

# Oracle Training Content

## Introduction to RDBMS

- Feature of RDBMS
- Advantages of RDBMS over FMS ad DBMS
- The 12 rules (E.F Codd's Rules –RDBMS)
- Need for Database Design
- Support of Normalization Process for Data Management
- Client-Server Technology
- Oracle Corporation Products
- Oracle Versions
- About SQL&SQL\*PLUS

## Introduction to SQL Database Object

- Oracle Pre Defined Datatypes
- DDL Commands
- Create, Alter (add, modify, rename, drop)Columns, Rename, truncate, drop
- DML-Insert, update, delete
- DQL-SELECT Statements using WHEREclause
- Comparison and Conditional Operators
- Arithmetic and Logical Operators
- Set Operators (UNION, UNION ALL, INTERSECT, MINUS)
- Special Operators – IN (NOT IN), BETWEEN (NOT BETWEEN), LIKE (NOT LIKE), IS NULL (IS NOT NULL)
- Working with DML, DRL Commands
- Operators Support

## Built-in Functions

- Arithmetic Functions, Character Functions, Date Functions, Conversion Functions
- Aggregate Functions, OLAP Functions & General Functions

## Grouping the Result of a Query

- Using Group by and Having Clause of DRL Statement
- Using Order by clause

## Working with Integrity Constraints

- Importance of Data Integrity
- Support of Integrity Constraints for Relating Table in RDBMS
- NOT NULL constraint
- UNIQUE constraint
- PRIMARY KEY constraint
- FOREIGN KEY constraint
- CHECK constraint
- Working with different types of Integrity Constraints

## REF constraint

- Understanding ON DELETE clause in referential integrity constraint
- Working with a composite constraint
- Working with multiple constraints upon a column

- Applying DEFAULT option to columns
- Adding constraints to a table
- Dropping of constraints
- Enabling / Disable constraints
- Querying for constraints information

## Querying Multiple Tables (Joins)

- Equi Join/Inner Join/Simple Join
- Cartesian Join
- Non-Equi Join
- Outer Joins
- Self Join

## Working with Sub Queries

- Understanding the practical approach to Sub Queries/Nested Select/Sub Select/Inner Select/Outer Select
- What is the purpose of a Sub Query?
- Sub Query Principle and Usage
- Type of Sub Queries
- Single Row
- Multiple Row
- Multiple Column
- Applying Group Functions in Sub Queries
- The impact of Having Clause in Sub Queries
- IN, ANY/SOME, ALL Operators in Sub Queries
- PAIRWISE and NON PAIRWISE Comparison in Sub Queries
- Be ... Aware of NULL's
- Correlated Sub Queries
- Handling Data Retrieval with EXISTS and NOT EXISTS Operators

## Working with DCL, TCL Commands

- Grant, Revoke
- Commit, Rollback, Savepoint
- SQL Editor Commands
- SQL Environment settings

## Maintaining Database Objects

### VIEWS in Oracle

- Understanding the Standards of VIEWS in Oracle
- Types of VIEWS
- Relational Views
- Object Views
- Prerequisites to work with views
- Practical approach of SIMPLE and COMPLEX VIEWS
- Column definitions in VIEWS
- Using VIEWS for DML Operations
- In-Line View
- Forced Views
- Putting CHECK Constraint upon VIEWS
- Creation of READ ONLY VIEWS
- Understanding the IN LINE VIEWS
- About Materialized Views

## Working with Sequences, Synonyms.

## Working with objects(column object, row object & ref object)

## Working with Index and Clusters

## Creating Cluster Tables, Implementing Locks, working with roles

## Pseudo Columns in Oracle

- Understanding Pseudo Columns in Oracle
- Types of Pseudo Columns in Oracle
- CURRVAL and NEXTVAL
- LEVEL
- ROWID
- ROWNUM

## Data Partitions and Parallel Process

- Types of Partitions
- Range Partitions
- Hash Partitions
- List Partition
- Composite Partition
- Parallel Query Process

## PL-SQL (Procedure Language – SQL)

- Introduction to Programming Languages
- Introduction to PL/SQL
- The Advantages of PL/SQL
- PL/SQL Architecture
- PL/SQL Datatypes
- Variable and Constants
- Using Built\_in Functions
- Conditional and Unconditional Statements
- Simple if, if... else, nested if..else, if..else Ladder
- Iterations in PL/SQL
- Simple LOOP, WHILE LOOP, FOR LOOP and NESTED LOOPS
- SQL within PL/SQL
- Composite Data types (Complete)
- Cursor Management in PL/SQL
- Implicit Cursors & Explicit Cursors
- Cursor Attributes
- Cursor with Parameters
- Cursors with LOOPS Nested Cursors
- Cursors with Sub Queries
- Ref. Cursors
- Record and PL/SQL Table Types

## Advanced PL/SQL

- **Procedures in PL/SQL**
- STORED PROCEDURES
- PROCEDURE with Parameters (IN,OUT and IN OUT)
- Procedure with Cursors
- Dropping a Procedure

## • **Functions in PL/SQL**

- Difference between Procedures and Functions
- User Defined Functions
- Nested Functions
- Using stored function in SQL statements
- Packages in PL/SQL
- Creating PACKAGE Specification and PACKAGE Body
- Private and Public Objects in PACKAGE

## EXCEPTIONS in PL/SQL

### Types of exceptions

- User-Defined Exceptions
- Pre Defined Exceptions
- RAISE\_APPLICATION\_ERROR
- SQL Error Code Values

## Database Triggers in PL/SQL

- Types of Triggers
- Row Level Triggers
- Statement Level Triggers
- DDL Triggers

## File Input/Output

- PL/SQL file I/O (Input/Output)
- Using UTL\_FILE Package

## Using LOBS

- Large Objects (LOBS)
- Creating Tables-LOB
- Working with LOB values
- Inserting, Updating & Deleting Values in LOBs
- Populating Lobis DBMS\_LOB Routines
- Using B-FILE

## Using Collections

- Advantages of collection
- Ref cursor (Dynamic Cursor)
- Weak ref cursor
- Strong ref cursor
- Nested Tables VARRAYS or VARYING arrays
- Creating tables using nested tables
- Inserting, updating & deleting Nested Table records
- Nested table in PL/SQL

