

## SQL Training (Structured Query Language)

This SQL Language course will teach the student how to read and write good SQL for querying, updating and maintaining SQL databases. The Structured Query Language (SQL) training course progresses through the elements of the language to build a thorough appreciation and understanding of SQL's capabilities and power. It covers ANSI-standard SQL and some of the common extensions.

### Objective

On completion of this Structured Query Language (SQL) training course, delegates will be able to:

- describe where the SQL language came from and its set-based mode of operation
- write SQL statements to create and manipulate database objects and data
- read SQL effectively
- write queries to join many related tables
- use the features of the language to safeguard the data and its value to the user
- recognise the dangers inherent in the language that may return the right result but would be fatally flawed with different data

### Details

**Duration:** 3 Days

### Who is this course for

This course is perfect for those with a familiarity of the Windows environment, ideally a familiarity with relational database design and those with previous programming experience (although this is not essential).

## Course Content

### Introduction to Relational Databases

- The need for an SQL standard
- The ANSI standards
- What is a database?
- What is a relational database?
- Components of a relational database
- Normalised data
- Anatomy of a table
- Primary and foreign keys
- Joins
- Components of SQL

### Data Manipulation Language

- SELECT operations
- DISTINCT
- Virtual columns
- Column aliases
- Functions
- Restricting the rows returned
- Multiple conditions
- Ordering data
- Inserting rows
- Updating rows
- Deleting rows

### Joining tables

- The theory of joining tables
- Cross, Inner, Outer, Full, Left and Right
- Composite joins
- Table aliases
- SQL92 and SQL89 Join syntax

## Data Definition Language

- Data types
- Column attributes
- Create table
- Primary and foreign keys
- Referential integrity
- Alter and drop tables

## Views

- Defining simple views
- Views with virtual columns
- Restricted-column views
- Joined-table views
- Restricted-row views
- View restrictions

## Summarised Queries

- Table aggregates
- GROUP BY and aggregates
- The HAVING clause

## Subqueries

- Using simple Subqueries
- EXISTS
- Correlated Subqueries

## Further Data Manipulation Language

- Unions
- Self joins

## Data Control Language

- Identifying users
- Setting privileges
- GRANT and REVOKE