DB2 UDB® Introduction

Keane
enabling transformation

Course No.

1085

Description

In this hands-on course, participants will execute over 60 SQL statements to read and update DB2™ tables as well as, getting a comprehensive understanding of QMF and SPUFI. In addition, participants will learn the importance of Database Design and Object creation. DB2™ SQL Performance will be addressed throughout the entire class as it pertains to certain SQL statements.

Audience

This course is suggested for Application Developers, Analysts and Technical Support Personnel who will be working directly with DB2™ for OS/390.

Prerequisites

Participants should have a general working knowledge of Data Processing and some experience using TSO and ISPF in an OS/390 environment.

Objectives

- Read and Update DB2™ tables, using all features of the SQL SELECT, INSERT, UPDATE, and DELETE
- Code Scalar Functions, Column Functions and User Defined Functions
- Study search arguments in the WHERE clause:
- Ordering, with the ORDER BY clause
- Table Creation and Datatypes
- Joins of multiple tables, including self-joins
- Subqueries and unions
- Work on specific performance problems including:
- Knowing how SQL coding affects index use and sorting
- Become familiar with catalog
- Understand the ideas behind Data Normalization
- Learn DB2™ factors which affect performance
- Use QMF™ and SPUFI for reporting and query resolution

Major Topics

- DB2™ Overview
- SQL Overview
- SQL SELECT Statements
- SQL WHERE Clauses
- SQL: Using Multiple Tables
- SQL Summarizing
- SQL Updating
- QMF™ and SPUFI
- Database from a DBA's point of view
- Table Design and Creation
- Normalization
- DB2 SQL Performance

Duration

3 days

Course Contents

1. DB2™ Overview

- Objectives
- How DB2™ Interfaces with Applications
- Components of a DB2™Database
- Nulls
- DB2™ "World" Example
- Relationships
- A View
- 'Special' Data Types
- Table/View Names
- Synonyms and Aliases
- A DB2™ Subsystem
- Summary

2. SQL Overview

- Objectives
- SQL Syntax Rules
- DDL, DCL, DML
- Static SQL
- Dynamic SQL
- QMF™ Basics
- Objectives
- Running a Query
- Form.Main
- Formatting a Report
- QMF™ Object Management
- Summarization
- QMF™ Procedures

3. SQL SELECT Statements

- Objectives
- SELECT Clauses
- SQL SELECT Clause
- Selecting All Rows and Columns
- Selecting Column Names
- Eliminating Duplicates with DISTINCT
- Arithmetic Expressions
- Column Aliases, Using "AS"
- Literals
- Concatenating Strings Functions
- Scalar Functions
- Replacing Null Values
- String-Handling Functions
- The Need for Type Conversion Functions
- Type Conversion Functions
- Date-Handling Functions and Expressions
- Changing the Date Display Format
- Finding Date Differences
- Incrementing Dates
- Extracting Parts of Dates
- Returning Nulls for an Expression
- CASE Expressions

4. SQL WHERE Clauses

- Objectives
- WHERE Clause
- Samples of Simple Predicates
- Compound Predicates with AND and OR
- Three Value Logic
- Null Values
- Ranges, with BETWEEN
- Lists, with IN
- Using an Expression in the IN Clause
- String Matching, with LIKE

5. SQL: Using Multiple Tables

- Objectives
- Various Ways of Combining Tables
- Joins 101
- Inner Joins
- Local Predicates
- Joining Three or More Tables
- Joining a Table to Itself (Self-Joins)
- Outer Joins
- Full Outer Joins
- Using Subqueries to Find the Intersection of Sets
- Using EXISTS
- Difference
- Other Correlated Subqueries
- UNION
- UNION ALL
- Nested Table Expressions

6. SQL Summarizing

- Objectives
- MAX and MIN
- AVG and SUM
- Counting Rows with COUNT(*)

- Counting Values with COUNT(DISTINCT...)
- Variance
- Standard Deviation
- VAR(Variance)
- Recap: How Nulls Behave
- Filtering Groups with HAVING
- Filtering Groups with GROUP BY
- How Grouping is Processed

7. SQL Updating

- Objectives
- Statements Which Update Tables
- INSERT: A Single Row
- Using and Expression in the VALUES Clause
- INSERT: From Another Table
- Inserting Into Views
- UPDATE
- Using Multiple Values in the SET Statement
- DELETE
- Referential Integrity
- Constraints

8. Database Design Strategies

- Objectives
- Database Design Process
- Database Design Issues
- Logical Design
- First Normal Form – Violation
- First Normal Form Resolution
- Second Normal Form – Violation
- Third Normal Form – Violation
- Why Third normal Form ?
- Normalization
- Typical Normalized Design

9. Table Design and Creation

- Objectives
- Table Creation Process
- Naming the Table
- Defining the Columns
- Placing A Table in A Database
- Table Limits
- Tables As Related to Tablespaces
- Column Constraints Deleting a table with DROP
- DROP/ReCREATing A Table
- Restricting DROP
- ALTERing A TABLE
- Sample ALTER Commands
- CREATING a TABLE Like Another
- Renaming a Table
- Global Temporary Tables
- DB2™ System Table
- Contents of Catalog
- Database: SYSDATABASE
- Tables: SYSTABLES
- Columns and SYSCOLUMNS
- Indexes: SYSINDEXES
- Tablespaces and Partitions: SYSTABLESPACE and SYSTABLEPART
- Stored Procedures SYSROUTINES
- Authorizations
- Database Authorizations
- Table Authorizations
- Column Authorizations
- Package Authorizations
- Plan Authorizations
- UDB® Directory
- Obtaining Your UDB® Identity
- AUTHIDs
- Source of Authorization
- GRANT DCL
- REVOKE DCL
- System Privileges
- Resource Privileges
- Databases Privileges
- Table Privileges
- Other Privileges
- Administrative Groups
- System Administrative Groups
- Database Administrative Groups

Appendices

A. DB2™ "World" Database

B. DB2™ Limits