

Oracle Database 23ai: SQL Workshop

Duration: 4 Days

Course Outlines:

1 Introduction

- Objectives
- Overview of Oracle Database 23c and Related Products
- Overview of Relational Database Management Concepts and Terminologies
- Human Resources (HR) Schema and the Tables Used in This Course
- Introduction to SQL and Its Development Environments
- Oracle Database 23c SQL Documentation and Additional Resources

2 Retrieving Data Using the SQL SELECT Statement

- Course Roadmap
- Objectives
- Capabilities of SQL SELECT Statements
- Arithmetic Expressions and NULL Values in the SELECT statement
- Column Aliases
- Use of the Concatenation Operator, Literal Character Strings, Alternative Quote Operator, and the DISTINCT Keyword
- DESCRIBE Command

3 Restricting and Sorting Data

- Course Roadmap
- Objectives
- Limiting Rows
- Rules of Precedence for Operators in an Expression
- Sorting Rows Using the ORDER BY Clause
- SQL Row Limiting Clause in a Query
- Substitution Variables in Oracle

4 Using Single-Row Functions to Customize Output

- Course Roadmap
- Objectives
- HR Application Scenario
- Single-Row SQL Functions
- Character Functions
- Nesting Functions
- Number Functions
- Working with Dates in Oracle Databases
- Date Functions

5 Using Conversion Functions and Conditional Expressions

- Course Roadmap
- Objectives
- Implicit and Explicit Data Type Conversion
- Conversion Functions
- General Functions
- Conditional Expressions
- JSON Functions

6 Reporting Aggregated Data Using the Group Functions

- Course Roadmap
- Objectives
- Group Functions
- Grouping Rows
- Nesting Group Functions

7 Displaying Data from Multiple Tables Using Joins

- Course Roadmap
- Objectives
- Types of Joins and Their Syntax
- Natural Join
- Join with the USING Clause
- Join with the ON Clause
- Creating Three-Way Joins
- Self-Join
- Nonequijoins
- Outer Join
- Cartesian Product

8 Using Subqueries to Solve Queries

- Course Roadmap
- Objectives
- Subquery: Types, Syntax, and Guidelines
- Single-Row Subqueries
- Multiple-Row Subqueries
- Multiple-Column Subqueries
- Null Values in a Subquery

9 Using Set Operators

- Course Roadmap
- Objectives
- Set Operators: Types and Guidelines
- Tables Used in This Lesson
- UNION and UNION ALL Operators
- INTERSECT Operator
- MINUS Operator
- Matching SELECT Statements
- Using the ORDER BY Clause in Set Operations

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(+632) 8863-2123
www.trendssacademy.com.ph

COURSE OUTLINE

10 Managing Tables Using DML Statements

- Course Roadmap
- Objectives
- HR Application Scenario
- Adding New Rows in a Table
- Changing Data in a Table
- Removing Rows from a Table
- Database Transaction Control
- Read Consistency
- Manual Data Locking

11 Introduction to Data Definition Language

- Course Roadmap
- Objectives
- HR Application Scenario
- Database Objects
- Creating a Table by Using a Subquery
- DROP TABLE Statement

12 Introduction to Data Dictionary Views

- Objectives
- Introduction to Data Dictionary
- Querying the Dictionary Views
- Adding a Comment to a Table and Querying the Dictionary Views

13 Creating Sequences, Synonyms, and Indexes

- Objectives
- Create, Maintain, and Use Sequences
- Create Private and Public Synonyms
- Synonyms
- Create and Maintain Indexes

14 Creating Views

- Objectives
- Overview of Views
- Creating, Modifying, and Retrieving Data from a View
- DML Operations on a View
- Dropping a View

15 Managing Schema Objects

- Objectives
- Manage Constraints
- Create and Use Temporary Tables
- Using Temporary Tables
- Temporary Table
- Temporary Table: Characteristics
- Creating a Global Temporary Table
- Creating a Private Temporary Table
- Creating and Using External Tables

16 Retrieving Data by Using Subqueries

- Objectives
- Retrieving Data by Using a Subquery as a Source
- Writing a Multiple-Column Subquery
- Using Scalar Subqueries in SQL
- Solving Problems with Correlated Subqueries
- Using the EXISTS and NOT EXISTS Operators
- Using the WITH Clause

17 Manipulating Data by Using Subqueries

- Objectives
- Using Subqueries to Manipulate Data
- Inserting Values by Using a Subquery as a Target

18 Controlling User Access

- Objectives
- Differentiating System Privileges from Object Privileges
- Creating a Role
- What is a Role?
- Creating and Granting Privileges to a Role
- Changing Your Password
- Object Privileges
- Revoking Object Privileges

19 Manipulating Data Using Advanced Queries

- Course Roadmap
- Objectives
- Specifying Explicit Default Values in INSERT and UPDATE Statements
- Multitable INSERTs
- Merging Rows in a Table
- Performing Flashback Operations
- Tracking the Changes in Data Over a Period of Time

20 Managing Data in Different Time Zones

- Objectives
- CURRENT_DATE, CURRENT_TIMESTAMP, and LOCALTIMESTAMP
- Additional Date Functions
- SYSDATE and SYSTIMESTAMP Data Handling

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