

ORACLE SQL PL/ SQL Course Content

DBMS CONCEPTS

- What is Database
- What is Database Management System
- Different Types of Database Models
- Normalization
- RDBMS
- ORDBMS
- Difference Between DBMS, RDBMS & ORDBMS

INTRODUCING ORACLE

- Different versions of Oracle
- Features of Oracle

SQL

- What is SQL
- Role of SQL in RDBMS
- Data Types of Oracle
- Naming rules in Oracle
- What is SQL*PLUS
- What is Metadata
- What is Schema
- Data Dictionary Tables

SQL COMMANDS

- Data Definition Language (DDL)
- Data Retrieval Language (DRL)
- Data Manipulation Language (DML)
- Transaction Control Language (TCL)
- Database Security and Privileges (DCL)
- Introduction to SQL Database Object:
- Oracle Pre Defined Data types
 - DDL Commands
 - Create, Alter (add, modify, rename, drop)Columns, Rename, truncate, drop
 - DML-Insert, update, delete, merge
 - DCL-Grant, Revoke
 - TCL-Commit, Rollback, Savepoint

Constraints

- What are Constraints?
- Constraint Guidelines
- Defining Constraints
- The NOT NULL Constraint
- The UNIQUE Constraint
- The PRIMARY KEY Constraint
- The FOREIGN KEY Constraint
- FOREIGN KEY Constraint Keywords
- The CHECK Constraint
- Adding a Constraint Syntax
- Adding a Constraint
- Dropping a Constraint
- Disabling Constraints
- Enabling Constraints
- Cascading Constraints
- Viewing Constraints
- Viewing the Columns Associated with Constraints

Writing Basic SQL SELECT Statements

- Objectives
- Capabilities of SQL SELECT Statements
- Basic SELECT Statement
- Selecting All Columns
- Selecting Specific Columns
- Writing SQL Statements
- Column Heading Defaults
- Arithmetic Expressions
- Using Arithmetic Operators
- Operator Precedence
- Using Parentheses
- Defining a Null Value
- Null Values in Arithmetic Expressions
- Defining a Column Alias
- Using Column Aliases
- Concatenation Operator
- Using the Concatenation Operator
- Literal Character Strings
- Using Literal Character Strings
- Duplicate Rows
- Eliminating Duplicate Rows
- Displaying Table Structure
- Limiting Rows Using a Selection

- Limiting the Rows Selected
- Using the WHERE Clause
- Character Strings and Dates
- Comparison Conditions
- Using Comparison Conditions
- Other Comparison Conditions
- Using the BETWEEN Condition
- Using the IN Condition
- Using the LIKE Condition
- Using the NULL Conditions
- Logical Conditions
- Using the AND Operator
- Using the OR Operator
- Using the NOT Operator
- Rules of Precedence
- ORDER BY Clause
- Sorting in Descending Order
- Sorting by Column Alias
- Sorting by Multiple Columns
- Set Operators (UNION, UNION ALL, INTERSECT, MINUS)

- Using the TO_CHAR Function with Dates
- Elements of the Date Format Model
- Using the TO_CHAR Function with Dates
- Using the TO_CHAR Function with Numbers
- Using the TO_NUMBER and TO_DATE Functions
- General Functions
- NVL Function
- Using the NVL Function
- Using the NVL2 Function
- Using the NULLIF Function
- Using the COALESCE Function
- Conditional Expressions
- The CASE Expression
- Using the CASE Expression
- The DECODE Function
- Using the DECODE Function
- Aggregate functions

Functions

- SQL Functions
- Two Types of SQL Functions
- Single-Row Functions
- Single-Row Functions
- Character Functions
- Character Functions
- Case Manipulation Functions
- Using Case Manipulation Functions
- Character-Manipulation Functions
- Using the Character-Manipulation Functions
- Number Functions
- Using the ROUND Function
- Using the TRUNC Function
- Using the MOD Function
- Working with Dates
- Arithmetic with Dates
- Using Arithmetic Operators with Dates
- Date Functions
- Using Date Functions
- Conversion Functions
- Implicit Data Type Conversion
 - Explicit Data Type Conversion

