

# Structured Query Language Advanced

CDT612

This course provides hands-on experience with some of the more advanced features of the Structured Query Language.

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## Audience

- Intermediate SQL users

## Prerequisites

- Familiarity with relational database concepts
- Familiarity with basic SQL

## Course Length

- One Day

## Teaching Methods

- Lecture and examples
- Hands-on exercises throughout
- Comprehensive review exercise

## Learning Objectives

- Describe the three parts of SQL: DML, DDL, DCL
- Give examples of each of the three types of entity relationships: one to one, one to many, and many to many; and implement these relationships in a relational database environment
- Give examples of each of the three forms of data integrity: domain integrity, entity integrity, and referential integrity; and implement these in a relational database environment
- Create an index for a table
- Give examples of primary and foreign keys, and implement these in a relational database environment
- Describe how and when to use ON DELETE RESTRICT, ON DELETE CASCADE, and ON DELETE SET NULL
- Use subqueries and UNION to perform queries requiring multiple tables
- Use inner joins, full outer joins, left outer joins, and right outer joins

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## Course Outline

QD3

### SQL components

- DML
- DDL
- DCL

### Entity Relationships

- One to one
- One to many
- Many to many
- How these are implemented in a relational database environment

### Domain Integrity

- CHECK IN
- CHECK with < or >
- CONSTRAINT NUMBER
- You try it

### Entity Integrity

- PRIMARY KEY
- CREATE INDEX
- Compound key
- You try it

### Referential Integrity

- FOREIGN KEY
- ON DELETE RESTRICT
- ON DELETE CASCADE
- ON DELETE SET NULL
- You try it

### Subqueries

- Subqueries explained
- Better than joins?
- You try it

### Queries with multiple tables

- UNION
- INNER JOIN
- FULL OUTER JOIN
- LEFT OUTER JOIN
- RIGHT OUTER JOIN

### Comprehensive Review Exercise