

Oracle Database: SQL and PL/SQL Fundamentals Ed 2

Duration: 5 Days

What you will learn

This Oracle Database: SQL and PL/SQL Fundamentals training delivers the fundamentals of SQL and PL/SQL along with the benefits of the programming languages using Oracle Database technology. You'll explore the concepts of relational databases.

Learn To:

Write queries against single and multiple tables, manipulate data in tables and create database objects. Use single row functions to customize output. Invoke conversion functions and conditional expressions.

Use group functions to report aggregated data. Create PL/SQL blocks of application code that can be shared by multiple forms, reports and data management applications.

Develop anonymous PL/SQL blocks, stored procedures and functions.

Declare identifiers and trap exceptions.

Use DML statements to manage data.

Use DDL statements to manage database objects. Declare PL/SQL Variables.

Conditionally control code flow (loops, control structures).

Describe stored procedures and functions. Retrieve row and column data from tables.

Benefits to You

Ensure fast, reliable, secure and easy to manage performance. Optimize database workloads, lower IT costs and deliver a higher quality of service by enabling consolidation onto database clouds.

Hands-On Practices

Demonstrations and hands-on practice reinforce the fundamental concepts that you'll learn in this course. By enrolling in this course, you'll begin using Oracle SQL Developer to develop these program units. SQL*Plus is available as optional tools.

Course Bundle

Note: This course is a combination of Oracle Database: SQL Workshop I and Oracle Database: PL/SQL Fundamentals courses.

Audience

Application Developers

Forms Developer

Functional Implementer

PL/SQL Developer

Portal Developer

Reports Developer

Technical Consultant

Related Training

Required Prerequisites

Familiarity with data processing concepts and techniques

Familiarity with programming concepts

Course Objectives

Run data definition language (DDL) statements to create and manage schema objects

Run data manipulation statements (DML) to update data in the Oracle Database

Use PL/SQL programming constructs and conditionally control code flow (loops, control structures, and explicit cursors)

Use cursors to process rows

Create reports of sorted and restricted data

Describe stored procedures and functions

Describe the features and syntax of PL/SQL

Design PL/SQL anonymous block that execute efficiently

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

Create reports of aggregated data

Employ SQL functions to generate and retrieve customized data

Handle runtime errors

Retrieve row and column data from tables with the SELECT statement

Course Topics

Introduction

Overview of Oracle Database 12c and related products

Overview of relational database management concepts and terminologies

Introduction to SQL and its development environments

The HR schema and the tables used in this course

Oracle Database documentation and additional resources

Working with Oracle Cloud Exadata Express Cloud Service

Introduction to Oracle Database Exadata Express Cloud Service

Accessing Cloud Database using SQL Workshop

Connecting to Exadata Express using Database Clients

Retrieve Data using the SQL SELECT Statement

List the capabilities of SQL SELECT statements

Generate a report of data from the output of a basic SELECT statement

Use arithmetic expressions and NULL values in the SELECT statement

Invoke Column aliases

Concatenation operator, literal character strings, alternative quote operator, and the DISTINCT keyword

Display the table structure using the DESCRIBE command

Restricted and Sorted Data

Write queries with a WHERE clause to limit the output retrieved

Describe the comparison operators and logical operators

Describe the rules of precedence for comparison and logical operators

Usage of character string literals in the WHERE clause

Write queries with an ORDER BY clause

Sort the output in descending and ascending order

Substitution Variables

Usage of Single-Row Functions to Customize Output

List the differences between single row and multiple row functions

Manipulate strings using character functions

Manipulate numbers with the ROUND, TRUNC, and MOD functions

Perform arithmetic with date data

Manipulate dates with the DATE functions

Conversion Functions and Conditional Expressions

Describe implicit and explicit data type conversion

Describe the TO_CHAR, TO_NUMBER, and TO_DATE conversion functions

Nesting multiple functions

Apply the NVL, NULLIF, and COALESCE functions to data

Usage of conditional IF THEN ELSE logic in a SELECT statement

Aggregated Data Using the Group Functions

Usage of the aggregation functions in SELECT statements to produce meaningful reports

Describe the AVG, SUM, MIN, and MAX function

How to handle Null Values in a group function?

