

Oracle Database 11g: Analytic SQL

Required Prerequisites:

- Oracle Database: Introduction to SQL

Audience:

- Data Warehouse Developer
- Application Developers
- Support Engineer
- Data Warehouse Administrator

Course Objectives:

- Create a tree-structured report, format hierarchical data, and exclude branches from the tree structure
- Identify the benefits of using regular expressions
- Use the regular expressions and subexpressions functions
- Identify the benefits of using Analytic SQL
- Review the available SQL for aggregation operators, SQL for Analysis and Reporting functions, and the SQL for Modeling using the SQL MODEL clause
- Group and aggregate data using the ROLLUP and CUBE operators, the GROUPING function, Composite Columns, and the Concatenated Groupings
- Analyze and report data using Ranking functions, the LAG/LEAD functions, and the PIVOT and UNPIVOT clauses
- Use the MODEL clause to create a multidimensional array from query results and then apply formulas to this array to calculate new values
- Interpret the concept of a hierarchical query, create a tree-structured report, format hierarchical data, and exclude branches from the tree structure

Course Outline:

Introduction

- Course Objectives
- Course Agenda
- Class Accounts Information
- Appendices Used in this Course
- Sample Schemas Used in this Course
- SQL Environments Available in the Course
- Overview of Oracle SQL Developer
- Oracle 11g SQL and Data Warehousing Documentation and Additional Resources

Grouping and Aggregating Data Using SQL

- What is Analytic SQL?
- Analytic SQL in Data Warehouses Agenda: SQL for Aggregation, SQL for Analysis and Reporting, and SQL for Modeling
- Generating Reports by Grouping Related Data
- Using the GROUP BY Clause With the ROLLUP and CUBE Operators

- Using the ROLLUP and CUBE Operators
- Using the GROUPING Function
- Working With GROUPING SETS
- Working With Composite Columns and Concatenated Groupings

Analyzing and Reporting Data Using SQL

- Overview of SQL for Analysis and Reporting Functions
- Identifying the SQL Ranking Functions
- Controlling the Ranking Order
- Ranking on Multiple Expressions
- Using the RANK, DENSE_RANK, and PERCENT_RANK Functions
- Ranking Per CUBE and ROLLUP
- Using the LAG/LEAD Functions
- Performing Pivoting Operations Using the PIVOT and UNPIVOT Clauses

Modeling Data Using SQL

- Overview of SQL for Modeling Data
- Integrating Inter-row Calculations in SQL
- Working With the SQL MODEL Clause
- Cell and Range References
- Using the CV() Function
- Using the FOR Construct with IN List Operator, Incremental Values, and a Subquery
- Using Reference Models
- Cyclic Rules in Models

Hierarchical Retrieval

- Hierarchical Retrieval: Overview
- Natural Tree Structure
- Hierarchical Queries
- Walking the Tree
- Walking the Tree: From the Bottom Up and From the Top Down
- Ranking Rows with the LEVEL Pseudocolumn
- Formatting Hierarchical Reports Using LEVEL and LPAD
- Pruning Branches and Nodes

Analyzing Data Using Regular Expressions

- The Benefits of Using Regular Expressions
- Using the Regular Expressions Functions and Conditions in SQL
- Using Metacharacters with Regular Expressions
- Performing a Basic Search Using the REGEXP_LIKE Condition
- Finding Patterns Using the REGEXP_INSTR Function
- Extracting Substrings Using the REGEXP_SUBSTR Function
- Replacing Patterns Using the REGEXP_REPLACE Function
- Using Subexpressions with Regular Expression Support