

This course provides instruction in the intermediate and advanced features of Oracle 11g PL/SQL procedural language for SQL. Students will cover how to control data sharing and locking, debug and use error reporting procedures using Oracle-supplied packages, and develop database triggers, stored procedures and functions for future reuse.

Prerequisites: Oracle 11g SQL Basics & SQL*Plus or equivalent experience, and Oracle 11g PL/SQL Introduction 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: Review of Introduction to PL/SQL

- Features and Benefits of PL/SQL
- Relationship of PL/SQL to SQL
- PL/SQL Development Tools
- Native Compilation
- PL/SQL System/Session Params
- PL/SQL Anonymous Block
 - Variable Declarations
- PL/SQL Types and Records
- Declaring Variable Datatypes
 - Dynamically
- Modifying Database Data (DML)
- Transaction Control Statements
- Declaring Explicit Cursors
- Implicit Cursor Attributes
- Exception Handling
- Creating Procedures, Functions,
 - Packages and DML Triggers
- Debugging with SQL Developer
- Conditional Compilation
- Warnings

Module 2: Advanced Cursors

- Cursor Parameters
- Parameter Defaults
- 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 3: Advanced Packages

- Initializing Variables
- Module Overloading
- Recursion
- Purity Levels
- Using the "Persistent State" to Advantage
- One Time Only Procedures
- Forward Declarations
- Using Persistent State
- Code Encapsulation
- Constant and Exception Standardization

Module 4: Advanced Triggers

- Trigger Limitations
- Mutating and Constraining Tables
- Using CALL and Client Triggers
- DDL/SERVERERROR Triggers
- LOGON/LOGOFF, SUSPEND, STARTUP/SHUTDOWN Triggers
- Schema vs. Database Triggers
- Using Alternative Events and Levels
- INSTEAD OF Triggers on Views

Module 5: PL/SQL Composite Datatypes and Collections

- PL/SQL Records
- Associative Arrays (INDEX BY)
- Nested Tables
- VARRAYS
- Built-in Type Methods
- Arrays of Composite Types
- Using PL/SQL Record Variables
- PL/SQL Collections

Module 6: Bulk-Bind Data Loading Using PL/SQL

- Defining Bulk Binds
- BULK COLLECT/FORALL
- Error Handling with Bulk Binds - SAVE EXCEPTIONS

Module 7: Using Oracle-Supplied Packages

- DBMS_OUTPUT Packages
- UTL_FILE Package (File I/O)
- DBMS_ALERT Package
- DBMS_PIPE Package
- DBMS_JOB Package
- DBMS_SCHEDULER Package
- DBMS_STATS Package
- DBMS_UTILITY Package
- UTL_SMTP Package
- UTL_MAIL Package
- DBMS_SQL Package

Module 8: Writing Native Dynamic SQL

- EXECUTE IMMEDIATE
- Benefits of NDS

Module 9: PL/SQL Wrapper

- PL/SQL Wrapper (Source Code Encryption)

Module 10: Understanding

Dependencies

- Defining Dependencies
- Local vs. Remote
- Viewing Dependencies
- Effect of Breaking Dependency Chain

Module 11: Large Object Management in PL/SQL

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

Module 12: Objects

- Basic Objects
- Object Inheritance

Module 13: Java

- Java in PL/SQL
- Sample Encapsulation