Advanced DB2/SQL Application Programming (V7)

Duration 5 days.

Participants: Application programmers and developers.

Objectives Upon successful completion of this course you will be able to:
- Code advanced SQL (Structured Query Language) queries, including complex inner and outer joins, subqueries, unions, and use the new Version 7 SQL enhancements.
- Use application coding techniques such as new Version 7 CURSOR management and concurrency management.
- Use techniques to code efficient SQL, including EXPLAINs.
- Describe advanced DB2 capabilities including triggers, stored procedures, user-defined functions, additional built-in functions, etc.
- Use Version 7 enhancements for SQL and DB2 application programming.

Overview This course teaches experienced programmers to use advanced SQL (Structured Query Language).

Prerequisites Some experience with SQL is required.

Format Lecture and hands-on workshops. Numerous workshops enhance the learning process. Programming workshops use supplied COBOL skeletal programs.

Topic Outline

Advanced SQL

Join
- Cartesian product
- Equijoin
- Natural join
- Greater than join
- Joining rows of the same table
- Outer joins
- Right outer join
- Left outer join

Union
- Union of two SELECTs
- Union with ORDER BY
- Union coding rules

Subqueries
Subqueries vs. joins
Correlated subqueries
EXISTS operator
Static SQL
Dynamic SQL
- Contrast with Static SQL
- ODBC Call Level Interface Mode
- Dynamic SQL cache
- Pre-compile requirements

Type 2 indexes

Topic Outline

Version 7 SQL Enhancements

UNION, UNION ALL
New column functions
New scalar functions
Self-referencing UPDATEs and DELETEs
New SET expressions
Row value expressions
Limited FETCH
ORDER BY enhancements
Embedded SQL Enhancements
- Scrollable cursors
- Precompile during compile step

Data Enhancements
- UNICODE support

Efficiencies
- EXPLAIN
- Suggestions for coding efficient SQL

Data Administration Enhancements
Stored Procedures and e-business Enhancements
Support Changes and Enhancements
Availability Improvements
- Architecture changes
- Support for Coupling Facility Name Class Queue
- Group Attach process improved
- IMMEDWRITE bind/ rebind options improvements
- "Restart Light"

Persistent size of objects maintained

Concurrency Management

Overview of DB2 locking
- Size of locks
- The need for locks

Bind parameters that affect locking
Effect of COMMIT and ROLLBACK on locks

Stored Procedures - Concepts and Features Overview

Stored Procedure uses (SQL and non-DB2 uses)
Stored procedures environment
Setup requirements and installation considerations
SPAS versus WLM address spaces
Client/ Server logic flow
Advantages over embedding SQL in client programs

Additional Features - Overview (optional)

Sysplex parallelism
Universal database
Client/ Server enhancements
Stored procedures

Topic Outline

Additional Features - Overview (optional) - *cont*.

Object oriented support
Complex datatypes
Bind option to reoptimize access paths
UDB - Universal DB extensibility
Object-relational extensions and multimedia capabilities
User-defined data types
User-defined functions
Trigger support
Increased sizes and reduced limits
Performance and availability enhancements
Network Computing Enhancements
Universal DB Extensibility
- Object-relational extensions
- Multimedia large object data types
- User-defined data types
- Built-in SQL functions
- Trigger support for active data
- Object-relational extensors
- Additional SQL enhancements