
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
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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
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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

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- 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
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- Using a Subquery
- Guidelines for Using Subqueries
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- Executing Single-Row Subqueries

8 Manipulating Data

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- INSERT Statement Syntax
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- Inserting Special Values
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- Changing Data in a Table
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- Updating Two Columns with a Subquery
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- Deleting Rows Based on Another Table
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- 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
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- Statement-Level Rollback
- Read Consistency
- Implementation of Read Consistency

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- Datetime Data Types
- INTERVAL DAY TO SECOND Data Type
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- Constraint Guidelines
- Defining Constraints
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- CHECK Constraint
- CREATE TABLE: Example
- Violating Constraints
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- Using the UNION ALL Operator
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- Using the INTERSECT Operator
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- The Oracle Server and Set Operators
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- Matching the Statement: Example
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10 Creating Other Schema Objects

- Objectives
- Database Objects
- What Is a View?
- Advantages of Views
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- Modifying a View
- Creating a Complex View
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- Creating and Removing Synonyms

11 Managing Objects with Data Dictionary Views

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- 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
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Further Information:

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