SQL Basics

Course Summary

Description

In this course, the student will develop a large number of SQL SELECT statements, including joins and subqueries; and write INSERT, UPDATE and DELETE statements.

Objectives

At the completion of this course, the student will be able to:

- Write SQL SELECT statements, including all allowable WHERE expressions, sorting, functions joins and subqueries.
- Write INSERT, UPDATE and DELETE statements.

Topics

- SQL overview
- SQL SELECT statements
- SQL functions and expressions
- SQL updating
- SQL joins
- SQL with multiple tables
- SQL summarization
- SQL: preparing for the real world

Audience

This course is designed for application developers who work in any relational database environment, including Oracle, Sybase, SQL Server, Access, DB2, Ingres, Informix and many others.

Prerequisites

The student should have experience using the editor in which the class is taught, which can be TSO/ISPF in an IBM mainframe environment, any version of Microsoft Windows or other editor and have experience with any programming or query language.

Duration

Three days

Required: Access to a Relational DBMS such as DB2, Access, Oracle, Sybase, SQL Server, etc.

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Course Outline

I. SQL Overview
- A. Relational database concepts, specific products
- B. SQL syntax rules
- C. Data definition, data manipulation, and data control statements
- D. Getting acquainted with the course database and editor

II. SQL SELECT statements
- A. Clauses
- B. The SELECT clause: columns and aliases, where expressions, order by expressions how null values behave

III. SQL Functions and Expressions
- A. Eliminating duplicates with DISTINCT arithmetic expressions
- B. Replacing null values
- C. Literals, concatenation, other string functions
- D. Numeric operations, including rounding
- E. Date and time functions
- F. Nested table expressions
- G. Case logic
- H. Other expressions in specific dbms products

IV. SQL Updating
- A. The INSERT, UPDATE and DELETE statements
- B. Column constraints and defaults
- C. Referential integrity constraints

V. SQL Joins
- A. Inner joins with original and SQL 92 syntax
- B. Table aliases
- C. Left, right and full outer joins
- D. Self-joins

VI. SQL Subqueries and Unions
- A. Intersection with IN and EXISTS
- B. Subqueries
- C. Difference with NOT IN and NOT EXISTS subqueries
- D. The purpose and usage of UNION and UNIONALL

VII. SQL Summarization
- A. The column functions MIN, MAX, AVG, SUM and COUNT
- B. The GROUP BY and HAVING clauses Grouping in a combination with joining