

## Oracle 11g Foundations: SQL & SQL\*Plus (5 Days)

*Develop the skills to effectively interact with an Oracle 11g Database using Oracle SQL.*

### Course Description:

You will receive a hands-on introduction to SQL Basics and SQL\*Plus including a basic knowledge of relational databases and how to access them through SQL and SQL\*Plus. Topics necessary to the development and administration of an Oracle 11g database are covered.

### You will be able to ...

- Converse in relational database terminology
- Understand Structured Query Language basics
- Format reports using SQL\*Plus commands
- Extract and organize information from the database
- Insert, update & delete information in database tables
- Create and drop tables, views, synonyms and indexes

### Who Needs to Attend:

Application Designers, Developers, & Database Administrators

### Prerequisites:

An understanding of relational database design concepts

## Course Content:

### Database Management System Overview

- What is a Database?
- Types of DBMSs

### Introduction to Entity Relationship Modeling

- What is a Data Model?
- Why Use an Entity Relationship Model?
- Input and Components of an Entity Relationship Model
- Reading the Entity Relationship Model
- Guidelines for a Model Review

### Fundamentals of Relational Database Management Systems

- What is an RDBMS?
- History of SQL
- Physical Data Storage
- Relationships between Tables
- Domains - Data Integrity Constraint

## **SQL Basics and SQL\*Plus**

- Understanding the Difference Between SQL, SQL\*Plus and PL/SQL
- Invoking and Leaving SQL\*Plus
- Entering and Executing Commands
- The SQL Buffer, SQL\*Plus Default Output
- LOGIN.SQL
- The SELECT Command & Mandatory Clauses

## **Using SQL Developer**

### **Using iSQLPlus**

- Understanding the iSQL\*Plus Environment and Commands

### **The WHERE and ORDER BY Clause**

- WHERE, ORDER BY Clause
- Using the Data Dictionary
- Hierarchical Queries

### **Single Row Functions**

- Single Row vs. Group Functions
- Date and Numeric Format Models
- Data Conversion
- Control Statements
- Regular Expressions

### **Joining Data from Multiple Tables in Queries**

- The JOIN Condition / The Cartesian Product
- Outer JOINS
- SET Operators
- ANSI SQL99 Joins

### **Group Functions and the GROUP BY Clause**

- Group Functions
- Distinct Operator in Group Functions
- GROUP BY, WITH Clause, ROLLUP, CUBE
- GROUPING SETS

### ***Using Subqueries and CASE Clauses***

- Single-Row, Multi-Row, Multi-Column Subqueries
- Subqueries in a WHERE Clause
- Subqueries in the FROM Clause – In-Line Views
- Subqueries In the SELECT Clause – Scalar Subqueries
- Correlated Subqueries
- CASE Clause

### **Analytic Functions (Optional)**

- Single Row Analytic Functions
- Aggregating Analytic Functions

## **SQL\*Plus Reporting**

- SQL\*Plus Report Writing Commands
- COLUMN Command / Titles, System Variables
- Master-Detail Report with TITLE and COLUMN Commands
- Control Breaks, Computing Aggregate Amounts
- Using SET Variables in SQL\*Plus, SQL to Generate SQL

## **Data Manipulation Language (DML) Commands**

- INSERT, UPDATE, DELETE, MERGE Command
- Use of Subqueries
- Transaction Control Commands / Read Consistency / Locking
- The MERGE Command
- Flashback Queries

## **Data Definition Language (DDL) Commands**

- DDL Commands, Object Naming, Dropping Objects
- TRUNCATE, COMMENT, RENAME Command
- Creating Tables / Integrity Constraints
- CREATE TABLE, ALTER TABLE Command
- Datatypes, Types of Declarative Constraints
- Default Values
- Creating, Deferrable, Dropping, Disabling/Enabling Constraints / Displaying Constraint Information
- Handling Exceptions
- Views, Synonyms, Sequences, Indexes
- Temporary Tables, External Tables

## **Security**

- Users, Privileges, Roles, Changing Passwords

## **Getting Data In And Out Of Oracle**

- SQL\*Loader Basics
- Importing Oracle Data Into Excel
- Direct Database Queries Using ODBC

## **Course Labs:**

Lab 1: Entity Identification

Lab 2: Identifying / Resolving Relationships

Lab 3: Data Normalization

Lab 4: RDBMS Principles

Lab 5: Basic Database Design

Lab 6: Basic Data Definition Language

Lab 7: Creating Tables And Constraints

Lab 8: Creating Views

Lab 9: Data Manipulation

Lab 10: SQL Queries

Lab 11: Filtering And Sorting Data

Lab 12: Single Row Functions

Lab 13: Joining Multiple Tables

Lab 14: Set Operations

Lab 15: Subqueries

Lab 16: Grouping And Group Functions

Lab 17: Advanced Data Analysis

Lab 18: SQL\*Plus Reporting

Lab 19: Advanced DDL

Lab 20: Advanced DML

Lab 21: Privileges And Roles

