



# Understanding SQL Scripting & Database Concepts

## **Course Objective :**

This course teaches participants the knowledge and skills to use SQL (Structured Query Language) to access, define, create and manipulate database. Usage of SQL Statements to add, delete, insert, retrieve and update data in a SQL database.

At the end of the course, participants will be able to write to SQL statements and sub-queries based on the requirements of database structures, create and manipulate database tables based on the requirements of database structures. Participants will also learn to create and use views that satisfy information requirements and create use or drop stored procedures according to information requirements.

## **Prerequisite:**

No prerequisite required. Some database concepts and basic programming knowledge an added advantage.

## **Certificate Of Attendance :**

Certificate Of Attendance will be awarded to participants completing the course and achieving minimum 75% attendance.

## **Training Methodology & Materials:**

- Practical case study sessions to enhance concept.
- Well-designed lab sessions to enhance further understanding of the courseware.

## **Training Duration:**

Full-Time : 3 Weekdays or 3 Sats  
Time : 9.30am to 5.30pm

## **Course Fee Per Pax :**

Normal Course Fee : S\$799  
Promotion Fee : S\$680 (valid till 30Jun2023)  
Regn Fee : S\$30

All fees subject to prevailing GST.

Course eligible for SkillsFuture Course Fee Funding. Self-sponsored trainees may offset course fee using their SkillsFuture Credit Claim and/or PSEA.

Terms and conditions apply.

## **Detailed Course Outline**

### **Day 1**

#### **1. Database Concepts and DBMS**

- DBMS Fundamentals
- Types of Database

#### **2. Executing a simple Query**

- Connect to SQL Database
- Query a Database
- Save a Query
- Modify a Query
- Execute a Stored Query

#### **3. Performing a Conditional Search**

- Search Using a Simple Condition
- Compare Column Values

- Search Using Multiple Conditions
- Search for a Range of Values and Null Values
- Retrieve Data Based on Pattern

#### **4. Working with Function**

- Perform Date Calculations
- Calculate Data Using Aggregate Functions
- Manipulate String Values

#### **5. Organizing Data**

- Sort Data
- Rank Data
- Group Data
- Filter Grouped Data
- Summarise Grouped Data
- Use PIVOT and UNPIVOT operations

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## 6. Retrieving Data from Tables

- Combine Results of Two Queries
- Compare the results of Two Queries
- Retrieve Data by Joining Table
- Check for Unmatched Records
- Retrieve Information from a Single Table using Joins

### Day 2

## 7. Using Subqueries to Perform Advanced Querying

- Search Based on Unknown Values
- Compare a Value with Unknown Values
- Search Based on the existence of Records
- Generate Output Using Correlated Subqueries
- Filter Grouped Data within Subqueries
- Perform Multiple-Level Subqueries

## 8. Data Modeling

- Levels of Data Modeling
- Data Normalization

## 9. Manipulating Table Data

- Insert Data
- Modify and Delete Data
- Create a Table
- Create a Table with Constraints
- Add and Drop Table Columns
- Modify the Column Definition
- Back Up Tables
- Delete Tables

## 10. Working with Views

- Create a View
- Manipulate Data in Views
- Create Aliases
- Modify and Drop Views

## 11. Indexing Data

- Create Indices
- Drop Indices

### Day 3

## 12. Managing Transactions

- Create Transactions
- Commit Transactions

## 13. Presenting Query Results

- Save the Query Result
- Generate an XML Report

## 14. Stored Procedures

- Benefits of Stored Procedures
- Creating Stored Procedures
- Calling Stored Procedures
- Alter Stored Procedures
- Delete Stored Procedures



Understanding SQL Scripting and Database Concepts



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