Logo

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**Systems Design & Databases**

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**name:**

**course:**

**date:**

**Tutor Name:**

**SQL Server - TSQL Queries to support:**

**[insert database name]**

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**Advice from Module Leader for SQL Practitioner:**

*Delete instructions from your submitted document.*

*“The* ***2023 ICA SQL Template*** *to support you developing your own* ***Portfolio*** *to support Employability. You can also present your TSQL code and this document* *at* [***ExpoTalent 2023***](https://www.tees.ac.uk/schools/scedt/expotees/expotalent.cfm)*event. A* [***Developer Portfolio***](https://skilledev.com/software-developer-portfolio-examples/) *is important if you wish to demonstrate your work of excellence to Industry. Your assessment work is your ‘work experience’ for Employability.” Mansha Nawaz*

*I also recommend you use your works of excellence to support your CV or covering letter:*

**CV: SQL Server: Currently developing a range of T-SQL Queries for a worlds Movie Database to support the Business Functions for the likes of IMDb and Netflix ‘.**

**Covering letter or Interview Blurb: “I enjoyed working with a real database used by the likes of IMDb. It was challenging but can demonstrate a range of TSQL skills like presenting top 10 Movies or Actors based on the various categories or rankings. It is/was a bit of a challenge to categories movies in terms of their revenue in terms of percentage of overall total movie earnings for each category. Is it worth investing in Comedy or Action. Do romantic comedies earn more? Its all interesting and has me interested in also pursuing Data Science. I am more than happy to show you my SQL Server portfolio 😉.**

**Your** [**Developer Portfolio**](https://skilledev.com/software-developer-portfolio-examples/) **becomes your evidence and work experience!**

**Instructions for SQL Practitioner:**

**As a SQL Server practitioner you are to investigate new TU 2022 SQL Server Database Samples to provide a range of useful TSQL Demos to:**

1. Provide a useful insight into **ONE** of the new Database of your choice
2. We prefer you stick to one Database for Demo’s but have no issues if you decide on flipping across to others.
3. Present a set of TSQL Demos to support useful **Business Functions** [**User Requirements** or **User Stories]**
4. Provide a set of TSQL Demos - Queries and scripts supporting the User
5. Develop your TSQL skills as a practitioner and present your TSQL Portfolio of work

Document your best **TSQL Demos** from your supporting **.sql files**.

Utilise any format for your report - Word, Publisher, PowerPoints or hybrid document with mini videos or gifs. Consider embedding mini videos of you demonstrating your code as industry consider this exemplary skill (they prefer a simple normal unscripted audio in)

**How to write Business Functions to support the TSQL Queries you develop?**

Keep it simple and note we are only interested in obtaining desired data to support Business Functions. Provide supporting Business Function as simple User Stories or Requirements. See generic google search [User Story Examples](https://uk.search.yahoo.com/search;_ylt=Awr.htYFjV5jJUcoK1AM34lQ;_ylc=X1MDMTM1MTIxMjgxMgRfcgMyBGZyA21jYWZlZQRmcjIDc2ItdG9wBGdwcmlkAzFIb296SWszUnpxRGJBeEJFY1ROckEEbl9yc2x0AzAEbl9zdWdnAzEwBG9yaWdpbgN1ay5zZWFyY2gueWFob28uY29tBHBvcwMwBHBxc3RyAwRwcXN0cmwDMARxc3RybAMxOQRxdWVyeQN1c2VyJTIwc3RvcnklMjBleGFtcGxlcwR0X3N0bXADMTY2NzE0MDkzOQ--?p=user+story+examples&fr2=sb-top&fr=mcafee&type=E210GB714G0) 😉

A user story is usually written from the user’s perspective and follows the format:

**“As [a user persona], I want [to perform this action] so that [I can accomplish this goal].”**

* As a Purchase Manager I want to see Customers and their Orders
* As a User I want a line item totals and a Grand Total for each Customer Sales Order

**2022 Employability Guidance:**

**Graduate Developer Portfolio:** This work contributes to your of ‘evidence of work’.

We share good [***Developer Portfolio***](https://skilledev.com/software-developer-portfolio-examples/) with Industry especially those offering Develop Roles for YR2 placements or Final Year Graduates. We also share with our International SQL Training partners and the SQL Developer Community at large.

We do expect YR2 students to register for our Industry exhibition *at* [***ExpoTalent 2023***](https://www.tees.ac.uk/schools/scedt/expotees/expotalent.cfm)*event to showcase their* [***Developer Portfolio***](https://skilledev.com/software-developer-portfolio-examples/).

ExpoTalent 2023: I strongly recommend you present ICA TSQL Demos since industry is keen for you to present how you use SQL Server to develop supporting TSQL queries.

