



- COURSE CODE:** ORAPSW
- COURSE TITLE:** PL/SQL Application Programming Workshop
- CURRENCY:** 10g & 11g
- AUDIENCE:** PL/SQL developers, DW ETL developers, DBAs and production DBAs.
- PREREQUISITES:** Six months of SQL experience or its equivalent.
- DURATION:** 4 days
- SUMMARY:** This beginners PL/SQL application programming workshop focuses on PL/SQL definitions, semantics, constructs, etc. The training goals and objectives are mainly realised through extensive use of real-world examples, exercises and hands-on computer-based labs.
- OBJECTIVES:** Upon completion of this course, the participant should be competent to code PL/SQL applications incorporating PL/SQL components and constructs shown under 'Core Topics'.

### 1. PL/SQL OVERVIEW

- Definition
- Object-orientation implementation
- Advantages and disadvantages
- Assumed knowledge
- Performance

### 2. PL/SQL LANGUAGE SEMANTICS & CONSTRUCTS

- Block structures
- Variables and constants
- Query processing
- Control structures
- Modules and sub-programs
- Abstract objects (e.g., collections, object types)
- Error and exception handlers
- Use of SQL\*Plus

### 3. PL/SQL LANGUAGE PROPERTIES & CONVENTIONS

- Character set
- Lexical elements (e.g., reserve words, comments)
- Declarations
- Defaults
- NULL/NOT NULL
- %TYPE and %ROWTYPE attributes
- Naming conventions
- Scoping
- Name resolution
- Assignments (e.g., to variables)
- Expressions and comparisons
- Built-in functions
- Data types

### 4. PL/SQL – THE BIG PICTURE

- Client-server architecture
- PL/SQL execution flow
- SQL\*Plus
- DBMS\_OUTPUT.LINE

### 5. HOW SQL INTEROPERATES WITH PL/SQL

- SELECT INTO ...
- DML within PL/SQL block
- PL/SQL block sequencing
- Savepoints
- Commit/rollback

### 6. CONDITIONAL CONSTRUCTS

- IF-THEN
- IF-THEN-ELSE
- ELSEIF
- Nested IF
- CASE statements
- NULLIF/COALESCE
- Loops
- EXIT WHEN
- GOTO

### 7. EXCEPTION & ERROR HANDLING

- Reason for
- Runtime vs. compile-time errors
- Built-in exceptions
- How exceptions are 'raised'/'propagated'

### 8. SQL WITH PL/SQL PROGRAMMING

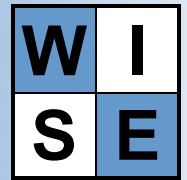
- Definition and concepts
- INSERT, UPDATE and DELETE of PL/SQL records
- FOR loops and cursors
- Subqueries
- REF CURSOR
- Transaction controls

### 9. PL/SQL SUBPROGRAMS

- Definition
- Advantages
- Subprogram types
- Procedures
- Functions
- Parameter passing
- Overloading
- Invoking

### 10. PL/SQL OBJECTS – AN INTRODUCTION

- Definition
- Advantages
- Structure
- Initialisation
- Attributes
- Constructors
- Methods
- Manipulating



### 11. INTRODUCTION TO PACKAGE CONCEPTS

- Definition
- Benefits
- Specifications
- Body
- How to call
- Private objects
- Variables and cursors

### 12. TRIGGERS

- Definition
- When to consider
- BEFORE/AFTER
- ROW/STATEMENT
- INSTEAD OF

### 13. PL/SQL DEBUGGING

- DBMS\_DEBUG
- ADP\_DEBUG
- How to debug a PL/SQL block
- How to start the 'debuggee'
- How to start the 'debugger'
- Breakpoints
- Executing the debugger
- 'Stepping' the debugger
- ADP package definition
- ADP debugger body
- XXX.SQL strings