

## SQL – Part 1

1. Users and Schemas
  1. Introduction to Users and Schemas
    1. Definitions and Client Tools
    2. SQL Developer Login
  2. Creating An Application Schema
2. Pseudo Columns & Functions
  1. Using The Dual Table
  2. Functions
  3. Pseudo-Columns
  4. Using Rowid
  5. Using Rownum
3. Using Subqueries
  1. Simple Subqueries
  2. Inline Views
  3. Correlated Subqueries
  4. Scalar Subquery
4. Joining Tables
  1. Review of Joins
  2. Equijoins
    1. Inner Joins
    2. Outer Joins
  3. Cross Joins
  4. Natural Joins
  5. Using Named Subqueries
5. Group Operations
  1. About Group Processing
  2. Simple GROUP BY
  3. ROLLUP Function
6. Using Set Operators
  1. Set Operators Defined
  2. Relationship to Mathematical Set Theory
  3. Restrictions on Set Operators
7. Conditional Processing
  1. The DECODE Function

2. The Case Expression
3. Exercise: Conditional Processing
8. SQL Functions (Character)
  1. What Are SQL Functions?
  2. Character Functions
    1. CONCAT
    2. LENGTH
    3. INSTR
    4. REPLACE
    5. UPPER
    6. LOWER
    7. INITCAP
    8. LPAD
    9. RPAD
    10. TRIM
    11. TO\_CHAR
    12. SOUNDEX
9. SQL Functions (Non-Character)
  1. Numeric Functions
    1. The TO\_CHAR Function with numbers
  2. Date/Time Functions
  3. Date Format Functions
  4. Date Arithmetic Functions
  5. Null Value Functions
10. SQL Data Manipulation Language
  1. The INSERT Statement
    1. INSERT Statement Categories
  2. The UPDATE Statement
  3. The DELETE Statement
  4. Transactions
  5. Complex Table References
  6. The MERGE statement

## **SQL – Part 2 – Advanced:**

11. Analytical Functions
12. Queries for Queries
13. Techniques to compare data.
14. Efficiently writing SQL queries.

## **PL/SQL – Part 1**

1. PL/SQL Basics
  1. PL/SQL Block
  2. Anonymous Block Structure
  3. Named Block Structure
  4. Executing Blocks
  5. Calling PL/SQL Functions
  6. Executing PL/SQL Blocks and Functions
2. Declaring Variables
  1. Variable Data Types
  2. Variable Naming
  3. Variable Assignment
  4. Complex Variable Types
3. Within the Block
  1. Conditional Processing
    1. The IF Statement
    2. The CASE Statement
  2. Iterative Processing
    1. The LOOP Statement
    2. The WHILE Statement
    3. The FOR Statement
4. Handling Exceptions
  1. Overview of Exceptions
  2. Causing System Generated Exceptions
  3. Handling System Generated Exceptions
  4. Identifying System Generated Exceptions
  5. OTHERS Exception Handler
  6. User Defined Exceptions

5. Use of SQL in PL/SQL
  1. Implicit Cursors
  2. %TYPE and %ROWTYPE Attributes
  3. EXECUTE IMMEDIATE statement
  4. Cursors Attributes
  5. Implicit Cursor
  6. Explicit Cursors
  7. Explicit Cursor
  8. Cursor FOR loop
6. Nested Blocks
  1. Nesting Blocks
  2. Scope of Variables
  3. Scope of Exceptions
  4. Nested Subprograms
  5. Exception Propagation in Nested Blocks
  6. Block Variable Visibility
7. Introducing Subprograms
  1. Anonymous blocks
  2. Types of Subprograms
  3. Finding Subprograms in the Oracle Data Dictionary
  4. Object Dependencies
  5. Subprogram information in the Oracle Data Dictionary
8. Stored Procedures and Functions
  1. Creating Subprograms
  2. Modifying Subprograms
  3. Removing Subprograms
  4. Application Maintenance
  5. Exercise Title
  6. Parameters
  7. Cursors as Parameters
  8. Subprogram Development Techniques
  9. Addressing Compilation Errors
  10. PL/SQL Subprograms with Parameters
9. Packages
  1. Structure of Packages
  2. Purpose of Packages

3. Wrap Utility
  4. Positional vs Named Parameter Notation
  5. Subprograms Omitted from Specifications
  6. Using PL/SQL Packages
10. Database Triggers
1. Purpose of Triggers
  2. Invocation of Triggers
  3. Coding Triggers
  4. Validation Trigger
  5. Modifying Triggers
  6. Viewing Triggers
  7. Enabling/Disabling Triggers
  8. Trigger Errors
11. Data Retrieval Techniques
1. Cursor Review
  2. Cursor Parameters
  3. Cursor Variables
  4. Dynamic SQL
12. Using Oracle Supplied Packages
1. Oracle Supplied Packages
  2. Identifying Available Packages
  3. Identifying Package Subprograms
  4. Selected Oracle Supplied Package Demos
  5. Packages related to Input/Output

## **PL/SQL – Part 2 – Advanced**

### **1. Arrays and Bulk Binds**

Populating Collections Using Bulk Operations

Bulk collect

Bulk Collect from an Explicit Cursor

Chunking Bulk Collections Using the LIMIT Clause

Manually Limiting Bulk Collection Volumes

Bulk Collection of DML Results

FORALL

- Bulk INSERT Operations
- Bulk UPDATE Operations
- Bulk DELETE Operations
- Sparse Collections
- Host Arrays in Bulk Operations
- BULK\_ROWCOUNT
- Handling Exceptions in Bulk Operations
- Unhandled Exceptions
- Handled Exceptions
- Bulk Operations that Complete
- Dynamic SQL and Bulk Operations

## 2. **Table Functions and Pipelining**

- Introduction
- Pipelining Table Functions
- Parallel Enabled Table Functions
- Creating Transformation Pipelines
- Deterministic
- Miscellaneous Information