

# Oracle SQL Training Course Contents :

## 1. Basic DATABASE Concept and SQL

- Basic history of database concept: DBMS, RDBMS, ORDBMS
- Advantage of ORACLE database and version information
- Interface tools usage: sqlplus, isqlplus, sqldeveloper, Toad
- SQL Language overview : DQL, DML, DDL, DCL, TCL
- What is the usage of ANSI standard.
- SELECT Command - Column Alias Rules, String data,
- Concatenations with various data
- Null Value handling with number and characters,
- Arithmetic Operator
- Concatenation Operator,
- Eliminating Duplicate Rows

## 2. Restricting and Sorting Data

- WHERE Clause - Character Strings and Dates, number
- General Comparison Conditions = > >= < <= <>
- Other Comparison BETWEEN , IN , LIKE , NULL
- Logical Conditions AND OR NOT
- ORDER BY Clause, Sorting by Column Alias , Column Position, Multiple Columns

## 3. Single-Row Functions

- Character Functions: UPPER, LOWER, INITCAP, LENGTH, SUBSTR, INSTR, LPAD, RPAD, CONCAT, LTRIM, RTRIM, TRIM, REPLACE, TRANSLATE, REVERSE
- Number Functions: ROUND, TRUNC, MOD, POWER, CEIL , FLOOR, ABS
- Dates Functions: SYSDATE, MONTHS\_BETWEEN, NEXT\_DAY, LAST\_DAY, ADD\_MONTHS, ROUND, TRUNC, Arithmetic on Date
- Conversion Functions: Implicit Data-Type Conversion & Explicit Data-Type Conversion, TO\_CHAR ,TO\_NUMBER ,TO\_DATE
- General Functions: NVL , NVL2 , NULLIF, COALESCE
- CASE Expression, DECODE
- Nested function with real-time usage

## 4. JOINS

- EQUI JOIN / SIMPLE JOIN / NORMAL JOIN
- ANSI JOIN, LEFT OUTER, RIGHT OUTER, FULL OUTER
- NATURAL JOIN, NATURAL OUTER JOINS
- INNER JOIN, JOIN ... USING clause, JOIN ... ON clause,
- CROSS JOIN, NON-EQUI JOIN, SELF JOIN
- ORACLE STANDARD OUTER JOINS.

## 5. Multi-row Functions

- Group Functions Rules, SUM, MIN, MAX, COUNT, AVG
- Creating Groups of Data: GROUP BY Clause
- Filtering Group Results: The HAVING Clause

## 6. Sub-queries

- Single-Row Subqueries- Rules, Operators : = > >= < <= <>
- Null Values in a Subquery
- Multi-Row Subqueries- Rules, Operators : IN, ANY , ALL

## 7. Reporting data using interface commands

- pagesize, linesize , column heading , column format , colsep
- tTitle , bTitle , break on column, spool , CSV file generation, Text file generation

## 8. Data Manipulation Language DML and Transaction Control Language TCL

- DML : INSERT, UPDATE, DELETE, MERGE
- TCL : COMMIT, ROLLBACK, SAVEPOINT

## 9. Data Definition Language - DDL

- DDL : CREATE, ALTER, RENAME, DROP, TRUNCATE
- DEFAULT OPTION.
- Constrain table copy

## 10. Constraints

- NOT NULL, UNIQUE, PRIMARY KEY, FOREIGN KEY, CHECK
- Column Level Constraint, Table Level Constraint Naming constraints and usage
- Adding a Constraint, Dropping a Constraint,
- Disabling Constraints, Enabling Constraints
- Validating Constraints

## 11. Views

- Simple Views and Complex Views Create, Drop, Source Code
- Rules for Performing DML Operations on a View
- WITH CHECK OPTION , WITH READ ONLY
- Inline Views
- Materialized View Create, Refresh, Drop - Usage

## 12. Other Database Objects

- Sequence- NEXTVAL and CURRVAL
- Index - When to Create an Index, When Not to Create an Index.
- Synonyms

## 13. DCL COMMANDS

- Creating Users
- Granting / Revoking Privileges
- Creating and Granting Privileges to a Role

## 14. Dictionary Tables

- Tables, Views, Synonyms, Index, Sequence, Constrains, Source and other Dictionary

