

## Oracle® Database 10g: A Comprehensive Hands-On Introduction - 5 Days Developing Database Applications with SQL and PL/SQL

### *Course 593 Overview*

- You Will Learn How To**
- Build, query and manipulate Oracle 10g databases to create powerful applications
  - Retrieve and manipulate data efficiently using powerful SQL features
  - Create and manage database tables, views and sequences
  - Maintain data integrity and enforce security with privileges and roles
  - Compose reusable structured PL/SQL code with cursors and procedures
  - Enhance performance through indexes and PL/SQL optimisation

**Course Benefits** To efficiently handle today's business-critical information, organisations count on database systems that are reliable and scalable, and on experienced professionals to manage them. In this course, you gain the practical knowledge and skills required to leverage the Oracle Database 10g server. Hands-on exercises provide experience in applying relational database concepts, leveraging the SQL language and programming with PL/SQL.

**Who Should Attend** Those interested in Oracle 10g. Relational database experience and familiarity with basic programming concepts are useful. Oracle experience is not required.

**Hands-On Training** Exercises provide experience creating robust and powerful applications with Oracle 10g, including:

- Creating tables, views and sequences
- Producing queries using joins, set operators, groupings and subqueries
- Merging large datasets and inserting across multiple tables
- Imposing business rules with declarative constraints
- Enforcing security with roles
- Enhancing performance with indexes
- Controlling logic and handling exceptions
- Building PL/SQL procedures, triggers and packages

# Oracle® Database 10g: A Comprehensive Hands-On Introduction - 5 Days

## Developing Database Applications with SQL and PL/SQL

Course 593 Outline

### Oracle 10g Technology Overview

- Relational database concepts
- Logical data modelling
- Specifying attributes, entities, relationships and candidate keys
- Installation, configuration and architecture
- Defining SGA, processes and database files

### Retrieving and Controlling Data

#### Working with SQL\*Plus and iSQL\*Plus

- Configuring environment settings
- Defining connections using login.sql
- Implementing case-insensitive queries

#### Assessing SQL fundamentals

- Selecting, filtering and ordering results
- Avoiding pitfalls in null values
- Pattern matching with regular expressions
- Combining result sets with set operators

#### Exploiting SQL techniques

- Oracle joins vs. ANSI joins
- Outer joins and self joins
- Grouping and aggregating data
- Simple and correlated subqueries
- Comparing CASE and DECODE functions

#### Manipulating data

- Streamlining DML with MERGE
- Locking data and managing transactions

### Designing and Formulating the Database

#### Applying the physical design

- Mapping logical model to physical design
- Establishing a storage framework
- Creating users and schemas
- Defining LOB and TIMESTAMP data

#### Constructing and managing tables

- Building tables with CREATE TABLE
- Altering and dropping tables
- Restoring data with Flashback
- Accessing OS files with external tables
- Leveraging the data dictionary

#### Developing views and sequences

- Assembling views to filter data
- Generating unique IDs using sequences

#### Maintaining integrity

- Determining referential integrity

- Imposing business rules with CHECK constraints
- Handling data with deferred and enforced constraints

### Optimising Server Programming

#### Invoking PL/SQL fundamentals

- Declaring variables and constants
- Defining stored procedures and functions
- Writing structured code with %TYPE and %ROWTYPE

#### Establishing program control

- IF...THEN...ELSE vs. CASE statements
- Creating WHILE LOOPS and FOR LOOPS
- Error handling with predefined exceptions

#### Operating with cursor types

- Controlling implicit and explicit cursors
- Passing parameters to cursors
- Simplifying cursors with FOR LOOPS
- Improving performance with ROWID
- Handling concurrency with FOR UPDATE

### Implementing Development Techniques

#### Assembling triggers

- Distinguishing statement and row triggers
- Regulating triggers with predicates
- Building triggers to validate, derive and audit data

#### Constructing procedures and packages

- Choosing best parameter types
- Creating and administering packages
- Advantages of employing packages
- Debugging programs with DBMS\_OUTPUT

### Advancing Security and Performance

#### Enforcing security

- Verifying with password aging
- Classifying system and object privileges
- Controlling access with roles
- Accessing schemas via synonyms

#### Enriching performance

- Guidelines for defining optimal indexes
- Creating unique, non-unique and composite indexes
- Monitoring index usage