ProTech Professional Technical Services, Inc.

IBM i (iSeries, AS/400) Db2 SQL Design Workshop

Course Summary

Description

The use of SQL takes iSeries application development to a new level of productivity. Also crucial is data integrity, and new Db2 features make it easier to build this into applications. Performance can be maintained if proper design techniques are followed.

This course teaches the latest improvements in Db2 and SQL so companies can build optimal database applications. Students are taught proven design techniques that ensure high performance. At the end of the course, important on-line and batch issues are summarized.

Topics

- Review of Common SQL Constructs
- Advanced SQL constructs
- Object Management
- Functions
- Stored Procedures and Triggers
- Index Design
- Processing implications
- Evaluating SQL Performance
- Concurrency control
- Online Design Considerations
- Batch Processing

Audience

This course is designed for Application developers and programmers.

Prerequisites

Students should have at least three months' Db2 development experience. For those needing the basics, an appendix can be taught at the beginning of the first day.

Duration

Three days

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Course Outline

I. *Review of Common SQL Constructs*
   A. IN, LIKE, CASE and CAST expressions
   B. Appendix: Basic SQL
   C. Select, Insert, Update, Delete & cursors

II. *Advanced SQL constructs*
   A. Temporary tables, OLAP queries
   B. Common table expressions, recursive queries
   C. Merge statements

III. *Object Management*
   A. Types of objects and their relationships
   B. Tables and Views
   C. Identity columns and sequences
   D. Materialized query tables
   E. The Db2 Catalog

IV. *Functions*
   A. Scalar, column, row and table functions
   B. External, SQL, and sourced user-defined functions
   C. OLAP expressions and window partitioning

V. *Stored Procedures and Triggers*
   A. Procedural constructs
   B. Before and after triggers
   C. Client server architecture

VI. *Index Design*
   A. Index structure, cardinality
   B. Index design

VII. *Processing implications*
   A. Overview of access path selection
   B. When indexes are used
   C. Factors used in access path selection

VIII. *Evaluating SQL Performance*
   A. Visual Explain
   B. Index advisor
   C. Remedial actions

IX. *Concurrency control*
   A. Units of work and locking
   B. Lock sizes & types
   C. Lock suspensions, timeouts and deadlocks

X. *Online Design Considerations*
   A. Reducing contention & deadlocks
   B. Efficient use of SQL
   C. Browsing techniques

XI. *Batch Processing*
   A. Goals of batch program design
   B. Batch restart methods, cursor repositioning
   C. Parallel batch execution, mass update activity