## 15. SET Operators

- UNION
- UNION ALL
- INTERSECT
- MINUS

## 16. GROUP BY Clause

- Group by with ROLLUP,
- Group by with CUBE,
- GROUPING SETS

## 17. Subqueries

- Pairwise Comparison Subquery ,
- Nonpairwise Comparison Subquery
- Correlated Subqueries,
- Correlated UPDATE,
- Correlated DELETE
- EXISTS , NOT EXISTS Operator

## 18. Multi-table Insert

- Unconditional INSERT ALL
- Conditional INSERT ALL
- Conditional FIRST INSERT

## 19. DATA LOADER

- SQLLDR Loading CSV file / Flat file into ORACLE table.
- External Table

## 20. Analytic Functions

- WM\_CONCAT, LAG, LEAD, RANK, DENSE\_RANK
- Query\_by partition\_clause with sum, min, max, avg, count,
- order\_by\_clause with sum, min, max, avg, count,
- Pseudo column : Rownum, Rowid, - Elimination duplicate data
- Connect by rownum , Connect by Level Generating random numbers, random dates,
- Quote Operator syntax and usage

## 21 Partitioned Tables

- Range
- Hash
- List
- Interval-Hash
- Interval-List
- Interval-Range
- System Partitioning
- Reference Partitioning
- Virtual Column-Based Partitioning

## 22. Backup

- Export / Import SCHEMA

## 23 Working with Regular Expressions

- Introducing Regular Expressions
- Using the Regular Expressions Functions and Conditions in SQL and PL/SQL
- Introducing Metacharacters
- Using Metacharacters with Regular Expressions
- Regular Expressions Functions and Conditions: Syntax
- Performing a Basic Search Using the REGEXP\_LIKE Condition
- Finding Patterns Using the REGEXP\_INSTR Function
- Extracting Substrings Using the REGEXP\_SUBSTR Function

## 24 Database Tools

- Toad
- Sql developer
- Working with Unix and Window environment

## 25. Basic Unix Commands

- Cat command
- Awk,sed and grep commands
- Vi editor command
- How to create the shell scripting
- Connect the database

# Oracle PLSQL Training Syllabus

## 1. 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

## 2. 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

## 3. Write Executable Statements

- Describe Basic PL/SQL Block Syntax Guidelines
- Comment Code
- Deployment of SQL Functions in PL/SQL
- How to convert Data Types?
- Nested Blocks
- Identify the Operators in PL/SQL

#### **4. 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

#### **5. 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

#### **6. Explicit Cursors**

- What are 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

#### **7. Exception Handling**

- Understand Exceptions
- Handle Exceptions with PL/SQL
- Trap Predefined Oracle Server Errors
- Trap Non-Predefined Oracle Server Errors
- Trap User-Defined Exceptions
- RAISE\_APPLICATION\_ERROR Procedure
- Autonomous Transactions

#### **8. Stored Procedures and Functions**

- Understand 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

## **9 Create Packages**

- Identity the advantages of Packages
- Describe Packages
- List the components of a Package
- Develop a Package
- How to enable visibility of a Packages 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

## **10 Dynamic SQL**

- The Execution Flow of SQL
- What is Dynamic SQL?
- Dynamically executing a PL/SQL Block
- Invoke DBMS\_SQL Package
- Implement DBMS\_SQL with a Parameterized DML Statement

## **11 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
- Statement Level Triggers Versus Row Level Triggers
- Create Instead of and Disabled Triggers
- How to Manage, Test, and Remove Triggers?

## **12 Using Collections**

- Overview of collections
- Use Associative arrays
- Use Nested tables
- Use VARRAYs
- Compare nested tables and VARRAYs
- Write PL/SQL programs that use collections
- Use Collections effectively

## **13 BULK COLLECT & FORALL**

- Introduction
- BULK COLLECT
- FORALL
- SQL%BULK\_ROWCOUNT
- SAVE EXCEPTIONS and SQL%BULK\_EXCEPTION

## **14 ORACLE-SUPPLIED PACKAGES**

- Overview of Oracle-Supplied Packages
- Using the DBMS\_SQL Package
- Using Native Dynamic SQL
- The DBMS\_METADATA Package

- The UTL\_MAIL Package
- The DBMS\_UTILITY Package
- Scheduling Jobs using the DBMS\_SCHEDULER Package

#### **15 Performance Tuning**

- Tune SQL & PL/SQL code

#### **16. Email From Oracle PL/SQL (UTL\_SMTP)**

#### **17. Calling the java programs in plsql**