Getting Started

Introduction

- 1. What is SQL
- 2. Installing MSSQL on Mac
- 3. Installing MSSQL on Windows
- 4. Creating the Databases

Retrieving Data from a Single Table

- 1. The SELECT Statement
- 2. The SELECT Clause
- 3. The WHERE Clause
- 4. The AND, OR and NOT Operators
- 5. The IN Operator
- 6. The BETWEEN Operator
- 7. The LIKE Operator
- 8. The REGEXP Operator
- 9. The IS NULL Operator
- 10. The ORDER BY Clause
- 11. The LIMIT Clause

Retrieving Data from Multiple Tables

- 1. Inner Joins
- 2. Joining Across Databases
- 3. Self Joins
- 4. Joining Multiple Tables
- 5. Compound Join Conditions
- 6. Implicit Join Syntax
- 7. Outer Joins
- 8. Outer Join Between Multiple Tables
- 9. Self-Outer Joins
- 10. The USING Clause
- 11. Natural Joins
- 12. Cross Joins
- 13. Unions

Inserting, Updating, and Deleting Data

- 1. Column Attributes
- 2. Inserting a Row
- 3. Inserting Multiple Rows
- 4. Inserting Hierarchical Rows
- 5. Creating a Copy of a Table

- 6. Updating a Single Row
- 7. Updating Multiple Rows
- 8. Using Subqueries in Updates
- 9. Deleting Rows
- 10. Restoring the Databases

Summarizing Data

- 1. Aggregate Functions
- 2. The GROUP BY Clause
- 3. The HAVING Clause
- 4. The ROLLUP Operator

Writing Complex Query

- 1. Introduction
- 2. Subqueries
- 3. The IN Operator
- 4. Subqueries vs Joins
- 5. The ALL Keyword
- 6. The ANY Keyword
- 7. Correlated Subqueries
- 8. The EXISTS Operator
- 9. Subqueries in the SELECT Clause
- 10. Subqueries in the FROM Clause

Essential MSSQL Functions

- 1. Numeric Functions
- 2. String Functions
- 3. Date Functions in MSSQL
- 4. Formatting Dates and Times
- 5. Calculating Dates and Times
- 6. The IFNULL and COALESCE Functions
- 7. The IF Function
- 8. The CASE Operator

Views

- 1. Creating Views
- 2. Altering or Dropping Views
- 3. Updatable Views
- 4. The With Option Check Clause
- 5. Other Benefits of Views
- 6. Stored Procedures

What are Stored Procedures

- 1. Creating a Stored Procedure
- 2. Creating Procedures Using MSSQL Workbench
- 3. Dropping Stored Procedures
- 4. Parameters
- 5. Parameters with Default Value
- 6. Parameter Validation
- 7. Output Parameters
- 8. Variables
- 9. Functions
- 10. Other Conventions

Triggers and Events

- 1. Triggers
- 2. Viewing Triggers
- 3. Dropping Triggers
- 4. Using Triggers for Auditing
- 5. Events
- 6. Viewing, Dropping and Altering Events

Transactions and Concurrency

- 1. Transactions
- 2. Creating Transactions
- 3. Concurrency and Locking
- 4. Concurrency Problems
- 5. Transaction Isolation Levels
- 6. Read Uncommitted Isolation Level
- 7. Read Committed Isolation Level
- 8. Repeatable Read Isolation Level
- 9. Serializable Isolation Level
- 10. Deadlocks

Data Types

- 1. Introduction
- 2. String Types
- 3. Integer Types
- 4. Fixed-point and Floating-point Types
- 5. Boolean Types
- 6. Enum and Set Types
- 7. Date and Time Types

- 8. Blob Types
- 9. JSON Type

Designing Databases

- 1. Introduction
- 2. Data Modelling
- 3. Conceptual Models
- 4. Logical Models
- 5. Physical Models
- 6. Primary Keys
- 7. Foreign Keys
- 8. Foreign Key Constraints
- 9. Normalization
- 10. 1NF- First Normal Form
- 11. Link Tables
- 12. 2NF- Second Normal Form
- 13. 3NF- Third Normal Form
- 14. My Pragmatic Advice
- 15. Don't Model the Universe
- 16. Forward Engineering a Model
- 17. Synchronizing a Model with a Database
- 18. Reverse Engineering a Database
- 19. Project- Flight Booking System
- 20. Solution- Conceptual Model
- 21. Solution-Logical Model
- 22. Project Video Rental Application
- 23. Solution- Conceptual Model
- 24. Solution-Logical Model
- 25. Creating and Dropping Databases
- 26. Creating Tables
- 27. Altering Tables
- 28. Creating Relationships
- 29. Altering Primary and Foreign Key Constraints
- 30. Character Sets and Collations
- 31. Storage Engines

Indexing for High Performance

- 1. Introduction
- 2. Indexes
- 3. Creating Indexes
- 4. Viewing Indexes

- 5. Prefix Indexes
- 6. Full-text Indexes
- 7. Composite Indexes
- 8. Order of Columns in Composite Indexes
- 9. When Indexes are Ignored
- 10. Using Indexes for Sorting
- 11. Covering Indexes
- 12. Index Maintenance
- 13. Performance Best Practices

Securing Databases

- 1. Introduction
- 2. Creating a User
- 3. Viewing Users
- 4. Dropping Users
- 5. Changing Passwords
- 6. Granting Privileges
- 7. Viewing Privileges
- 8. Revoking Privileges