

## DB2 for z/OS, SQL and Application Programming

**Length:** 5 Days

**Course Description:** The concepts of DB2 are presented and discussed. Structured Query Language (SQL) is presented as the means to access DB2 data (and to create and secure DB2 components). Several guided, hands-on, practice sessions give each attendee an opportunity to use SQL to access data. QMF and/or SPUFI are used to execute SQL statements. Referential Integrity concepts and implementation are covered. DB2 (SQL) programming / embedding SQL in a COBOL application program is presented and discussed in detail. A "shell" program is modified to SELECT a single row, FETCH multiple rows, INSERT, UPDATE, and DELETE row(s), use Referential Integrity, and use column functions and grouping. DB2 performance guidelines are discussed. The SQL statement EXPLAIN PLAN is used to help to evaluate the efficiency of SQL statements.

**Audience:** Experienced data processing personnel who need use SQL to design and develop programs to access DB2 data.

**Prerequisites:** At least six months of TSO/ISPF and COBOL programming experience is recommended. No previous database experience is needed.

**Topics:**

**DAY 1 INTRODUCTION TO DB2**

- Course Introduction
- DB2 - Concepts, and Terminology
- Structured Query Language (SQL)
- SQL 1 - The SELECT Statement
- Hands-on Lab - SELECT
- Database 2 Interactive / SPUFI
- SQL 2 – SQL Functions
- Hands-on Lab - SELECT / Special Features
- SQL 3 - ORDER BY, GROUP BY, HAVING
- Hands-on Lab - ORDER BY, GROUP BY, HAVING

**DAY 2**

- Structured Query Language (SQL) (Continued)
- SQL 4 - Join, Sub-select, UNION
- Hands-on Lab - Join, Sub-select, UNION
- SQL 5 - Data Definition Language
- SQL 6 - INSERT, UPDATE, DELETE
- Hands-on Lab - Creating DB2 Components & - Insert, Update, Delete
- SQL 8 – Other SQL Topics

**DAY 3**

- DB2 Application Programming
- SQL Programming I - Overview
- SQL Programming II - Data and Procedure Division Changes
- Hands-on Lab - SELECT a single row into a program
- SQL Programming III - SELECTing Multiple Rows
- Hands-on Lab - SELECT more than one row - the CURSOR

**DAY 4**

- DB2 Application Programming (Continued)
- Concurrency Control - Locking
- SQL Programming IV - INSERT, UPDATE, DELETE
- Hands-on Lab - updating and Referential Integrity

**DAY 5**

- DB2 Application Programming (Continued)
- Hands-on Lab - Updating and Referential Integrity

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**ADDITIONAL TOPICS**

- SQL Programming V - Other Programming Considerations
- DB2 Performance Introduction - EXPLAIN PLAN or VISUAL EXPLAIN
- Hands-on Lab - Analyze SQL statements

**APPENDICES**

Appendix A - IBM Sample Tables	Appendix I – DB2 for WINDOWS Overview
Appendix B – Bibliography	Appendix J – Additional Features - UDT / UDF, Trigger, Casting
Appendix C - The Programming Workshop	Appendix K – Group By Extensions
Appendix D – PLAN_TABLE & DSN_STATEMNT_TABLE	Appendix L – Visual Explain Overview
Appendix E - Hints to Success	Appendix M – Functions
Appendix F – SQLCODES / SQLSTATES	Appendix Z8– Changes Summary - DB2 V 8
Appendix G – QMF Overview	Appendix Z9 - Changes Summary - DB2 V 9
Appendix H – Stored Procedures	Appendix Z9 - AppV9B - DB2 V9 Summary from IDUG Solution Journal