

## Oracle Database 12c: SQL I - Introduction

### Course Summary

#### Description

Learning the SQL language is one of the most basic tasks required for the use of a relational database. SQL proficiency is essential for business users, database developers, database administrators and any other database professional. This course introduces the basics of the SQL language and the Oracle Relational Database Management System (RDBMS). One will become acquainted with the differences in the working environment between a traditional on-premise database installation and the Oracle database service cloud-computing platform.

Since SQL is an industry standard language, many of the topics presented and many of the skills you will acquire will be applicable to other database platforms, such as Microsoft SQL Server, IBM DB2, the open-source databases MySQL and PostgreSQL, and others.

This course takes a unique approach to SQL training in that it incorporates data modeling theory, relational database theory, graphical depictions of theoretical concepts and numerous examples of actual SQL syntax into one learning vehicle.

#### Objectives

The first portion of this course considers the logical models upon which a relational database is based and the various configurations and environments in which you may work with the Oracle database. The next segment focuses on the actual SQL syntax for writing database queries. You will begin with the simplest of queries and then proceed onto moderately complex query scenarios. Finally, this course covers the DDL, DML and transaction control portions of the SQL language that allow one to create, maintain and manipulate application database objects and application data.

#### Topics

- Relational Databases & Data Models
- Selection & Setup of the Database Interface
- Using the Database Interface
- The Select Statement
- Restricting Results with the Where Clause
- Sorting Data with the Order by Clause
- Pseudo Columns, Functions & TOP-N Queries
- Joining Tables
- Using the Set Operators
- Summary Functions
- Using Sub-Queries
- Aggregating Data within Groups
- Use DDL to Create & Manage Tables
- Use DML to Manipulate Data

#### Audience

- Business and non-IT professionals
- Application designers and database developers
- Business Intelligence (BI) analysts and consumers
- Database administrators
- Web server administrators

#### Prerequisites

There are no prerequisites for this course.

#### Duration

Three days

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### Course Outline

#### I. Relational Databases & Data Models

- A. About Data Models
- B. About The Relational Model
- C. The Electronics Data Model
- D. About The Relational DBMS

#### II. Selection & Setup of the Database Interface

- A. Considering Available Tools
- B. Selecting the Appropriate Tool
- C. Oracle NET Database Connections
- D. Oracle PAAS Database Connections
- E. Setup SQL Developer
- F. Setup SQL\*PLUS
- G. Setup JDEVELOPER

#### III. Using the Database Interface

- A. About Bind & Substitution Variables
- B. Using SQL Developer
- C. Using SQL\*Plus

#### IV. Introduction to the SQL Language

- A. About The SQL Language
- B. Characteristics of SQL
- C. Introducing SQL Using Select
- D. SQL Rules

#### V. The Select Statement

- A. The Select Statement
- B. Distinct / Unique Keyword
- C. Using Alias Names

#### VI. Restricting Results with the Where Clause

- A. About Logical Operators
- B. Equality Operator
- C. Boolean Operators
- D. REGEXP\_LIKE()
- E. In Operator

#### VII. Sorting Data with the Order by Clause

- A. About The Order by Clause
- B. Multiple Column Sorts
- C. Specify the Sort Sequence
- D. About Null Values within Sorts
- E. Using Column Aliases

#### VIII. Pseudo Columns, Functions & Top-N Queries

- A. ROWID Pseudo Column
- B. ORA\_ROWSCN Pseudo Column
- C. ROWNUM Pseudo Column
- D. About The Built-In Functions
- E. SYSDATE
- F. USER & UID
- G. SESSIONTIMEZONE Function
- H. Using the Dual Table
- I. ROW LIMITING & TOP-N Queries
- J. FETCH FIRST x ROWS ONLY Clause
- K. OFFSET x ROWS Clause
- L. FETCH ... PERCENT Clause
- M. The WITH TIES Option

#### IX. Joining Tables

- A. About JOINS
- B. INNER JOIN
- C. REFLEXIVE JOIN
- D. NON-KEY JOIN
- E. OUTER JOIN

#### X. Using the Set Operators

- A. About The Set Operators
- B. SQL Set Operator Examples
- C. UNION Example
- D. INTERSECT example
- E. MINUS example
- F. UNION ALL

#### XI. Summary Functions

#### XII. Using Sub-Queries

- A. Finding DAT with Sub-Queries
- B. Standard Sub-Queries
- C. Correlated Sub-Queries
- D. The EXISTS Operator

#### XIII. Aggregating Data within Groups

- A. About Summary Groups
- B. Find Groups within the Tables
- C. Select Data from the Base Tables
- D. Select Groups from the Results

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### Course Outline (con't)

#### XIV. Use DDL to Create & Manage Tables

- A. Create Table Statement
- B. Column Data Types
- C. NOT NULL
- D. DEFAULT
- E. DESCRIBE
- F. Alter Table Statement
- G. Drop Table Statement
- H. Table DDL Using SQL Developer
- I. Alter User Statement
- J. Alter Session Statement
- K. NLS\_LANGUAGE
- L. NLS\_DATE

#### XV. Use DML to Manipulate Data

- A. The INSERT statement
- B. The DELETE statement
- C. The UPDATE statement
- D. About transactions
- E. Transaction rollback
- F. Transaction commits
- G. Transaction savepoint
- H. The set transaction statement
- I. Set transaction read only statement rules