

## Oracle 11g – SQL & PL/SQL Course Content

### The Oracle database environment

- Reviewing basic architecture concepts
- Oracle 10g Architecture
- Main features of 9i and 10g

### Basic SQL \*PLUS commands

- Using script files, START, @, GET, SAVE, LIST, PROMPT, PAUSE, ACCEPT, DEFINE, SPOOL

### Basic SELECT Statement

- Writing the statement in sql plus, Running the SELECT statement

### Ordering the output

- Single Column, Descending order, multiple column sorts

### Conditional retrieval of data

- Working with complex conditions, AND OR NOT LIKE BETWEEN

### Working with variables

- Creating and using variables, Command substitution

### Pseudo columns and functions

- Pseudo Columns, Row num, Sys date, User & UID, the Dual Table
- Working with character functions
- UPPER, LOWER, INITCAP, RPAD(), RTRIM(), SUBSTR(), INSTR(),
- TRANSLATE(), REPLACE(), GREATEST(), LEAST(), DECODE
- Working with date functions
- TO\_CHAR(), TO\_DATE(), MONTHS\_BETWEEN(), ADD\_MONTHS(), LAST\_DAY(), NEXT\_DAY()

### Using non-character function

- ROUND (), TRUNC (), SIGN (), Working with multiple tables, Different type of Joins, Writing Outer Joins

### Using the SET operators

- Union, Intersect, minus

### Aggregating data using group functions

- GROUP BY, HAVING

### Creating Sub queries

- Single Row sub queries, Multiple row Sub queries

### Enhancing groups function

- ROLLUP, CUBE

### Transaction Control Language

- Rollback, Commit, save point

### Processing hierarchies

- creating the Tree structure, LEVEL, CONNECT BY

### Data Manipulation Language

- INSERT, UPDATE, DELETE

### Data Definition Language

- CREATE, TRUNCATE, ALTER, DROP, RENAME, DESCRIBE

### Using Declarative Constraints

- Views, Sequences, Synonyms, Indexes, USER\_TABLES, USER\_TAB\_COLUMNS, USER\_OBJECTS, USER\_IND\_COLUMNS, USER\_UPDATEABLE\_COLUMNS, Materialized Views, Other Data dictionary views

### Database Security

- Object Privileges, Granting access to objects

### Improving query performance

- Planning and managing the tuning process, Employing tuning tools,
- Running EXPLAIN PLAN and auto trace, SQL Trace and TKPROF output,
- Optimizer concepts, Fundamentals of access paths, Gathering object and system
- statistics with DBMS\_STATS, Utilizing hints and optimizer mode,
- Specifying first-rows optimization, Determining the driving table

### Other Concepts

- The Relational Database Model, The system Development Lifecycle, Overview of normalization

## PL/SQL

### Blocks

- Structure, Writing Anonymous Blocks

### Variables

- Oracle Data types, TYPE and ROWTYPE declarations, Value assignments

### Control structures

- IF ELSE ENDIF statement, IF ELSIF ELSE ENDIF statement,
- LOOP END , LOOP statement, WHILE condition, FOR condition

### Cursors

- Implicit and Explicit Cursors, Cursor Manipulation statements,
- OPEN FETCH CLOSE EXIT WHEN

### Printing Values to Screen

### Procedures

- Creating and Calling Procedures

### Functions

- Creating and Calling Functions

### Packages

- Package Header, Package Body

### Design Tips and Techniques

- Format of standard packages in an application, Spec and Body, NOCOPY hint

### Triggers

- Database triggers, calling procedures from triggers

### Dynamic SQL

- EXECUTE IMMEDIATE, DBMS\_SQL package

### Oracle Supplied packages



- DBMS\_OUTPUT, UTL\_FILE

#### Collection data types

- Associative Arrays, Nested tables, VARRAYs



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