

Oracle Database: SQL and PL/SQL Fundamentals



Durata: 5 giornate

Finalità: Corso per fornire i benefici dei linguaggi di programmazione che utilizzano la tecnologia del database Oracle. Questo Oracle Database: SQL e PL Fundamentals / SQL formazione eroga i fondamenti di SQL e PL / SQL e vengono esplorati i concetti di database relazionali.

Obiettivi:

- Progettazione PL / SQL blocco anonimo che si eseguono in modo efficiente.
- Descrivere le caratteristiche e la sintassi di PL / SQL.
- Creare report di dati aggregati.
- Impiegare funzioni SQL per generare e recuperare dati personalizzati.
- Creare report di dati ordinati e ristretti.
- Utilizzare i cursori per elaborare le righe.
- Eseguire le istruzioni di manipolazione dei dati (DML) per aggiornare i dati nel database Oracle.
- Maneggiare errori di runtime.
- Descrivere procedure stored e funzioni.
- Utilizzare costrutti di programmazione PL / SQL e il controllo condizionale flusso di codice (loop, strutture di controllo, e cursori espliciti).
- Identificare i principali componenti strutturali della Oracle Database 11g.
- Recupera righe e colonne di dati da tabelle con l'istruzione SELECT.
- Visualizzazione dati da più tabelle utilizzando il ANSI SQL 99 ISCRIVITI sintassi.
- Eseguire Data Definition Language (DDL) istruzioni per creare e gestire gli oggetti dello schema.

Contenuti:

Introduction

- Overview of Oracle Database 12c and related products
- Oracle Database documentation and additional resources
- Introduction to SQL and its development environments

Retrieve Data using the SQL SELECT Statement

- List the capabilities of SQL SELECT statements
- Invoke Column aliases

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

Restricted and Sorted Data

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

Conversion Functions and Conditional Expressions

- Nesting multiple functions
- Describe implicit and explicit data type conversion
- Usage of conditional IF THEN ELSE logic in a SELECT statement
- Apply the NVL, NULLIF, and COALESCE functions to data
- Describe the TO_CHAR, TO_NUMBER, and TO_DATE conversion functions

Display Data From Multiple Tables

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

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

Aggregated Data Using the Group Functions

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

Usage of Subqueries to Solve Queries

- Single-Row Subqueries
- Group Functions in a Subquery
- Multiple-Row Subqueries
- Use a Subquery to Solve a Problem

- Join a table to itself by using a self join
- Create Cross Joins
- Use the ANY and ALL Operator in Multiple-Row Subqueries
- Use the EXISTS Operator

SET Operators

- Describe the 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

Data Manipulation

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

DDL Statements to Create and Manage Tables

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

Other Schema Objects

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

Introduction to PL/SQL

- 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
- Create a Simple Anonymous Block

PL/SQL Identifiers

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

Write Executable Statements

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

Interaction with the Oracle Server

- The SQL Cursor concept
- How to save and discard transactions?
- SELECT Statements in PL/SQL to Retrieve data

- Nested Blocks
- Operators in PL/SQL

- Data Manipulation in the Server Using PL/SQL
- Learn to use SQL Cursor Attributes to Obtain Feedback on DML

Control Structures

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

Usage of Composite Data Types

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

Explicit Cursors

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

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

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