

## Course duration

- 3 days

## Course Benefits

- Learn to gain a deeper knowledge and understanding of the Kognitio Architecture and Kognitio SQL and how to write it.

## Course Outline

1. Introduction to the Kognitio Architecture
  1. What is Parallel Processing?
  2. The Basics of a Single Computer
  3. Data in Memory is fast as Lightning
  4. Parallel Processing Of Data
  5. Kognitio is an In-Memory System
  6. Kognitio has Three Table Distribution Options
  7. Kognitio has Linear Scalability
  8. Nexus is Now Available for Kognitio
2. Kognitio Table Structures
  1. Kognitio has Three Table Distribution Options
  2. A Table that is distributed via a Round Robin Technique
  3. Round Robin Technique is the Default
  4. Random Distribution
  5. A Table that is distributed by Hash
  6. Tables that join are excellent candidates for Hashed Tables
  7. Hash Distribution
3. Nexus for Kognitio
  1. Nexus is Available on the Cloud
  2. Nexus Queries Every Major System
  3. How to Use Nexus
  4. Why is Nexus Special? Visualization and Automatic SQL
  5. Why is Nexus Special? Cross-System Joins
  6. Why is Nexus Special? The Amazing Hub System
  7. Why is Nexus Special? Save Answer Sets as Tables
  8. Why is Nexus Special? Automated Data Movement
  9. Why is Nexus Special? Nexus makes the Servers Talk Directly
  10. What Makes Nexus Special? The Garden of Analysis
  11. The Garden of Analysis Grouping Sets Tab
4. The Basics of SQL
  1. Introduction

2. Setting the Default Schema
3. SELECT \* (All Columns) in a Table
4. Fully Qualifying a Database, Schema and Table
5. SELECT Specific Columns in a Table
6. Commas in the Front or Back?
5. The WHERE Clause
  1. The WHERE Clause limits Returning Rows
  2. Double Quoted Aliases are for Reserved Words and Spaces
  3. Character Data needs Single Quotes in the WHERE Clause
  4. Character Data needs Single Quotes, but Numbers Don't
  5. Comparisons against a Null Value
  6. NULL means Unknown Data so Equal (=) won't return rows
  7. Use IS NULL or IS NOT NULL when dealing with NULLs
6. Distinct, Group By and TOP
  1. The Distinct Command
  2. Distinct vs. GROUP BY
  3. TOP Command
  4. TOP Command with an ORDER BY Statement
  5. Just Place the TOP n in front of any Query
7. Aggregation
  1. The 3 Rules of Aggregation
  2. There are Five Aggregates
8. Join Functions
  1. A Two-Table Join Using Traditional Syntax
  2. A two-table join using Non-ANSI Syntax with Table Alias
  3. You Can Fully Qualify All Columns
  4. A two-table join using ANSI Syntax
  5. Both Queries have the same Results and Performance
9. Date Functions
  1. Current\_Date
  2. Current\_Date and Current\_Time
  3. Current\_Date and Current\_Timestamp
  4. Current\_Timestamp with Milliseconds
  5. Current\_Timestamp with Microseconds
  6. Current\_Timestamp and SYSDATE are Synonyms
  7. The Now Function
  8. Adding Days, Weeks and Months to a Date
10. Sub-query Functions
  1. An IN List is much like a Subquery
  2. An IN List Never has Duplicates Just like a Subquery
  3. An IN List Ignores Duplicates
  4. The Subquery
11. OLAP Functions
  1. The Row\_Number Command
  2. Using a Derived Table and Row\_Number
  3. Finding the First Occurrence
  4. Finding the Last Occurrence

5. RANK Defaults to Ascending Order
6. Getting RANK to Sort in DESC Order
7. RANK OVER and PARTITION BY
8. RANK and DENSE RANK
9. CSUM
10. CSUM The Sort Explained
11. CSUM Rows Unbounded Preceding Explained
12. CSUM Making Sense of the Data
13. CSUM Making Even More Sense of the Data
14. CSUM The Major and Minor Sort Key(s)
12. Temporary Tables
  1. There are Two Types of Temporary Tables
  2. CREATING A Derived Table
  3. Naming the Derived Table
  4. Aliasing the Column Names in the Derived Table
  5. Multiple Ways to Alias the Columns in a Derived Table
13. Strings
  1. The LENGTH Command Counts Characters
  2. The LENGTH Command Spaces can Count too
  3. The LENGTH Command Counts Trailing Spaces
  4. The LENGTH Command and TRIM
  5. UPPER and LOWER Commands
  6. Using the LOWER Command
  7. Using the UPPER Command
  8. Non-Letters are Unaffected by UPPER and LOWER
  9. The CHARACTERS Command Counts Characters
14. Interrogating the Data
  1. The NULLIF Command
  2. The COALESCE Command Fill In the Answers
  3. The COALESCE Answer Set
  4. The COALESCE Command
15. Set Operators Functions
  1. Rules of Set Operators
  2. INTERSECT Explained Logically
  3. INTERSECT Explained Logically
  4. UNION Explained Logically
  5. UNION Explained Logically
  6. UNION ALL Explained Logically
  7. UNION ALL Explained Logically
16. View Functions
  1. The Fundamentals of Views
  2. Creating a Simple View to Restrict Sensitive Columns
  3. Creating a Simple View to Restrict Rows
  4. Basic Rules for Views
  5. Exception to the ORDER BY Rule inside a View
  6. Views sometimes CREATED for Formatting
17. Table Create and Data Types

1. Kognitio Has Three Table Distribution Options
2. A Table that is distributed via a Round Robin Technique
3. Round Robin Technique is the Default
4. A Table that is distributed by Hash
5. Tables that join are excellent candidates for Hashed Tables
6. A Table that is distributed by Hash by Multiple Columns
7. The Reasons for a Multi-Column HASHED Distribution Key
8. Creating a Table that is replicated across all Nodes
9. The Concept is all about the Joins
18. Data Manipulation Language (DML)
  1. INSERT Syntax # 1
  2. INSERT example with Syntax 1
  3. INSERT Syntax # 2
  4. INSERT example with Syntax 2
  5. INSERT example with Syntax 3
19. Kognitio Explain
  1. How to See an EXPLAIN Plan
  2. Seeing an EXPLAIN Plan with Nexus
  3. The Eight Rules to Reading an EXPLAIN Plan
  4. Interpreting Keywords in an EXPLAIN Plan
  5. Interpreting an EXPLAIN Plan
  6. A Single Segment Retrieve The Fastest Query
20. Statistical Aggregate Functions
  1. The Stats Table
  2. Numeric Manipulation Functions
  3. Ceiling Gets the Smallest Integer Not Smaller Than X
  4. Floor Finds the Largest Integer Not Greater Than X
  5. The Round Function and Precision
  6. The STDDEV\_POP Function
  7. A STDDEV\_POP Example

## Class Materials

Each student will receive a comprehensive set of materials, including course notes and all the class examples.