

Oracle SQL Course Content

Introduction to Oracle Database

- Introduction to oracle 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

Types of SQL Statements

- Data Definition Language
- Data manipulation Language
- Transaction control language
- Data control language

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 System Functions

- 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
- Manipulate dates with the DATE functions
- Describe implicit and explicit data type conversion
- Use the TO_CHAR, TO_NUMBER, and TO_DATE conversion 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 in SELECT statements to produce meaningful reports
- Divide the data in groups by using the GROUP BY clause
- Exclude groups of data by using the HAVING clause

- Analytical Functions – Rank, Row_Number, Listagg, Lead and Lag..

Display data from multiple tables using Joins

- Inner join
- Self join
- Cross join
- Outer join
 - Left
 - Right
 - Full outer join

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
 - Union
 - Union all
 - Intersect
 - Minus
- Use a SET operator to combine multiple queries into a single query
- Control the order of rows returned

Other Schema Objects

- Create a simple and complex view
- Retrieve data from views
- Create, maintain, and use sequences
- Create and maintain indexes
- Create synonyms

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

Oracle PL/SQL Course content

Introduction to PL/SQL

- PL/SQL Overview
- Benefits of PL/SQL Subprograms
- Overview of the Types of PL/SQL blocks
- Create a Simple Anonymous Block
- Generate 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 variables to store data
- Identify Scalar Data Types
- The %TYPE Attribute
- What are Bind Variables?
- Sequences in PL/SQL Expressions

Control Structures

- Conditional processing Using IF Statements
- Conditional processing Using CASE Statements
- Use simple Loop Statement
- Use While Loop Statement
- Use For Loop Statement
- Describe the Continue Statement

Composite Data Types

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

- Examine INDEX BY Table Methods
- Use INDEX BY Table of Records

Cursors

- What are Implicit and Explicit Cursors?
- Declare the Cursor
- Open the Cursor
- Fetch data from the Cursor
- Close the Cursor
- Cursor FOR loop
- Explicit Cursor Attributes
- FOR UPDATE Clause and WHERE CURRENT Clause

Exception Handling

- Understand 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

- Understand Stored Procedures and Functions
- Differentiate between anonymous blocks and subprograms
- Create a Simple Procedure, with IN/OUT parameter and execute the procedure
- Create and execute a Simple Function
- Implement Procedures Parameters and Parameters Modes
- Identity the restrictions when calling Functions from SQL statements

Create Packages

- Identity the advantages of Packages
- Describe Packages
- List the components of a Package
- Develop a Package
- How to enable visibility of a Package's components?
- Create the Package Specification and Body Using the SQL CREATE Statement and SQL Developer

- Invoke Package Constructs
- View PL/SQL Source Code Using the Data Dictionary
- Use Forward Declarations to Solve Illegal Procedure Reference
- Implement Package Functions in SQL and Restrictions
- Persistent State of Packages and Package Cursor

Implement Oracle-Supplied Packages in Application Development

- What are the Oracle-Supplied Packages?
- Examples of Some of the Oracle-Supplied Packages
- How Does the DBMS_OUTPUT Package Work?
- Use the UTL_FILE Package to Interact With Operating System Files

Dynamic SQL

- The Execution Flow of SQL
- What is Dynamic SQL?
- Declare Cursor Variables
- Dynamically executing a PL/SQL Block
- Configure Native Dynamic SQL to Compile PL/SQL Code
- Dynamic SQL Functional Completeness

Design Considerations for PL/SQL Code

- Standardize Constants and Exceptions
- Understand Local Subprograms
- Write Autonomous Transactions
- Implement the NOCOPY Compiler Hint
- Usage of Bulk Binding to Improve Performance

Triggers

- Describe Triggers
- Identify the Trigger Event Types and Body
- Business Application Scenarios for Implementing Triggers
- Create DML Triggers Using the CREATE TRIGGER Statement and SQL Developer
- Identify the Trigger Event Types, Body, and Firing (Timing)
- Statement Level Triggers Versus Row Level Triggers
- Create Instead of and Disabled Triggers
- Compound Trigger Structure for Tables and Views
- How to Manage, Test, and Remove Triggers?