Joins

- Obtaining Data from Multiple Tables
- Cartesian Products
- Generating a Cartesian Product
- Types of Joins
- Joining Tables Using Oracle Syntax
- What is an Equijoin?
- Additional Search Conditions Using the AND Operator
- Qualifying Ambiguous Column Names
- Using Table Aliases
- Joining More than Two Tables
- Non-Equijoins
- Retrieving Records with Non-Equijoins
- Outer Joins
- Outer Joins Syntax
- Using Outer Joins
- Self Joins
- Joining a Table to Itself
- Practice 4, Part One: Overview
- Joining Tables Using SQL: 1999 Syntax
- Creating Cross Joins

- Creating Natural Joins
- Retrieving Records with Natural Joins
- Creating Joins with the USING Clause
- Retrieving Records with the USING Clause
- Creating Joins with the ON Clause
- Retrieving Records with the ON Clause
- Creating Three-Way Joins with the ON Clause
- INNER Versus OUTER Joins
- LEFT OUTER JOIN
- RIGHT OUTER JOIN
- FULL OUTER JOIN

Subqueries

- Using a Subquery to Solve a Problem
- Subquery Syntax
- Using a Subquery
- Guidelines for Using Subqueries
- Types of Subqueries
- Single-Row Subqueries
- Executing Single-Row Subqueries
- Using Group Functions in a Subquery
- The HAVING Clause with Subqueries
- What is Wrong with this Statement?
- Will this Statement Return Rows?
- Multiple-Row Subqueries
- Using the ANY Operator in Multiple-Row Subqueries
- Using the ALL Operator in Multiple-Row Subqueries
- Null Values in a Subquery

Database Objects

- Views
- Why use Views?
- Simple Views and Complex Views
- Creating a View
- Retrieving Data from a View 1
- Querying a View
- Modifying a View
- Creating a Complex View
- Rules for Performing DML Operations on a View

- Using the WITH CHECK OPTION Clause
- Denying DML Operations
- Removing a View
- Inline Views
- Sequence
- Sequence
- The CREATE SEQUENCE Statement Syntax
- Creating a Sequence
- Confirming Sequences
- NEXTVAL and CURRVAL Pseudo columns
- Using a Sequence
- Modifying a Sequence
- Guidelines for Modifying a Sequence
- Removing a Sequence
- Index
- How Are Indexes Created?
- Creating an Index
- When to Create an Index
- When Not to Create an Index
- Confirming Indexes
- Function-Based Indexes
- Removing an Index
- Synonyms
- Creating and Removing Synonyms

PL/SQL

- Introduction to PL/SQL
- Advantages of PL/SQL
- The PL/SQL Block
- Basic PL/SQL Block Structure
- The Declaration Section
- The Execution Section
- The Exception Section
- Generation Output

Variables And Constants

- Data types
- Scalar Data types
- Composite Data types
- Variables (%type, %rowtype)
- Variable Assignment
- Scope of Variables

- Constants
- Writing Sample programs demonstrating all above Functionalities

- Out
- IN Out
- Testing Procedure from anonymous blocks
- Calling procedure from another procedure

Conditions and Loops

- Conditional Control
- Iterative Control
- Guidelines
- Sample, While, and For Loops
- While Loop
- For Loop

Cursors

- Implicit and Explicit Cursors
- Cursors Actions
- Declaring a Cursors
- Opening a Cursors
- Fetching Data from ad Cursor
- Closing a Cursor
- Cursor Attributes
- Cursors and Loops
- Cursors For Loops

Exception Handling

- Guidelines
- Types of Exceptions
- Named System Exceptions
- Named User-Defined Exceptions
- Unnamed System Exceptions
- Unnamed User-Defined Exceptions
- SQL ERRM and SQL Code

Procedures

- Writing Procedures using Oracle SQL,PLSQL
- Types of Program Units
- Named and Unnamed Block Structures
- Diff between Anonymous Blocks and named Blocks
- Procedures Parameters
- Parameter Modes
- IN

User Defined Functions

- Using Functions within Oracle
- Difference ways of Callings a function
- Named Notation
- Functions
- Function Parameters
- Referencing a Function

Packages

- Defining and Using Packages
- Advantages of Using Packages
- Overloading
- Dependency
- Abstraction – Information Hiding
- Inheritance
- Defining Global Variables

Database Triggers

- Trigger Types
- Trigger Events
- Trigger Restrictions
- Trigger Body
- Complication of Database Triggers
- Trigger Syntax
- Usage of Instead of Triggers

An Overview of Oracle Large Objects

- BLOB
- CLOB
- PL/SQL Table
- VARRAY
- BFILE
 - Nested Tables