Oracle Database 10g: SQL: Fundamental I (D17108GC11)

Duration: 3 Days Course Code: O10GF1

Overview:

This course offers you an introduction to Oracle Database 10g database technology. In this class, you learn the basic concepts of relational databases and the powerful SQL programming language. This course provides the essential SQL skills that enable you to write queries against single and multiple tables, manipulate data in tables, create database objects, and query metadata.

After completing this course, you will be able to do the following:

1. Identify the major structural components of Oracle Database 10g
2.Retrieve row and column data from tables with the SELECT statement
3.Create reports of sorted and restricted data
4.Employ SQL functions to generate and retrieve customized data
5.Run data manipulation language (DML) statements to update data in Oracle Database 10g
6.Obtain metadata by querying the dictionary views

Target Audience:

1. Database Administrators
2. Portal Developer
3. Business Intelligence Developer
4. Database Designers
5. Forms Developer
6. PL/SQL Developer
7. Technical Consultant

Content:

Introduction

- Lesson Objective
- Goals of the Course
- Oracle10g
- Oracle Database 10g
- Oracle Application Server 10g
- Oracle Enterprise Manager 10g Grid Control
- Relational and Object Relational Database Management Systems
- Oracle Internet Platform
- System Development Life Cycle
- Data Storage on Different Media
- Relational Database Concept
- Definition of a Relational Database
- Data Models
- Entity Relationship Model
- Entity Relationship Modeling Conventions
- Relating Multiple Tables
- Relational Database Terminology
- Relational Database Properties
- Communicating with an RDBMS Using SQL
- Oracle's Relational Database Management System
- SQL Statements
- Tables Used in the Course I

1 Retrieving Data Using the SQL SELECT Statement

- Capabilities of SQL SELECT Statements
- Basic SELECT Statement
- Selecting All Columns
- Selecting Specific Columns
- Writing SQL Statements
- Column Heading Defaults
- Arithmetic Expressions
- Using Arithmetic Operators
- Operator Precedence
- Defining a Null Value
- Null Values in Arithmetic Expressions
- Defining a Column Alias
- Using Column Aliases
- Concatenation Operator
- Literal Character Strings
- Using Literal Character Strings
- Alternative Quote (q) Operator
- Duplicate Rows
- SQL and iSQL*Plus Interaction
- SQL Statements Versus iSQL*Plus Commands
- Overview of iSQL*Plus
- Logging In to iSQL*Plus
- iSQL*Plus Environment
- Displaying Table Structure
- Interacting with Script Files
- iSQL*Plus History Page
- Setting iSQL*Plus Preferences
- Setting the Output Location Preference

2 Restricting and Sorting Data

- Limiting Rows Using a Selection
- Limiting the Rows That Are Selected

4 Reporting Aggregated Data Using the Group Functions

- What Are Group Functions?
- Types of Group Functions
- Group Functions: Syntax
- Using the AVG and SUM Functions
- Using the MIN and MAX Functions
- Using the COUNT Function
- Using the DISTINCT Keyword
- Group Functions and Null Values
- Creating Groups of Data
- Creating Groups of Data: GROUP BY Clause Syntax
- Using the GROUP BY Clause
- Grouping by More Than One Column
- Using the GROUP BY Clause on Multiple Columns
- Illegal Queries Using Group Functions
- Restricting Group Results
- Restricting Group Results with the HAVING Clause
- Using the HAVING Clause
- Nesting Group Functions

5 Displaying Data from Multiple Tables

- Obtaining Data from Multiple Tables
- Types of Joins 5-4
- Joining Tables Using SQL:1999 Syntax
- Creating Natural Joins
- Retrieving Records with Natural Joins
- Creating Joins with the USING Clause
- Joining Column Names
- Retrieving Records with the USING Clause
- Qualifying Ambiguous Column Names
- Using Table Aliases
- Creating Joins with the ON Clause
- Retrieving Records with the ON Clause
- Self-Joins Using the ON Clause
- Applying Additional Conditions to a Join
- Creating Three-Way Joins with the ON Clause
- Non-Equijoins
- Retrieving Records with Non-Equijoins
- Outer Joins
- INNER Versus OUTER Joins
- LEFT OUTER JOIN
- RIGHT OUTER JOIN
- FULL OUTER JOIN
- Cartesian Products
- Generating a Cartesian Product
- Creating Cross Joins

6 Using Subqueries to Solve Queries

- Using a Subquery to Solve a Problem
- Subquery Syntax
- Using a Subquery
- Guidelines for Using Subqueries
- Types of Subqueries
- Single-Row Subqueries
- Executing Single-Row Subqueries

