



Course Content :

## Oracle Database 10g SQL Expert

### Introduction

- List the Oracle Database 10g Main Features
- An Overview of: components, internet platform, apps server and developer suite
- Describe Relational and Object Relational Database Designs
- Review the System Development Life Cycle
- Define the term Data Models
- Describe different means of Sorting Data
- Show how Multiple Tables can be related
- Describe how SQL Communicates to the Database
- Writing SQL SELECT Statements
- Define projection, selection, and join terminology
- Review the basic SQL SELECT statement syntax
- Select all columns using a wildcard notation from a table
- State simple rules and guidelines for writing SQL statements
- Write a query containing the arithmetic operators
- Create a character expression with the concatenation operator
- Using the iSQL\*Plus Environment
- SQL statements versus iSQL\*Plus commands

### Restricting and Sorting Data

- Limit rows using a selection
- Using the WHERE clause to retrieve specific rows
- Using the comparison conditions in the WHERE clause
- Use the LIKE condition to compare literal values
- List the logical conditions AND, OR, NOT
- Describe the rules of precedence for the conditions
- Sort rows with the ORDER BY clause
- Use ampersand substitution in iSQL\*Plus to restrict and sort output at run time

### Using Single-Row Functions to Customize Output

- Show the differences between single row and multiple row SQL functions
- Categorize the character functions into case manipulation and character manipulation types
- Use the character manipulation functions in the SELECT and WHERE clauses
- Explain and use the DATE and numeric functions
- Use the SYSDATE function to retrieve the current date in the default format
- Introduce the DUAL table as a means to view function results
- List the rules for applying the arithmetic operators on dates
- Use the arithmetic operators with dates in the SELECT clause

### Reporting Aggregated Data Using the Group Functions

- Describe and categorize the group functions
- Use the group functions
- Utilize the DISTINCT keyword with the group functions
- Describe how nulls are handled with the group functions
- Create groups of data with the GROUP BY clause

- Group data by more than one column
- Avoid illegal queries with the group functions
- Exclude groups of data with the HAVING clause

## **Displaying Data From Multiple Tables**

- Identify Types of Joins
- Retrieve Records with Natural Joins
- Use Table Aliases to write shorter code and explicitly identify columns from multiple tables
- Create a Join with the USING clause to identify specific columns between tables
- Use the ON clause to specify arbitrary conditions or specify columns to Join
- Create a Three-way join with the ON clause to retrieve information from 3 tables
- List the Types of Outer Joins LEFT, RIGHT, and FULL
- Generating a Cartesian Product

## **Using Sub Queries to solve Queries**

- List the syntax for sub queries in a SELECT statements WHERE clause
- List the guidelines for using sub queries
- Describe the types of sub queries
- Execute single row sub queries and use the group functions in a sub query
- Identify illegal statements with sub queries
- Execute multiple row sub queries
- Analyze how the ANY and ALL operators work in multiple row sub queries

## **Using the SET Operators**

- Use the UNION operator to return all rows from multiple tables and eliminate any duplicate rows
- Use the UNION ALL operator to return all rows from multiple tables
- Describe the INTERSECT operator
- Use the INTERSECT operator
- Explain the MINUS operator
- Use the MINUS operator
- List the SET operator guidelines
- Order results when using the UNION operator

## **Manipulating Data**

- Write INSERT statements to add rows to a table
- Copy rows from another table
- Create UPDATE statements to change data in a table
- Generate DELETE statements to remove rows from a table
- Use a script to manipulate data
- Save and discard changes to a table through transaction processing
- Show how read consistency works
- Describe the TRUNCATE statement

## **Using DDL Statement to create and Manage Tables**

- List the main database objects and describe the naming rules for database objects
- Introduce the schema concept
- Display the basic syntax for creating a table and show the DEFAULT option
- Explain the different types of constraints
- Show resulting exceptions when constraints are violated with DML statements
- Create a table with a sub query
- Describe the ALTER TABLE functionality
- Remove a table with the DROP statement and Rename a table

## **Creating the Schema Objects**

Categorize simple and complex views and compare them

Create a view

Retrieve data from a view

Explain a read-only view

List the rules for performing DML on complex views

Create a sequence

List the basic rules for when to create and not create an index

Create a synonym

## **Managing Objects with Data Dictionary Views**

Describe the structure of each of the dictionary views

List the purpose of each of the dictionary views

Write queries that retrieve information from the dictionary views on the schema objects

Use the COMMENT command to document objects

## **Controlling User Access**

Controlling User Access

System versus Objects Privileges

Using Roles to define user groups

Changing Your Password

Granting Object Privileges

Confirming Privileges Granted

Revoking Object Privileges

Using Database Links

## **Manage Schema Objects**

Using the ALTER TABLE statement

Adding a Column

Modifying a Column

Dropping a Column, Set Column UNUSED

Adding, Enabling and Disabling Constraints

Creating Function-Based Indexes

Performing FLASHBACK operations

External Tables

## **Manipulating Large Data Sets**

Using the MERGE Statement

Performing DML with Sub queries

Performing DML with a RETURNING Clause

Overview of Multi-table INSERT Statements

Tracking Changes in DML

## **Generating Reports by Grouping Related Data**

Overview of GROUP BY Clause

Overview of Having Clause

Aggregating data with ROLLUP and CUBE Operators

Determine subtotal groups using GROUPING Functions

Compute multiple groupings with GROUPING SETS

Define levels of aggregation with Composite Columns

Create combinations with Concatenated Groupings

## **Managing Data From Different Time Zone**

Time Zones

Using date and time functions

Identifying TIMESTAMP Data Types

Differentiating between DATE and TIMESTAMP

Performing Conversion Operations

## **Hierarchical Retrieval**

Sample Data from the EMPLOYEES Table

The Tree Structure of Employee data

Hierarchical Queries

Ranking Rows with LEVEL

Formatting Hierarchical Reports Using LEVEL and LPAD

Pruning Branches with the WHERE and CONNECT BY clauses

## **Regular Expression Support**

Regular Expression Support Overview

Describing simple and complex patterns for searching and manipulating data

## **Searching Data Using Advanced Sub Queries**

Sub query Overview

Using a Sub query

Comparing several columns using Multiple-Column Sub queries

Defining a Data source Using a Sub query in the FROM Clause

Returning one Value using Scalar Sub query Expressions

Performing ROW by-row processing with Correlated Sub queries

Reusing query blocks using the WITH Clause



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