SQL Beginner

Course Overview – 1-day course

A crucial skill for anyone working with data is the ability to access and analyse that data. Structured Query Language (SQL) enables users to access data from databases, combine data from multiple, related tables and to aggregate, sort, filter or limit the data retrieved as needed.

In this course, participants will work with an Azure SQL database and Azure Data Studio. Note that this course focuses primarily on commands used to access and manipulate data.

In this course, you will:

- Learn the basics of relational databases
- Use SQL to retrieve data from the database
- Run queries from the Azure portal and from Azure Data Studio
- Use standard SQL to run queries to:
    - Select data of interest using SELECT statements from one or more tables
    - Aggregate, recode and summarise data
    - Order results

Students will be provided with the data and step-by-step instructions for recreating the database in Azure so they can continue to practise skills learned, after class.

Detailed Content

Introduction
SQL
Azure SQL Database

What is a Relational Database?
Tables
Primary keys
Foreign keys
Relationships between tables
Type of relationships
Data normalisation

SQL Overview
Type of SQL commands

Working in Azure
Running queries from the Azure portal

Basics of Queries
SELECT
SELECT DISTINCT
SQL clauses

Working in Azure Data Studio
Selecting specific columns
Aliases
SQL syntax rules

Filtering Data with a WHERE Clause
SQL operators
Comparison operators
Logical operators
Arithmetic operators
Operator precedence
WHERE clause

Ordering Query Results
ORDER BY clause

Group Query Results
GROUP BY clause
Aggregation functions
CASE statement

Filtering on Aggregated Values
HAVING clause
Order of evaluation of clauses in a SELECT statement

Access Data from Multiple Tables
JOIN using WHERE clause
Types of Joins
Joining with date tables

Combining multiple SELECT Results
UNION operator

Practice Exercises
Practice query writing