DB2 12 FOR Z/OS SQL PERFORMANCE AND TUNING

Course Code: 100302

Learn how to improve the performance of existing SQL.

Learn how to prevent SQL performance problems and how to improve the performance of existing SQL.

What You'll Learn

After completing this course, you will be able to:

- Understand and design better indexes
- Determine how to work with the optimizer (avoid pitfalls, provide guidance)
- Optimize multi-table access
- Work with subqueries
- Avoid locking problems
- Use accounting traces and other tools to locate performance problems in existing SQL

Prerequisites

Familiarity with SQL, Db2 12 for z/OS, and application programming

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CLASSROOM LIVE	$2,850 USD	3 Day

Classroom Live Outline

Introduction to SQL performance and tuning

- Performance issues
- Simple example
- Visualizing the problem
- Summary

Performance analysis tools

- Components of response time
- Time estimates with VQUBE3
- SQL EXPLAIN
- The accounting trace
- The bubble chart
- Performance thresholds

Index basics

- Indexes
- Index structure
- Estimating index I/Os
- Clustering index
- Index page splits

Access paths

- Classification

- Matching versus Screening
- Variations
- Hash access
- Prefetch
- Caveat

More on indexes

- Include index
- Index on expression
- Random index
- Partitioned and partitioning, NPSI and DPSI
- Page range screening
- Features and limitations

Tuning methodology and index cost

- Methodology
- Index cost: Disk space
- Index cost: Maintenance
- Utilities and indexes
- Modifying and creating indexes
- Avoiding sorts

Index design

- Approach
- Designing indexes

Advanced access paths

- Prefetch
- List prefetch
- Multiple index access
- Runtime adaptive index

Multiple table access

- Join methods
- Join types
- Designing indexes for joins
- Predicting table order

Subqueries

- Correlated subqueries
- Non-correlated subqueries
- ORDER BY and FETCH FIRST with subqueries
- Global query optimization
- Virtual tables
- Explain for subqueries

Set operations

- UNION, EXCEPT, and INTERSECT
- Rules
- More about the set operators
- UNION ALL performance improvements

Table design

- Number of tables
- Clustering sequence
- Denormalization
- Materialized query tables (MQTs)
- Temporal tables
- Archive enabled tables

Working with the optimizer

- Indexable versus non-indexable predicates
- Boolean versus non-Boolean predicates
- Stage 1 versus stage 2
- Filter factors
- Helping the optimizer
- Pagination

Locking issues

- The ACID test
- Reasons for serialization
- Serialization mechanisms
- Transaction locking
- Lock promotion, escalation, and avoidance

More locking issues

- Skip locked data
- Currently committed data
- Optimistic locking

- Hot spots
- Application design
- Analyzing lock waits

Massive batch

- Batch performance issues
- Buffer pool operations
- Improving performance
- Benefit analysis
- Massive deletes

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Sep 15 - 17, 2025 | 9:30 AM - 5:30 PM EST

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PRIVATE GROUP TRAINING	3 Day

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Date created: 7/30/2025 10:29:54 PM