

Introduction to SQL

COURSE OVERVIEW:

This course is designed to give users an understanding of SQL Language. The course covers SQL commands for DML, DDL, Query, and Transaction Control operations.

WHO WILL BENEFIT FROM THIS COURSE?

This course is suitable for application designers and developers, database administrators and operators, and end users should attend this course.

PREREQUISITES:

There are no prerequisites for this course.

COURSE OBJECTIVES:

Upon completing this course, students will be able to:

- Explain the difference between SQL, DML, and DDL statements
- Write basic SQL queries to retrieve desired data
- Use DML statements (insert, update, and delete)
- Use DDL statements (create, alter, and drop)
- Use transaction control statements to commit and rollback
- Write advanced queries
- Write scripts to perform queries and display reports
- Control access to your database objects

COURSE OUTLINE:

Chapter 1: Database Design

- Database Models
- Beginnings
- Some Introductory Terminology
- Codd's 12 Rules
- Normalization
- First Normal Form
- Higher Order Normal Forms

Chapter 2: Standard Interfaces

- SQL
- Architecture
- Command Line Interface
- Viewing a Sample Table

Chapter 3: The Sample Database

- The Entity Relationship Model
- Entity Relationship Diagrams
- The Sample Database
- ER Diagram for Sample Database
- Creating the Sample Data
- Viewing Sample Data Data
- Types of the Sample Data

Chapter 4: Data Definition Language

- Categories of SQL Statements
- Datatypes
- The CREATE Statement
- The DROP Command
- The ALTER Command
- Integrity Constraints
- Entity Integrity Constraints
- Referential Integrity Constraints
- Modifying Table to Use Constraints
- Checking Constraints
- The Data Dictionary

Chapter 5: Data Manipulation Language

- DML Statements
- The SELECT Statement
- The INSERT Statement
- The DELETE Statement
- The UPDATE Statement

Chapter 6: Transaction Control

- Transactions
- Command Classification

Chapter 7: SQL Operators

- Simple Selects
- Comparison Operators
- IN and NOT IN Operators
- BETWEEN Operator
- The LIKE Operator
- Logical Operators
- IS NULL and IS NOT NULL
- ANY
- ALL

Chapter 8: SQL Functions

- Introduction
- The DISTINCT Keyword
- Aliases
- Miscellaneous Functions
- Mathematical Functions
- String Functions
- Date Functions
- Conversion Functions
- Pseudo Columns

Chapter 9: Joining Tables

- Joins
- Cartesian Product
- Inner joins
- Equi-Join
- Table Aliases
- Non-Equi Join
- Non-Key Join
- Reflexive Join
- Natural Join
- Outer Joins
- Right Outer Join
- Left Outer Join
- Full Outer Join
- Syntax for Outer Joins

Chapter 10: Set Operators

- Introduction
- Selection Criteria
- Union
- Union All
- Intersect
- Minus

Chapter 11: SQL Subqueries

- Introduction
- Using a Subquery with a DML Statement
- Typical Subqueries
- Subquery Operators
- Standard vs. Correlated Subqueries
- Correlated Subquery
- Example Predicate Operators

Chapter 12: Groups

- SQL Statements
- GROUP BY Clause
- HAVING Clause
- Order of a SELECT Statement

Chapter 13: More Database Objects

- More Database Objects
- Relational Views
- Updating a View
- Create or Replace
- Forcing a View
- The Data Dictionary Revisited
- Indexes
- Synonyms

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