

ORACLE 11g Foundation SQL and SQL Plus

Duration: 5 days

Description

This is 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. The student will discover how 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

Audience

Application Designers, Developers, & Database Administrators

Prerequisites

An understanding of relational database design concepts

Topics

IN THE BEGINNING...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

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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

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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