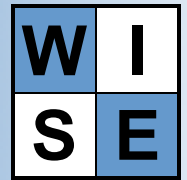


DB2 for z/OS: V8 & V9 Update (Developer)



WISE LTD.

- COURSE CODE:** DZ9DS2
- COURSE TITLE:** DB2 for z/OS: V8 & V9 Update (Developer), including SQL Tuning
- AUDIENCE:** DB2 developers, production DBAs and technical DBAs.
- LEVEL:** Intermediate to advanced.
- PREREQUISITES:** At least six (6) months of DB2 V7 experience.
- DURATION:** 2 days (without hands-on)/ 3 days (with hands-on)
- SUMMARY:** This course is dedicated to application, design and performance in DB2 z/OS V8 and V9 environments. The presentation concludes with an EXPLAIN workshop (3-day version only).
- OBJECTIVES:** Upon completion of this presentation, the participant should be able to use DB2 for z/OS V8 & V9's interactive and embedded SQL to meet a variety of business needs. Additionally, the participant should be able to use the full complement of DB2 EXPLAIN tools to determine the optimum SQL when faced with competing SQL alternatives.

1. THE DB2 FAMILY

- DB2 platform options

2. TABLE DESIGN

- The logical model
- Third normal form
- Partitioning
- DB2 compression
- Choosing a page size

3. INDEX DESIGN

- Index purposes
- Index cost
- DB2's use of indexes
- Will DB2 use the index?
- Which indexes to build
- Clustering index
- Indexing partitioned tables (e.g., nonpartitioned indexes, data-partitioned secondary indexes)

4. CONSTRAINTS

- Uniqueness constraints
- Referential constraints
- Check constraints
- Code and look-up tables

5. TECHNIQUES TO GENERATE NUMBERS

- Generating non-unique ordered numbers
- Generating unique not ordered non-consecutive numbers
- Generating unique ordered non-consecutive numbers
- Generating consecutive numbers

6. DATABASE PROGRAMMING

- Using stored procedures
- Using user-defined functions
- Using triggers

7. XML SUPPORT

- Storing XML intact
- Decomposing or shredding XML documents
- XML publishing

8. SQL FUNDAMENTALS

- SQL calls optimization
- Rows searched optimization
- SELECT column list
- ORDER BY clause
- Subquery to join transformation
- Indexable, stage 1 and stage 2 predicates
- CAST function considerations
- Selective predicates
- Subqueries
- QUERYNO in SQL statements
- Reduce trips to DB2
- Cursor versus searched update and delete
- COMMIT frequency
- SAVEPOINTS
- Temporary tables
- Retrieving values generated at insert
- Current statistics
- Longer SQL statements
- Long predicates
- Long index keys
- Identity column enhancements
- Sequence objects
- Multiple DISTINCT clauses
- GROUP BY expression

9. PROGRAMMING TEMPLATES

- Cursor versus singleton select
- UPDATE and DELETE using cursors
- Browsing techniques
- Scrollable cursors
- Using multi-row FETCH
- Data integrity
- Exception handling (e.g., GET DIAGNOSTICS)

10. ADVANCED PROGRAMMING TECHNIQUES

- Massive insert, update and delete
- Delete considerations
- Optimizing repeat processes (e.g., prefetch mechanisms)

11. INFRASTRUCTURE TOPICS

- Database BIND options (e.g., ACQUIRE, ISOLATION, DEFER(PREPARE))
- Thread reuse (e.g., CICS)
- Plan and package authorisation
- Static SQL, dynamic SQL and reoptimization
- CICS Open Transaction Environment

12. LOCKING & CONCURRENCY

- Serialisation mechanisms used by DB2
- Lock suspensions, timeouts and deadlocks
- Lock duration
- Unit of work
- Hot spots

13. DB2 ACCESS TECHNIQUES

- Data access methods
- Prefetch mechanisms
- Sequential detection
- Index lookaside
- Repetitive SQL procedures

14. SQL PERFORMANCE, V9 SPECIFIC

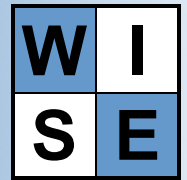
- DISTINCT and GROUP BY enhancements
- Dynamic prefetch enhancement for regular index access during an SQL call
- Global query optimization
- Optimization for a complex query
- MERGE and SELECT FROM MERGE
- SELECT FROM UPDATE or DELETE
- FETCH FIRST and ORDER BY in subselect and fullselect
- TRUNCATE SQL statement
- Generalised sparse indexes and in-memory data caching
- Dynamic index ANDing for star join query
- INTERSECT and EXCEPT
- REOPT AUTO
- INSTEAD OF triggers
- BIGINT, VARBINARY, BINARY and DECFLOAT
- Autonomic DDL
- Index on expression
- Histogram statistics over a range of column values

15. EXPLAIN TABLES

- DSN_PLAN_TABLE
- DSN_STATEMENT_TABLE
- DSN_FUNCTION_TABLE
- DSN_STATEMENT_CACHE_TABLE
- EXPLAIN workshop (3-day version only)

16. DATA WAREHOUSING

- More tables in joins
- Sparse index and in-memory workfiles for star join
- Common table expression and recursive SQL
- Materialized query tables



17. SECURITY ENHANCEMENTS

- Security labels
- Multilevel security for access control
- Multilevel security with row granularity