages

Creating Package Specifications and Bodies
One Time Only Procedures
Persistent State

Module 9: Creating DML Triggers

Triggering Events, Trigger Behavior
Correlation Identifiers, Multi-Statement
Triggers
Trigger Firing Behavior, Enabling/Disabling
Triggers

Module 10: Advanced Packages

Initializing Variables
Module Overloading
Recursion
Purity Levels

Module 11: Advanced Triggers

Trigger Limitations, Mutating and
Constraining Tables
Using CALL, and Client Triggers
DDL Triggers
Using SERVERERROR Event
Schema vs. Database Triggers
Using Alternative Events and Levels
INSTEAD OF Triggers on Views

Module 12: PL/SQL Composite Datatypes and Collections

PL/SQL Records, PL/SQL Associative
Arrays and Arrays of Records
Using PL/SQL Record Variables
PL/SQL Collections

Module 13: Bulk Binding Loading Using PL/SQL

Defining Bulk Binds
Error Handling with Bulk Binds

Module 14: Using Oracle-Supplied Packages

DBMS_OUTPUT Package
UTL_FILE Package (File I/O)
DBMS_ALERT/PIPE Package
DBMS_JOB Package
DBMS_SCHEDULER Package
DBMS_STATS Package
DBMS_UTILITY Package
UTL_SMPT/MAIL Packages
DBMS_SQL Package

Module 15: Writing Native Dynamic SQL EXECUTE IMMEDIATE

Module 16: PL/SQL Wrapper

PL/SQL Wrapper (Source Code
Encryption)

Module 17: Understanding Dependencies

Viewing Dependencies
Effect of Breaking Dependency Chain

Module 18: Large Object Management in PL/SQL

Differences Between LONG/LONG RAW
and LOBs
Creating and Using BFILES, and Tables
with LOBs
LOBs and PL/SQL
DBMS_LOB Capabilities
Temporary LOBs

Module 19: Objects

Basic Objects, Object Inheritance

Module 20: Java in PL/SQL