Introduction to SQL Basics | Basic SQL Programming

Course Agenda

1. Basic RDBMS Principles

* Relational design principles
* Accessing data through a structured query language
* Entity relationship diagrams
* Data Domains
* Null values
* Indexes
* Views
* Denormalization
* Data Model Review
* Lab: Basic RDBMS principles

1. The SQL Language and Tools

* Using SQL\*Plus
* Why Use SQL\*Plus When Other Tools Are Available?
* Starting SQL\*Plus
* EZConnect
* SQL Commands
* PL/SQL Commands
* SQL\*Plus Commands
* The COLUMN Command
* The HEADING Clause
* The FORMAT Clause
* The NOPRINT Clause
* The NULL Clause
* The CLEAR Clause
* Predefined define variables
* LOGIN.SQL
* Command history
* Copy and paste in SQL\*Plus
* Entering SQL commands
* Entering PL/SQL commands
* Entering SQL\*Plus commands
* Default output from SQL\*Plus
* Entering Queries
* What about PL/SQL?
* Lab: SQL Language and Tools

1. Using SQL Developer

* Choosing a SQL Developer version
* Configuring connections
* Creating A Basic Connection
* Creating A TNS Connection
* Connecting
* Configuring preferences
* Using SQL Developer
* The Columns Tab
* The Data Tab
* The Constraints Tab
* The Grants Tab
* The Statistics Tab
* Other Tabs
* Queries In SQL Developer
* Query Builder
* Accessing Objects Owned By Other Users
* The Actions Pulldown Menu
* Differences between SQL Developer and SQL\*Plus
* Reporting Commands Missing In SQL Developer
* General Commands Missing In SQL Developer
* Data Dictionary report
* User Defined reports
* Using scripts in SQL Developer
* Lab: Using SQL Developer

1. SQL Query Basics

* Understanding the data dictionary
* Exporting Key Data Dictionary Information
* The Dictionary View
* Components of a SELECT Statement
* The SELECT Clause
* The FROM Clause
* The WHERE Clause
* The GROUP BY Clause
* The HAVING Clause
* The ORDER BY Clause
* The START WITH And CONNECT BY Clauses
* The FOR UPDATE Clause
* Set Operators
* Column Aliases
* Fully Qualifying Tables and Columns
* Table Aliases
* Using DISTINCT and ALL in SELECT statements
* Lab: SQL Query Basics

1. WHERE and ORDER BY

* WHERE clause basics
* Comparison operators
* Literals and Constants in SQL
* Simple pattern matching
* Logical operations
* The DUAL table
* Arithmetic operations
* Expressions in SQL
* Character operators
* Pseudo columns
* Order by clause basics
* Ordering Nulls
* Accent and case sensitive sorts
* Sampling data
* WHERE and ORDER BY in SQL Developer
* All, Any, Some
* Lab: WHERE and ORDER BY

1. Functions

* The basics of Oracle functions
* Number functions
* Character functions
* Date functions
* Conversion functions
* Other functions
* Large object functions
* Error functions
* The RR format mode;
* Leveraging your knowledge
* Lab: Functions

1. ANSI 92 JOINS

* Basics of ANSI 92 Joins
* Using Query Builder with multiple tables
* Table Aliases
* Outer joins
* Outer Joins In Query Builder
* Set operators
* Self-referential joins
* Non-Equijoins
* Lab: ANSI 92 Joins

1. ANSI 99 Joins

* Changes with ANSI99
* CROSS Join
* NATURAL Join
* JOIN USING
* JOIN ON
* LEFT / RIGHT OUTER JOIN
* FULL OUTER JOIN
* Lab: ANSI 99 JOINS

1. GROUP BY and HAVING

* Introduction to GROUP functions Limiting Rows
* Including NULL
* Using DISTINCT With Group Functions
* GROUP function requirements
* The HAVING clause
* Other GROUP function rules
* Using Query Builder with GROUP clauses
* ROLLUP and CUBE
* The Grouping function
* Grouping Sets
* Lab: GROUP BY and HAVING

1. Subqueries

* Why use subqueries?
* WHERE clause subqueries
* FROM clause subqueries
* HAVING clause subqueries
* CORRELATED subqueries
* SCALAR subqueries
* DML and subqueries
* EXISTS subqueries
* Hierarchical queries
* TOP N AND BOTTOM N queries
* Creating subqueries using Query Builder
* Lab: Subqueries

1. Regular Expressions

* Available Regular Expressions
* Regular Expression Operators
* Character Classes
* Pattern matching options
* REGEX\_LIKE
* REGEXP\_SUBSTR
* REGEXP\_INSTR
* REGEXP\_REPLACE
* REGEXP\_COUNT
* Lab: Regular Expressions

1. Analytics

* The WITH clause
* Reporting aggregate functions
* Analytical functions
* User-Defined bucket histograms
* The MODEL clause
* PIVOT and UNPIVOT
* Temporal validity
* Lab: Analytics

1. More Analytics

* RANKING functions
* RANK
* DENSE\_RANK
* CUME\_DIST
* PERCENT\_RANK
* ROW\_NUMBER
* Windowing aggregate functions
* RATIO\_TO\_REPORT
* LAG / LEAD
* Linear Regression functions
* Inverse Percentile functions
* Hypothetical ranking functions
* Pattern Matching