

**Duration:** 5 days

**Course Number:** ISI-DB2-03

### **Description**

In the class, students will learn DB2 SQL and the techniques required to access DB2 data from Java applications. The Structured Query Language (SQL) is presented as the means to access DB2 data (and to create and secure DB2 components). DB2 (SQL) programming / embedding SQL in a Java application program is presented and discussed in detail. Both JDBC and SQLJ are 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. Upon successful completion of this class, students will be able to:

- Explain DB2 concepts, terminology and components.
- Discuss the Primary Key (PK), Unique Key (UK) and Foreign Key (FK) concept.
- SELECT rows of data from DB2 tables.
- Use QMF and/or SPUFI to run SQL statements.
- Use the WHERE clause to SELECT specific rows of a DB2 table.
- Build queries using the ORDER BY, GROUP BY, HAVING clauses.
- Use the CASE expressions and several SCALAR / COLUMN FUNCTIONS.
- Access multiple tables via joins, unions, sub-queries, and nested table expressions.
- CREATE tables, indexes, and views.
- Change tables using the INSERT, UPDATE, and DELETE statements.
- Describe the security provided by the GRANT and REVOKE.
- Discuss the design considerations of referential integrity.
- Perform DCLGENs to build table definitions and I/O areas.
- Modify a shell program to select a single row, multiple rows, and change rows.
- Discuss the importance of the SQLCODE and how to test for it.
- Discuss overall DB2 performance considerations.
- Run the EXPLAIN PLAN SQL statement and analyze results.

A series of written and lab exercises will be used to reinforce the classroom education.

### **Audience**

Experienced Data Processing personnel who need use SQL to design and develop Java programs to access DB2 data.

### **Prerequisites**

- **Introduction to Java**, or equivalent experience.
- No previous database experience is required.

---

**Course Agenda**

**Day 1**

Introduction to DB2

DB2 - Concepts, and Terminology

Structured Query Language (SQL)

- SQL 1 - The SELECT Statement
  - Hands-on Lab: SELECT
- Command Center to access DB2
- 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 (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

- Overview
- Java - JDBC and SQLJ Access
  - Hands-on Lab: SELECT a single row into a program
- SELECTing Multiple Rows
  - Hands-on Lab: SELECT more than one row - the cursor

---

**Course Agenda (continued)**

**Day 4**

DB2 Application Programming (continued)

- Concurrency Control - Locking
- INSERT, UPDATE, DELETE
  - Hands-on Lab: Updating and Referential Integrity

**Day 5**

DB2 Application Programming (continued)

- Hands-on Lab: Updating and Referential Integrity

Additional Topics

- Other Programming Considerations
- DB2 Performance Introduction
  - Hands-on Lab: Analyze SQL statements
- Data Control Language (DCL)