

Oracle Database 11g: SQL Fundamentals I

Duration: 3 Days

What you will learn

This course introduces students to the fundamentals of SQL using Oracle Database 11g database technology. In this course students learn the concepts of relational databases and the powerful SQL programming language. This course provides the essential SQL skills that allow developers to write queries against single and multiple tables, manipulate data in tables, and create database objects.

The students also learn to use single row functions to customize output, use conversion functions and conditional expressions and use group functions to report aggregated data. Demonstrations and hands-on practice reinforce the fundamental concepts.

In this course, students use Oracle SQL Developer as the main tool and SQL*Plus is introduced as an optional tool. This course counts towards the Hands-on course requirement for the Oracle Database 11g Administrator Certification. Only instructor-led inclass or instructor-led online formats of this course will meet the Certification Hands-on Requirement. Self Study CD-Rom and Knowledge Center courses DO NOT meet the Hands-on Requirement.

Learn to:

Retrieve row and column data from tables with the SELECT statement

Create reports of sorted and restricted data

Display data from multiple tables.

Use DML statements to manage data.

Use DDL statements to manage database objects

Audience

Application Developers

End Users

Forms Developer

Functional Implementer

PL/SQL Developer

Portal Developer

Reports Developer

Technical Consultant

Prerequisites

Suggested Prerequisites

Familiarity with data processing concepts and techniques

Course Objectives

Retrieve row and column data from tables with the SELECT statement

Create reports of sorted and restricted data

Employ SQL functions to generate and retrieve customized data

Display data from multiple tables using the ANSI SQL 99 JOIN syntax

Create reports of aggregated data
Use the SET operators to create subsets of data
Run data manipulation statements (DML) to update data in the Oracle Database 11g
Run data definition language (DDL) statements to create and manage schema objects
Identify the major structural components of the Oracle Database 11g

Course Topics

Introduction

Listing the features of Oracle Database 11g
Discussing the basic design, theoretical and physical aspects of a relational database
Describing the development environments for SQL
Describing Oracle SQL Developer
Describing the data set used by the course

Retrieving Data Using the SQL SELECT Statement

Listing the capabilities of SQL SELECT statements.
Generating a report of data from the output of a basic SELECT statement
Using arithmetic expressions and NULL values in the SELECT statement
Using Column aliases
Using concatenation operator, literal character strings, alternative quote operator, and the DISTINCT keyword
Displaying the table structure using the DESCRIBE command

Restricting and Sorting Data

Writing queries with a WHERE clause to limit the output retrieved
Using the comparison operators and logical operators
Describing the rules of precedence for comparison and logical operators
Using character string literals in the WHERE clause
Writing queries with an ORDER BY clause to sort the output
Sorting output in descending and ascending order
Using the Substitution Variables

Using Single-Row Functions to Customize Output

Differentiating between single row and multiple row functions
Manipulating strings using character functions
Manipulating numbers with the ROUND, TRUNC and MOD functions
Performing arithmetic with date data
Manipulating dates with the date functions

Using Conversion Functions and Conditional Expressions

Describing implicit and explicit data type conversion
Using the TO_CHAR, TO_NUMBER, and TO_DATE conversion functions
Nesting multiple functions
Applying the NVL, NULLIF, and COALESCE functions to data
Using conditional IF THEN ELSE logic in a SELECT statement

Reporting Aggregated Data Using the Group Functions

Using the aggregation functions in SELECT statements to produce meaningful reports
Using AVG, SUM, MIN, and MAX function
Handling Null Values in a group function
Creating queries that divide the data in groups by using the GROUP BY clause

Creating queries that exclude groups of data by using the HAVING clause

Displaying Data From Multiple Tables

Writing SELECT statements to access data from more than one table

Joining Tables Using SQL:1999 Syntax

Viewing data that does not meet a join condition by using outer joins

Joining a table by using a self join

Creating Cross Joins

Using Sub-queries to Solve Queries

Using a Subquery to Solve a Problem

Executing Single-Row Sub-queries

Using Group Functions in a Sub-query

Using Multiple-Row Subqueries

Using the ANY and ALL Operator in Multiple-Row Sub-queries

Using the SET Operators

Describing the SET operators

Using a SET operator to combine multiple queries into a single query

Using UNION, UNION ALL, INTERSECT, and MINUS Operator

Using the ORDER BY Clause in Set Operations

Manipulating Data

Adding New Rows to a Table Using the INSERT statement

Changing Data in a Table Using the UPDATE Statement

Using DELETE and TRUNCATE Statements

Saving and discarding changes with the COMMIT and ROLLBACK statements

Implementing Read Consistency

Using the FOR UPDATE Clause

Using DDL Statements to Create and Manage Tables

Categorizing Database Objects

Creating Tables using the CREATE TABLE Statement

Describing the data types

Describing Constraints

Creating a table using a subquery

Altering and Dropping a table

Creating Other Schema Objects

Creating, modifying, and retrieving data from a view

Performing Data manipulation language (DML) operations on a view

Dropping a view

Creating, using, and modifying a sequence

Creating and dropping indexes

Creating and dropping synonyms

Related Courses

Oracle Database 11g: SQL Fundamentals I - Self-Study CD Course