8 Manipulating Data

- Data Manipulation Language
- Adding a New Row to a Table
- INSERT Statement Syntax
- Inserting New Rows
- Inserting Rows with Null Values
- Inserting Special Values
- Inserting Specific Date Values
- Creating a Script
- Copying Rows from Another Table
- Changing Data in a Table
- UPDATE Statement Syntax
- Updating Rows in a Table
- Updating Two Columns with a Subquery
- Updating Rows Based on Another Table
- Removing a Row from a Table
- DELETE Statement
- Deleting Rows from a Table
- Deleting Rows Based on Another Table
- TRUNCATE Statement
- Using a Subquery in an INSERT Statement
- Database Transactions
- Advantages of COMMIT and ROLLBACK Statements
- Controlling Transactions
- Rolling Back Changes to a Marker
- Implicit Transaction Processing
- State of the Data Before COMMIT or ROLLBACK
- State of the Data After COMMIT
- Committing Data
- State of the Data After ROLLBACK
- Statement-Level Rollback
- Read Consistency
- Implementation of Read Consistency

9 Using DDL Statements to Create and Manage Tables

- Objectives
- Database Objects
- Naming Rules
- CREATE TABLE Statement
- Referencing Another User's Tables
- DEFAULT Option
- Creating Tables
- Data Types
- Datetime Data Types
- INTERVAL DAY TO SECOND Data Type
- Including Constraints
- Constraint Guidelines
- Defining Constraints
- NOT NULL Constraint
- UNIQUE Constraint
- PRIMARY KEY Constraint
- FOREIGN KEY Constraint
- FOREIGN KEY Constraint: Keywords
- CHECK Constraint
- CREATE TABLE: Example
- Violating Constraints
- Creating a Table by Using a Subquery
- ALTER TABLE Statement

- Using the WHERE Clause
- Character Strings and Dates
- Comparison Conditions
- Using Comparison Conditions
- Using the BETWEEN Condition
- Using the IN Condition
- Using the LIKE Condition
- Using the NULL Conditions
- Logical Conditions
- Using the AND Operator
- Using the OR Operator
- Using the NOT Operator
- Rules of Precedence
- Using the ORDER BY Clause
- Sorting
- Substitution Variables
- Using the ; Substitution Variable
- Character and Date Values with Substitution Variables
- Specifying Column Names, Expressions, and Text
- Using the ;; Substitution Variable
- Using the iSQL*Plus DEFINE Command
- Using the VERIFY Command

3 Using Single-Row Functions to Customize Output

- SQL Functions
- Two Types of SQL Functions
- Single-Row Functions
- Character Functions
- Case-Manipulation Functions
- Using Case-Manipulation Functions
- Character-Manipulation Functions
- Using the Character-Manipulation Functions
- Number Functions
- Using the ROUND Function
- Using the TRUNC Function
- Using the MOD Function
- Working with Dates
- Arithmetic with Dates
- Using Arithmetic Operators with Dates
- Date Functions
- Using Date Functions
- Practice 3: Overview of Part 1
- Conversion Functions
- Implicit Data Type Conversion
- Explicit Data Type Conversion
- Using the TO_CHAR Function with Dates
- Elements of the Date Format Model
- Using the TO_CHAR Function with Dates
- Using the TO_CHAR Function with Numbers
- Using the TO_NUMBER and TO_DATE Functions
- RR Date Format
- Example of RR Date Format
- Nesting Functions
- General Functions
- NVL Function
- Using the NVL Function
- Using the NVL2 Function
- Using the NULLIF Function
- Using the COALESCE Function
- Conditional Expressions
- CASE Expression
- Using Group Functions in a Subquery
- The HAVING Clause with Subqueries
- What Is Wrong with This Statement?
- Will This Statement Return Rows?
- Multiple-Row Subqueries
- Using the ANY Operator in Multiple-Row Subqueries
- Using the ALL Operator in Multiple-Row Subqueries
- Null Values in a Subquery

7 Using the Set Operators

- Set Operators
- Tables Used in This Lesson
- UNION Operator
- Using the UNION Operator
- UNION ALL Operator
- Using the UNION ALL Operator
- INTERSECT Operator
- Using the INTERSECT Operator
- MINUS Operator
- Set Operator Guidelines
- The Oracle Server and Set Operators
- Matching the Statements
- Matching the Statement: Example
- Controlling the Order of Rows
- Dropping a Table

10 Creating Other Schema Objects

- Objectives
- Database Objects
- What Is a View?
- Advantages of Views
- Simple Views and Complex Views
- Creating a View
- Retrieving Data from a View
- Modifying a View
- Creating a Complex View
- Rules for Performing DML Operations on a View
- Using the WITH CHECK OPTION Clause
- Denying DML Operations
- Removing a View
- Practice 10: Overview of Part
- Sequences
- CREATE SEQUENCE Statement: Syntax
- Creating a Sequence
- NEXTVAL and CURRVAL Pseudocolumns
- Using a Sequence
- Caching Sequence Values
- Modifying a Sequence
- Guidelines for Modifying a Sequence
- Indexes
- How Are Indexes Created?
- Creating an Index 10-34
- Index Creation Guidelines
- Removing an Index
- Synonyms
- Creating and Removing Synonyms

11 Managing Objects with Data Dictionary Views

- Objectives
- The Data Dictionary
- Data Dictionary Structure
- How to Use the Dictionary Views
- USER_OBJECTS View
- Table Information
- Column Information
- Constraint Information
- View Information
- Sequence Information
- Synonym Information
- Adding Comments to a Table

- Using the CASE Expression
- DECODE Function
- Using the DECODE Function

Further Information:

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