Focus also on your Semester 2 Group Projects. ‘assessment work in progress’. Your Mobile Apps / Websites will still be under construction. Industry is more interested in discussing your teams working rather than ‘finished’ product.

**Industry review and moderate your ICAs. We share good reports. Will it be your SQL Server work?**

A Grade ‘A’ or ‘B’ is good evidence to present along with other ICA work. Supporting comment need to be on your CV.

**ICA ,sql File Templates** are for you to utilise and scale your **SQL Server TSQL Coding Portfolio**.

* Utlise Data Diagram Views of Table(s) you work on, any TSQL Code, screenshot evidence in SSMS.
* Anything that makes your presentation fit for Industry.
* Reports, PowerPoints and/or mini-Videos on your SQL Server skills is ideal for your ICA SQL Portfolio.
* Remember you are to scope like the Lesson Demos, Lab Exercise - Solutions or sample Ica Demos on AdventureWorks provided.
* You may design your own PowerPoint, Report or Videos to present your evidence of each of the TSQL Modules.
* Remember SQL Server portfolio can be showcase at [***ExpoTalent***](https://www.tees.ac.uk/schools/scedt/expotees/expotalent.cfm)- **March 2023**
* **It is why new template has been provided.**
* **It adds to your** [***Developer Portfolio***](https://skilledev.com/software-developer-portfolio-examples/)**of work to present to prospective employers.**
* **Also utilise** [**Github**](https://docs.github.com/en/get-started) **as your repository for your** [***Developer Portfolio***](https://skilledev.com/software-developer-portfolio-examples/)

# SQL Server Practitioner Details:

*Please enter your details below:*

|  |  |  |
| --- | --- | --- |
| **SQL Server - TSQL Practitioner Details:** | | |
| A child holding a camera  Description automatically generated with medium confidence | Name: |  |
| Email Address: |  |
| Course: |  |
| Date: |  |
|  | Tutor: |  |

## SQL Server Practitioner Performance Rating:

*(Instructions: Complete this at the end. Simply adjust the red box to where you rate your TSQL skills. 😊 Base your performance rating on* ***ALL TSQL*** *content. If you are competent in TSQL 15-18 we consider you an Expert as a YR2 student and Industry ready. Some evidence but limited in quality for business functions] in TSQL 15-18 then you have the skills in place for YR2 placement. Command of most of TSQL 9-15 then you are intermediate and simply require more self-study).*

|  |
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## Introduction to the SQL Practitioner:

*[Instructions: provide an overview (a sentence, paragraph or 2] on you and your aspirations as a junior – graduate developer. You will be asked at a job interview either in YR2 or YR3 so best practice your answer 😊]*

**Why you decided upon studying and pursuing your interests in becoming a graduate developer.**

## [Why you should learn SQL](https://uk.search.yahoo.com/search?fr=mcafee&type=E210GB714G0&p=why+learn+sql+server):

*[Instructions: provide an overview - a sentence, paragraph or 2]*

[why learn sql server for your career](https://uk.search.yahoo.com/search;_ylt=AwrkMhdupF1jeN0dDGQM34lQ;_ylc=X1MDMTM1MTIxMjgxMgRfcgMyBGZyA21jYWZlZQRmcjIDc2EtZ3Atc2VhcmNoBGdwcmlkAzR2TUdrUk16VFRhTElibVhqdlEyNUEEbl9yc2x0AzAEbl9zdWdnAzEwBG9yaWdpbgN1ay5zZWFyY2gueWFob28uY29tBHBvcwMyBHBxc3RyA3doeSBsZWFybiBzcWwgc2VydmVyBHBxc3RybAMyMARxc3RybAMzNgRxdWVyeQN3aHklMjBsZWFybiUyMHNxbCUyMHNlcnZlciUyMGZvciUyMHlvdXIlMjBjYXJlZXIEdF9zdG1wAzE2NjcxMjEzNzkEdXNlX2Nhc2UD?p=why+learn+sql+server+for+your+career&fr2=sa-gp-search&fr=mcafee&type=E210GB714G0)

**Why you recommend someone should learn SQL and what you should hope to gain from it.**

[graduate develop vacancy sql server](https://uk.search.yahoo.com/search;_ylt=AwrLBmzhQF5jIzEkjT0M34lQ;_ylc=X1MDMTM1MTIxMjgxMgRfcgMyBGZyA21jYWZlZQRmcjIDc2EtZ3Atc2VhcmNoBGdwcmlkA0ZpckM5UHNIUnllMkNlUDVLUFEuQkEEbl9yc2x0AzAEbl9zdWdnAzQEb3JpZ2luA3VrLnNlYXJjaC55YWhvby5jb20EcG9zAzEEcHFzdHIDZ3JhZHVhdGUgZGV2ZWxvcCB2YWNhbmN5IHNxbCAEcHFzdHJsAzI5BHFzdHJsAzM1BHF1ZXJ5A2dyYWR1YXRlJTIwZGV2ZWxvcCUyMHZhY2FuY3klMjBzcWwlMjBzZXJ2ZXIEdF9zdG1wAzE2NjcxMjE0NDMEdXNlX2Nhc2UD?p=graduate+develop+vacancy+sql+server&fr2=sa-gp-search&fr=mcafee&type=E210GB714G0)

