Oracle Database: Introduction to SQL

Duration: 5 Days

What you will learn

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This Oracle Database: Introduction to SQL training helps you write subqueries, combine multiple queries into a single query using SET operators and report aggregated data using group functions. Learn this and more through hands-on exercises.

Learn To:

Understand the basic concepts of relational databases ensure refined code by developers.
Create reports of sorted and restricted data.
Run data manipulation statements (DML).
Control database access to specific objects.
Manage schema objects.
Manage objects with data dictionary views.
Retrieve row and column data from tables.
Control privileges at the object and system level.
Create indexes and constraints; alter existing schema objects.
Create and query external tables.

Benefits to You

Gain expertise in relational database data management as you learn how to effectively use SQL commands against your business data. These features will help you query and manipulate data within the database, use the dictionary views to retrieve metadata and create reports about their schema objects.

Learn Advanced Features of SQL

In order to query and manipulate data within the database, use the dictionary views to retrieve metadata and create reports about their schema objects, you'll learn to understand the advanced features of SQL. Some of the date-time functions available in the Oracle Database are also covered. This course also discusses how to use the regular expression support in SQL.

Development Tools

In this course, the main development tool used is Oracle SQL Developer. SQL*Plus is available as an optional development tool. This is appropriate for a 10g and 11g audience. There are minor changes between 10g and 11g features in SQL.

This course is a combination of Oracle Database: SQL Fundamentals I and Oracle Database: SQL Fundamentals II courses.

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Audience

Application Developers
Business Analysts
Data Warehouse Administrator
Developer
Forms Developer
PL/SQL Developer
System Analysts

Related Training

Required Prerequisites

Data processing

Familiarity with data processing concepts and techniques

Course Objectives

Manage schema objects.

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

Identify the major structural components of the Oracle Database 11g.

Create reports of aggregated data.

Write SELECT statements that include queries.

Retrieve row and column data from tables.

Run data manipulation statements (DML) in Oracle Database 11g.

Create tables to store data.

Utilize views to display data.

Control database access to specific objects.

Manage objects with data dictionary views.

Write multiple-column sub-queries.

Employ SQL functions to retrieve customized data.

Use scalar and correlated sub-queries.

Use the regular expression support in SQL.

Create reports of sorted and restricted data.

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Introduction to Oracle Database
List the features of Oracle Database 11g
Discuss the basic design, theoretical, and physical aspects of a relational database
Categorize the different types of SQL statements
Describe the data set used by the course
Log on to the database using SQL Developer environment
Save queries to files and use script files in SQL Developer

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
Select All Columns
Select Specific Columns
Use Column Heading Defaults
Use Arithmetic Operators
Understand Operator Precedence
Learn the DESCRIBE command to display the table structure

Learn to Restrict and Sort Data
Write queries that contain a WHERE clause to limit the output retrieved
List the comparison operators and logical operators that are used in a WHERE clause
Describe the rules of precedence for comparison and logical operators
Use character string literals in the WHERE clause
Write queries that contain an ORDER BY clause to sort the output of a SELECT statement
Sort output in descending and ascending order

Usage of Single-Row Functions to Customize Output
Describe the differences between single row and multiple row functions
Manipulate strings with character function in the SELECT and WHERE clauses
Manipulate numbers with the ROUND, TRUNC, and MOD functions
Perform arithmetic with date data
Manipulate dates with the DATE functions

Invoke Conversion Functions and Conditional Expressions
Describe implicit and explicit data type conversion
Use the TO_CHAR, TO_NUMBER, and TO_DATE conversion functions
Nest multiple functions
Apply the NVL, NULLIF, and COALESCE functions to data
Use conditional IF THEN ELSE logic in a SELECT statement

Aggregate Data Using the Group Functions
Use the aggregation functions to produce meaningful reports
Divide the retrieved data in groups by using the GROUP BY clause
Exclude groups of data by using the HAVING clause

Display Data From Multiple Tables Using Joins
Write SELECT statements to access data from more than one table
View data that generally does not meet a join condition by using outer joins
Join a table to itself by using a self join

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Use Sub-queries to Solve Queries
Describe the types of problem that sub-queries can solve
Define sub-queries
List the types of sub-queries
Write single-row and multiple-row sub-queries

The SET Operators
Describe the SET operators
Use a SET operator to combine multiple queries into a single query
Control the order of rows returned

Data Manipulation Statements
Describe each DML statement
Insert rows into a table
Change rows in a table by the UPDATE statement
Delete rows from a table with the DELETE statement
Save and discard changes with the COMMIT and ROLLBACK statements
Explain read consistency

Use of DDL Statements to Create and Manage Tables
Categorize the main database objects
Review the table structure
List the data types available for columns
Create a simple table
Decipher how constraints can be created at table creation
Describe how schema objects work

Other Schema Objects
Create a simple and complex view
Retrieve data from views
Create, maintain, and use sequences
Create and maintain indexes
Create private and public synonyms

Control User Access
Differentiate system privileges from object privileges
Create Users
Grant System Privileges
Create and Grant Privileges to a Role
Change Your Password
Grant Object Privileges
How to pass on privileges?
Revoke Object Privileges

Management of Schema Objects
Add, Modify, and Drop a Column
Add, Drop, and Defer a Constraint
How to enable and Disable a Constraint?
Create and Remove Indexes
Create a Function-Based Index
Perform Flashback Operations
Create an External Table by Using ORACLE_LOADER and by Using ORACLE_DATAPUMP

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Query External Tables

Manage Objects with Data Dictionary Views
Explain the data dictionary
Use the Dictionary Views
USER_OBJECTS and ALL_OBJECTS Views
Table and Column Information
Query the dictionary views for constraint information
Query the dictionary views for view, sequence, index and synonym information
Add a comment to a table
Query the dictionary views for comment information

Manipulate Large Data Sets
Use Subqueries to Manipulate Data
Retrieve Data Using a Subquery as Source
Insert Using a Subquery as a Target
Usage of the WITH CHECK OPTION Keyword on DML Statements
List the types of Multitable INSERT Statements
Use Multitable INSERT Statements
Merge rows in a table
Track Changes in Data over a period of time

Data Management in different Time Zones
Time Zones
CURRENT_DATE, CURRENT_TIMESTAMP, and LOCALTIMESTAMP
Compare Date and Time in a Session’s Time Zone
DBTIMEZONE and SESSIONTIMEZONE
Difference between DATE and TIMESTAMP
INTERVAL Data Types
Use EXTRACT, TZ_OFFSET and FROM_TZ
Invoke TO_TIMESTAMP,TO_YMINTERVAL and TO_DSINTERVAL

Retrieve Data Using Sub-queries
Multiple-Column Subqueries
Pairwise and Nonpairwise Comparison
Scalar Subquery Expressions
Solve problems with Correlated Subqueries
Update and Delete Rows Using Correlated Subqueries
The EXISTS and NOT EXISTS operators
Invoke the WITH clause
The Recursive WITH clause

Regular Expression Support
Use the Regular Expressions Functions and Conditions in SQL
Use Meta Characters with Regular Expressions
Perform a Basic Search using the REGEXP_LIKE function
Find patterns using the REGEXP_INSTR function
Extract Substrings using the REGEXP_SUBSTR function
Replace Patterns Using the REGEXP_REPLACE function
Usage of Sub-Expressions with Regular Expression Support
Implement the REGEXP_COUNT function

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