

## ORACLE TRAINING CURRICULUM

### Relational Database Fundamentals

- Overview of Relational Database Concepts
- Relational Databases and Relational Database Management Systems
- Normalization

### Oracle

- Introduction to SQL constructs
- Review of Basic SQL statements
- Select, Project, Join
- Describing Oracle tables
- Restricting row returns

### Using SQL \*Plus

- Creating basic reports
- Using the set commands
- Column wrapping
- Creating breaks and summaries
- Adding prompts to queries

### Joining Oracle tables

- Equi-join
- Outer join
- Hiding joins by creating views
- Using IN, NOT IN, EXISTS and NOT EXISTS
- Subqueries
- Exercise – write a subquery

- Correlated subquery
- Non-correlated subqueries

### Advanced SQL operators

- Between operator
- IN and NOT In operators
- Sub-queries
- EXISTS clause
- Using wildcards in queries (LIKE operator)

### Aggregation in SQL

- Count(\*)
- Sum
- Avg
- Min and max
- Using the group by clause
- SQL access methods
- Review of Basic joining methods
- Merge join
- Hash Join
- Nested Loop join
- Advanced SQL operators
- Between operator

### SQL Tuning

- Introduction to rule-based optimization
- Introduction to cost-based optimization
- Collecting table and index statistics
- Using column histograms
- Changing the default optimizer modes

- Using TKPROF
- Using SQL\*Trace
- SQL reusability within the library cache
- Table high-water mark
- Table striping and table partitions
- Using EXPLAIN PLAN
- Interpreting EXPLAIN PLAN Output
- Using indexes to improve performance
- Identifying full-table scans
- Re-writing SQL queries
- Using hints to improve SQL performance
- Using parallel query to improve performance
- Tuning sub-queries

## PL/SQL

### Basics of PL/SQL

- PL/SQL architecture
- PL/SQL and SQL\*Plus
- PL/SQL Basics
- Variables
- Constants
- Datatypes
- Error messages – user\_errors and show errors
- PL/SQL wrapper utility

### PL/SQL structures

- Simple blocks
- Control structures
- PL/SQL records

- Recognizing the Basic PL/SQL Block and Its Sections
- Describing the Significance of Variables in PL/SQL
- Distinguishing Between PL/SQL and Non-PL/SQL Variables
- Declaring Variables and Constants
- Executing a PL/SQL Block

### **Error checking – exception handling**

- Defining exceptions
- Using the when others clause
- Ensuring complete error checking
- Passing error messages to calling routine

### **Boolean logic in PL/SQL**

- Identifying the Uses and Types of Control Structures
- Constructing an IF Statement
- Constructing and Identifying Different Loop Statements
- Controlling Block Flow Using Nested Loops and Labels
- Using Logic Tables
- If-then-else structure
- Testing for numbers characters and Booleans

### **Cursors in PL/SQL**

- Cursor basics
- Using a cursor for a multi-row SQL query

### **Iteration in PL/SQL**

- For loop
- While loop

### **PL/SQL tables**

- Defining PL/SQL tables
- Reasons to use PL/SQL tables

- Populating a PL/SQL table
- Retrieving from a PL/SQL table

### **Dynamic SQL in PL/SQL**

- Introduction to the dbms\_sql package
- Creating a dynamic SQL statement

### **Nested blocks in PL/SQL**

- Creating nested blocks
- Understanding scope in nested blocks

### **Triggers in PL/SQL**

- Triggers and database events
- Defining a trigger
- Timing a trigger
- Enabling and disabling a trigger

### **Stored procedures, functions and packages**

- Basics of stored procedures
- Basics of functions
- Basics of packages
- Defining stored procedures & functions
- Function and stored procedures prototypes
- Passing arguments to functions and stored procedures
- Recompiling functions and stored procedures
- Pinning packages in the SGA with dbms\_shared\_pool.keep
- Package forward declaration
- Package dependency
- Package overloading
- Listing package information

### **Bulking in PL/SQL**

- Bulk queries
- Bulk DML (forall statement)
- Using cursor attributes
- Analyzing impact of bulk operations