

# SQL Processing on IBM Netezza Performance Server

Course Length: 2 days CEUs 1.2

Format: Hands on Training/Workshop

## AUDIENCE

This course is designed to teach basic to advanced ANSI show how SQL. The course and SQL will be taught on the IBM Netezza Performance Server platform.

#### PREREQUISITES

Prior knowledge of SQL or Netezza is not required. General programming and database knowledge are helpful.

### **COURSE TOPICS**

#### Background

- Relational Model
- Components of SQL Language
- Primary Key
- Foreign Key
- The Null Concept

#### **Creating and Populating a Database**

- Aginity Workbench Environment
- Statements
- Constraints
- Indexes
- Sequences
- Insert Statement
- Traditional Statement Failures

#### **Query Mechanics**

- Query Clauses
- The Select Clause Derived Columns Removing Duplicates Subquery-generated Tables
- Views
  - Table Links Defining Table Alias The Where Clause Group By and Having Clauses Order By Clause Ascending vs. Descending Order Sorting via Expressions and Numeric Placeholders

#### Filtering

Condition Evaluation

- Using Parentheses
- Using the Not Operator
- Building a Condition Equality and Inequality Conditions Data Modification using Equality Conditions Range Conditions Between Operator String Ranges
- Membership Conditions
   Using Not In
   Matching Conditions
   Using Wildcards
- Regular Expression

#### **Querying Multiple Tables**

- Cartesian Products
  - Inner Joins ANSI Join Syntax Using Subqueries as Tables Using the same Table twice
- Self Joins
- Natural Joins
- Equi-joins and Non Equi-joins
- Join condition vs. Filter condition

#### Working with Sets

Set Operators
 Union
 Intersect



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#### Except

Set Operation Rules

### Data Generation, Conversion, and Manipulation

- String Generation Including Special Characters
- String Manipulation
- Numeric Data Controlling Numeric Precision Working with Temporal Data Choosing the Valid Value in a List
- Casting String to Date Conversion Functions for Generating Dates Manipulating Temporal Data Temporal Functions that Return Strings

## **Grouping and Aggregates**

- Granularity
- Grouping Concepts
- Aggregate Functions
   Implicit vs. Explicit Groups
   Counting Distinct Values
- Using Expressions
   Null Impact on Aggregate Functions
   Generating Groups
- Column Grouping Grouping by Expressions Generating Rollups Group Filter Conditions

## Subqueries

- Subquery Background
- Subquery Types Non-correlated Subqueries Multi-row (one column) queries
- The All Operator and The Any Operator
- Multicolumn Subqueries
- Correlated Subqueries
   Exists Operator
   Data Manipulation Using Correlated
   Subqueries
   Subqueries as Data Sources
   Subqueries in Filter Conditions

## Advanced Joins

- Outer Joins Left Join vs. Right Join
- Three-Way Outer Join

- Self Outer Joins
- Cross Joins

## **Conditional Logic**

- Outer Join with No Conditions
- Case Expressions
- Result Set Transformations
- Checking For Existence
   Division By Zero Errors
- Null Values
   Simple Case Expressions

#### Transactions

- Multiuser Databases
- Locking
- Relaxed Serialization
- Transactions

#### Views

- Data Security
- Data Aggregation
- Hiding Complexity
- Joining Partitioned Data
- Display Views

#### Metadata

Metadata Background
 Information Schema

#### Windows Aggregate Functions

Windows Function Definition and Examples
 *First\_Value Function
 LAG Function
 Lead Function
 Min and Max Function
 Rank Function*