Divide the data in groups by using the GROUP BY clause

Exclude groups of data by using the HAVING clause

Display Data From Multiple Tables

Write SELECT statements to access data from more than one table

Join Tables Using SQL:1999 Syntax

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

Join a table to itself by using a self join

Create Cross Joins

Usage of Subqueries to Solve Queries

Use a Subquery to Solve a Problem

Single-Row Subqueries

Group Functions in a Subquery

Multiple-Row Subqueries

Use the ANY and ALL Operator in Multiple-Row Subqueries

Use the EXISTS Operator

SET Operators

Describe the SET operators

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

Describe the UNION, UNION ALL, INTERSECT, and MINUS Operators

Use the ORDER BY Clause in Set Operations

Data Manipulation

Add New Rows to a Table

Change the Data in a Table

Use the DELETE and TRUNCATE Statements

How to save and discard changes with the COMMIT and ROLLBACK statements

Implement Read Consistency

Describe the FOR UPDATE Clause

DDL Statements to Create and Manage Tables

Categorize Database Objects

Create Tables

Describe the data types

Understand Constraints

Create a table using a subquery

How to alter a table?

How to drop a table?

Other Schema Objects

Create, modify, and retrieve data from a view

Perform Data manipulation language (DML) operations on a view

How to drop a view?

Create, use, and modify a sequence

Create and drop indexes

Create and drop synonyms

Introduction to PL/SQL

PL/SQL Overview

List the benefits of PL/SQL Subprograms

Overview of the Types of PL/SQL blocks

Create a Simple Anonymous Block

Generate the Output from a PL/SQL Block

PL/SQL Identifiers

List the different Types of Identifiers in a PL/SQL subprogram

Usage of the Declarative Section to Define Identifiers

Use of variables to store data

Scalar Data Types

%TYPE Attribute

Bind Variables

Sequences in PL/SQL Expressions

Write Anonymous PL/SQL blocks

Basic PL/SQL Block Syntax Guidelines

How to comment code?

SQL Functions in PL/SQL

Data Type Conversion

Nested Blocks
Operators in PL/SQL

SQL statements in PL/SQL block

SELECT Statements in PL/SQL to Retrieve data
Data Manipulation in the Server Using PL/SQL
The SQL Cursor concept
Learn to use SQL Cursor Attributes to Obtain Feedback on DML
How to save and discard transactions?

Control Structures

Conditional processing Using IF Statements
Conditional processing Using CASE Statements
Simple Loop Statement
While Loop Statement
For Loop Statement
The Continue Statement

Composite Data Types

PL/SQL Records
The %ROWTYPE Attribute
Insert and Update with PL/SQL Records
Associative Arrays (INDEX BY Tables)
INDEX BY Table Methods
INDEX BY Table of Records

Explicit Cursors

Understand Explicit Cursors
Declare the Cursor
How to open the Cursor?
Fetching data from the Cursor
How to close the Cursor?
Cursor FOR loop
Explicit Cursor Attributes
FOR UPDATE Clause and WHERE CURRENT Clause

Exception Handling

What are Exceptions?
Handle Exceptions with PL/SQL
Trap Predefined Oracle Server Errors
Trap Non-Predefined Oracle Server Errors
Trap User-Defined Exceptions
Propagate Exceptions
RAISE_APPLICATION_ERROR Procedure

Stored Procedures and Functions

What are Stored Procedures and Functions?
Differentiate between anonymous blocks and subprograms
Create a Simple Procedure
Create a Simple Procedure with IN parameter
Create a Simple Function
Execute a Simple Procedure

Execute a Simple Function