

Oracle Database 12c: SQL and PL/SQL Fundamentals

- **Formato do curso:** Presencial
- **Localidade:** Porto
- **Data:** 06 Mai. 2019 a 10 Mai. 2019
- **Preço:** 2250€
- **Horário:** Laboral - das 9h30 às 17h30
- **Nível:** Iniciado
- **Duração:** 30 horas

This Database SQL & PL/SQL Fundamentals training teaches you the fundamentals of relational databases, SQL & PL/SQL programming language. You'll explore the concepts of relational databases. Learn to write queries against single and multiple tables, manipulate data in tables & create database objects.

At the end of this course, participants will be able to:

- 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

Destinatários

- Functional Implementer
- Portal Developer
- Reports Developer
- PL/SQL Developer

- Application Developers
 - Forms Developer
 - Forms Developer
 - Technical Consultant
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Pré-requisitos

- Familiarity with programming concepts
 - Familiarity with data processing concepts and techniques
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Programa

Introduction

- Introduction to SQL and its development environments
- The HR schema and the tables used in this course
- Overview of Oracle Database 12c and related products
- Overview of relational database management concepts and terminologies
- Oracle Database documentation and additional resources

Working with Oracle Cloud Exadata Express Cloud Service

- Accessing Cloud Database using SQL Workshop
- Connecting to Exadata Express using Database Clients
- Introduction to Oracle Database Exadata Express Cloud Service

Retrieve Data using the SQL SELECT Statement

- Invoke Column aliases
- Generate a report of data from the output of a basic SELECT statement
- Concatenation operator, literal character strings, alternative quote operator, and the DISTINCT keyword
- Use arithmetic expressions and NULL values in the SELECT statement
- List the capabilities of SQL SELECT statements
- Display the table structure using the DESCRIBE command

Restricted and Sorted Data

- Describe the comparison operators and logical operators
- Write queries with a WHERE clause to limit the output retrieved
- Write queries with an ORDER BY clause
- Sort the output in descending and ascending order
- Describe the rules of precedence for comparison and logical operators
- Usage of character string literals in the WHERE clause
- Substitution Variables

Usage of Single-Row Functions to Customize Output

- Manipulate dates with the DATE functions
- Perform arithmetic with date data
- List the differences between single row and multiple row functions
- Manipulate numbers with the ROUND, TRUNC, and MOD functions
- Manipulate strings using character 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
- Usage of conditional IF THEN ELSE logic in a SELECT statement
- Apply the NVL, NULLIF, and COALESCE functions to data

Aggregated Data Using the Group Functions

- Divide the data in groups by using the GROUP BY clause
- How to handle Null Values in a group function?
- Exclude groups of data by using the HAVING clause
- Usage of the aggregation functions in SELECT statements to produce meaningful reports
- Describe the AVG, SUM, MIN, and MAX function

Display Data From Multiple Tables

- Join a table to itself by using a self join
- Join Tables Using SQL:1999 Syntax
- Create Cross Joins
- View data that does not meet a join condition by using outer joins
- Write SELECT statements to access data from more than one table

Usage of Subqueries to Solve Queries

- Use the ANY and ALL Operator in Multiple-Row Subqueries
- Use a Subquery to Solve a Problem
- Group Functions in a Subquery
- Single-Row Subqueries
- Multiple-Row Subqueries
- Use the EXISTS Operator

SET Operators

- Use the ORDER BY Clause in Set Operations
- Describe the UNION, UNION ALL, INTERSECT, and MINUS Operators
- Use a SET operator to combine multiple queries into a single query
- Describe the SET operators

Data Manipulation

- Add New Rows to a Table
- Change the Data in a Table
- How to save and discard changes with the COMMIT and ROLLBACK statements
- Describe the FOR UPDATE Clause
- Use the DELETE and TRUNCATE Statements
- Implement Read Consistency

DDL Statements to Create and Manage Tables

- Describe the data types
- Create Tables
- How to drop a table?
- Understand Constraints
- How to alter a table?
- Create a table using a subquery
- Categorize Database Objects

Other Schema Objects

- How to drop a view?
- Create and drop synonyms
- Create and drop indexes
- Create, use, and modify a sequence
- Create, modify, and retrieve data from a view
- Perform Data manipulation language (DML) operations on a view

Introduction to PL/SQL

- Create a Simple Anonymous Block
- Generate the Output from a PL/SQL Block
- List the benefits of PL/SQL Subprograms
- PL/SQL Overview
- Overview of the Types of PL/SQL blocks

PL/SQL Identifiers

- List the different Types of Identifiers in a PL/SQL subprogram
- Bind Variables
- %TYPE Attribute
- Usage of the Declarative Section to Define Identifiers
- Sequences in PL/SQL Expressions
- Scalar Data Types
- Use of variables to store data

Write Anonymous PL/SQL blocks

- SQL Functions in PL/SQL
- Basic PL/SQL Block Syntax Guidelines
- How to comment code?
- Nested Blocks
- Operators in PL/SQL
- Data Type Conversion

SQL statements in PL/SQL block

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

Control Structures

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

Composite Data Types

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

Explicit Cursors

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

Exception Handling

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

Stored Procedures and Functions

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