

Course Description: 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 Should Attend: Application designers and developers, database administrators and operators, and end users should attend this course.

Prerequisites: There are no prerequisites for this course.

Benefits of Attendance: Upon completion of 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:

Database Design

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

Standard Interfaces

SQL
Architecture
Command Line Interface
Viewing a Sample Table

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

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

Data Manipulation Language

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

Transaction Control

Transactions
Command Classification

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

SQL FUNCTIONS

Introduction

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

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

Set Operators

Introduction
Selection Criteria
Union
Union All
Intersect
Minus

SQL Subqueries

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

Groups

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

More Database Objects

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