

## **ORA300 - Oracle8i SQL and PL/SQL**

*Understanding and interacting with Oracle8i relational databases*

Hands-on **5 day course**

### **Course Description**

This course covers all the essential concepts of relational databases. Develop skills necessary to effectively interact with an Oracle8i database. Participants will develop procedural constructs using PL/SQL. Topics in this course: SQL, SQL\*Plus, control statement processing, loop constructs and advanced query techniques. Exercises and lab sessions reinforce the learning objectives and provide participants the opportunity to gain practical hands-on experience.

### **You Learn to...**

- Define and Model an Oracle Relational Database
- Design and Create Database Structures
- Store, Retrieve and Manipulate Data
- Display and Format Data
- Group and Summarize Query Output
- Control Transaction Processing
- Create Query Scripts and Formatted Reports
- Apply Business Rules and Data Integrity Constraints
- Secure Objects and User Access
- Utilize Character and Numeric Functions
- Display Data from Multiple Tables
- Develop Procedural Applications
- Define Variables and Pass Values Between Applications
- Debug PL/SQL Code

### **Who Needs to Attend**

- End Users
- Support Staff
- Developers
- Analysts
- Administrators who are or will be working in an Oracle environment.

### **Prerequisites:**

An understanding of computers is essential

None

### **Follow-On Courses**

SQL Tuning Techniques, PL/SQL Develop Database Objects, Oracle8i Database Administration, Oracle Developer: Forms I



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## **Course Content:**

### **1. Understand Relational Databases**

- Relational Database Concepts
- Relational Terminology
- Oracle Relational Database Management System
- SQL, SQL\*Plus, and PL/SQL

### **2. Query Fundamentals**

- Using SQL\*Plus
- SELECT Command
- SELECT DISTINCT
- Display Tables Structures
- SQL/SQL\*Plus Command Summary

### **3. Conditions, Expressions and Operators**

- The WHERE Clause
- Comparison Operators
- SQL/Logical/Negating Operators

### **4. Single Row Functions**

- The Concatenation Operator
- Literal Character String
- Managing Null Values
- Character/Number Functions
- Using Arithmetic Operators with Dates
- Date/Nesting Functions
- Conversion Functions
- TO\_CHAR Function
- TO\_NUMBER Function
- TO\_DATE Functions

### **5. Group Functions**

- GROUP Function
- GROUP BY Clause
- The Where Clause
- The HAVING Clause

### **6. Manage and Format Output**

- The ORDER BY Clause
- BREAK/COMPUTE Command
- Configure the Session Environment
- Add Titles

- Calculate Totals
- Creating Simple Reports

### **7. Manage Script Files**

- Create/Execute Script Files
- Edit Script Files using SQL\*Plus Editing Commands
- Call an External Editor
- SPOOL Output
- Interact with the Operating System

### **8. Subqueries**

- Processing Subqueries
- Single Row Subqueries
- Errors with Subqueries
- Multiple Row Subqueries
- HAVING Clause Subquery

### **9. Working with Multiple Tables**

- Join Types
- Simple Join Query
- Using Table Aliases
- Non-Equijoin
- Cartesian Product
- Returning Records with No Direct Match
- Joining a Table to Itself
- Recursive Join
- Set Operators

### **10. Customize Queries Using Variables**

- Substitution Variables
- Single Ampersand Substitution Variables
- Defining User Variables
- Passing Values into Script Files
- Accept Session Variables

### **11. Oracle Data Dictionary**

- Data Dictionary Views
- Display Dictionary Views



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## 12. Creating Tables

- CREATE TABLE Command
- Object and Column Names
- Data Types
- Create Tables with Constraints
- Create Tables using a Subquery
- Oracle Data Dictionary Views

## 13. Manage Tables and Constraints

- ALTER TABLE Command
- DROP TABLE Command
- RENAME TABLE Command
- TRUNCATE TABLE Command
- COMMENT Command
- Oracle Data Dictionary Views

## 14. Manipulate Table Data

- UPDATE Command
- INSERT/DELETE Command
- COMMIT/ROLLBACK Command
- SAVEPOINT Command

## 15. Create and Manage Views

- CREATE VIEW Command
- CREATE VIEW with Aliases
- CREATE VIEW from Multiple Tables
- WITH CHECK OPTION
- WITH READ ONLY
- DESCRIBE VIEW

## 16. Create and Manage Indexes

- Index Types
- B\*-Tree Index
- Bitmap Index
- CREATE INDEX Command
- ALTER INDEX Command
- DROP INDEX Command

## 17. Creating and Manage Sequences

- CREATE SEQUENCE Command
- Reference Sequence Numbers
- ALTER/DROP SEQUENCE Command

## 18. Creating Synonyms

- CREATE/DROP SYNONYM Command
- DESCRIBE Command

## 19. Manage Security

- CREATE/ALTER USER Command
- Oracle Data Dictionary Views
- DROP USER Command
- System/Object Privileges
- GRANT/REVOKE Command
- CREATE ROLE Command

## 20. PL/SQL Overview

- What is PL/SQL?
- PL/SQL Block Structure
- Benefits of PL/SQL
- Declaration Section
- Executable Section
- Exception Section

## 21. Declare and Manage Variables

- Declare Variables
- Variable Data Types
- %TYPE
- %ROWTYPE
- Declare a PL/SQL Table
- Declare a PL/SQL Record
- Variable Assignments
- PL/SQL Coding Rules

## 22. Create PL/SQL Transactions

- SELECT INTO Command/Errors
- INSERT/UPDATE /DELETE Command
- Display Messages
- DBMS\_OUTPUT.PUT\_LINE
- SQL CURSOR Attributes

## 23. If Statements and Loops

- IF/IF-THEN-ELSE Command
- Combine/NULL Conditions
- LOOP/LABEL Command
- Basic Loop
- WHILE/FOR Loop



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## **24. Process Errors**

- Exception Types
- RAISE\_APPLICATION\_ERROR

## **25. PL/SQL Cursors**

- Cursor Processing Statements
- DECLARE/OPEN/CLOSE the Cursor
- FETCH from the Cursor
- PL/SQL Explicit Cursor Attributes
- Cursor FOR Loop
- Open Cursors using Parameters
- Applying the WHERE CURRENT OF Clause



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