



data directions inc.

Introduction
to
Structured Query Language

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COURSE OVERVIEW

COURSE DESCRIPTION

This course is designed to familiarize the student with use and coding of Structured Query Language (SQL). Through the use of extensive hands-on workshops the students will be taught the fundamentals of the relational model, the SQL language syntax and its use. An overview of the SQL Data Definition Language (DDL) and Data Control Language (DCL) is presented. This class focuses on the SQL Data Manipulation Language (DML).

COURSE DURATION

2 Days - This is a lecture and hands-on workshop class.

COURSE PREREQUISITES

Familiarity with relational database concepts (DB2, Sybase, Oracle, etc.)

COURSE MATERIALS

- ✍ Class notes will be provided.
- ✍ Each student will receive a copy of the SQL Instant Reference by Martin Gruber or a similar SQL reference.

COURSE OBJECTIVES

The student will also become familiar with the functions and features of Structured Query Language (SQL). These include SQL, the COBOL programming interface (embedded SQL) and error correction and debugging. The student will gain proficiency in SQL coding through the use of *extensive* hands-on workshop exercises utilizing SQL in an interactive environment.

Note: This class can be presented as a generic ANSI-SQL class or as an implementation specific (e.g., DB2, Oracle, SQL Server) class using the toolset native to your SQL environment. This class can also be configured for an end-user (rather than developer) audience.

The use of an interactive SQL query environment (e.g., IBM's DB2 Query Management Facility or Microsoft's SQL Server ISQL) is required for this class.

Call Data Directions for scheduling information and class customization.



COURSE OUTLINE

I. Course Overview and Review of Objectives

II. The Relational Model - An overview

- A. Tables
- B. Data Types
- C. Indexes
- D. Views
- E. Referential Integrity
- F. System Catalog Concepts
- G. The Interactive SQL Environment

III. Structured Query Language (SQL)

- A. Data Definition Language (**DDL**)
- B. Data Control Language (**DCL**)
- C. Data manipulation language (**DML**) - Inquiry (**SELECT**)
 - 1. Simple SELECT
 - 2. Qualified SELECT (WHERE)
 - 3. ORDER BY
 - 4. LIKE
 - 5. BETWEEN
 - 6. IN
 - 7. GROUP BY
 - 8. HAVING
 - 9. DISTINCT
 - 10. Calculations
 - 11. Scalar Functions
 - 12. Joining Tables
 - 13. UNION/UNION ALL
 - 14. Subqueries
 - 15. Built-in functions
- D. Data Manipulation Language (**DML**) - Update
 - 1. INSERT
 - 2. UPDATE
 - 3. DELETE



COURSE OUTLINE

IV. Structured Query Language (SQL) in high-level language programs

- A. Host Variables
- B. Embedded SQL/Cursors
- C. Dynamic SQL
- D. Handling NULLS

V. Considerations for Optimizing SQL

- A. Performance Considerations
 - 1. Row filtering
 - 2. Locking
- B. Application profile
- C. "De-Normalization"

VII. Review and Questions