*[Instructions: provide hyperlinks to 3 x Graduate Developer jobs requiring SQL that are appealing to you]*

# SQL Server Database Overview:

## SQL Server Database for Demos:

*Instructions: provide an overview of the SQL Server Database you are providing your TSQL Demos on. I have provided you an outline so feel free to personalise as you see fit.*

I am going to investigate the SQL Server Database [**insert Database name**] to develop range of useful TSQL Queries and Scripts to support **business functions** or **user requirements**.

The aim is to provide useful patterns of data to serve front end development technologies such as Web or Mobile Applications.

Provided below in this document are examples of my best TSQL Demos (Queries and Scripts) to support users of [**insert Database name**].

## SQL Server Database Diagrams:

*[Instructions: provide supporting ERD – or mini ERDs or Database Diagrams) and indicate the main Tables of interest for your supporting TSQL Demos]*

**SQL Practitioners TSQL Demos:**

## Introduction:

Provided below is an audit trail of my best examples of TSQL querying skills to support ‘business functions’ or user requirements for [*insert database name of interest*].

Instructions: I have provided **AdventureWorksLT2019 -TSQL Cheat Sheet** to support ICA Demos for TSQL Modules 03-08 and provided additional ICA Demos for TSQL Modules 09-18 using AdventureWorks2019.

You may merge Demo topics if required.

# TSQL Part 1: SQL Server Coding Basics

*Instructions: Please review the provided* ***AdvantureWorksLT2019******-TSQL Cheat Sheet****.*

*This covers ALL the basic TSQL skills from Modules 03 to 08. This will help new SQL Practitioner to become familiar with the basic SQL coding skills. You may then progress with TSQL Modules 09-18 in YR2.*

*Provide similar comparable TSQL Demos using one of the ICA Server Databases. I have provided a simple entry for the 1st Demo 😉*

# TSQL03 to TSQL08: SQL Server Basics

This section covers the basics skills in using SSMS and scoping TSQL Queries either by code or by using the [**Design Query in Editor**](https://uk.search.yahoo.com/search;_ylt=AwrkNcIUMGBjOwE9UxsM34lQ;_ylu=Y29sbwNpcjIEcG9zAzEEdnRpZAMEc2VjA3Fydw--?type=E210GB714G0&fr=mcafee&ei=UTF-8&p=sql+server+design+query+in+editor&fr2=12642) how to use [Select](https://uk.search.yahoo.com/search;_ylt=AwrLApgXMGBj2Ks8V4AM34lQ;_ylc=X1MDMTM1MTIxMjgxMgRfcgMyBGZyA21jYWZlZQRmcjIDc2ItdG9wBGdwcmlkA081VzZURjNaUmllTVYyVGphdUhGTkEEbl9yc2x0AzAEbl9zdWdnAzQEb3JpZ2luA3VrLnNlYXJjaC55YWhvby5jb20EcG9zAzAEcHFzdHIDBHBxc3RybAMwBHFzdHJsAzI3BHF1ZXJ5A3NxbCUyMHNlcnZlciUyMHNlbGVjdCUyMHN0YXRlbWVudAR0X3N0bXADMTY2NzI0ODIxMw--?p=sql+server+select+statement&fr2=sb-top&fr=mcafee&type=E210GB714G0) statements to query data from table(s), [Join](https://uk.search.yahoo.com/search;_ylt=AwrIfJlTMGBjh2o8ntcM34lQ;_ylc=X1MDMTM1MTIxMjgxMgRfcgMyBGZyA21jYWZlZQRmcjIDc2ItdG9wBGdwcmlkA2FIX0I1S2w5U0d5b1MyOEkub0F4REEEbl9yc2x0AzAEbl9zdWdnAzAEb3JpZ2luA3VrLnNlYXJjaC55YWhvby5jb20EcG9zAzAEcHFzdHIDBHBxc3RybAMwBHFzdHJsAzI1BHF1ZXJ5A3NxbCUyMHNlcnZlciUyMGpvaW4lMjBzdGF0ZW1lbnQEdF9zdG1wAzE2NjcyNDgyNDE-?p=sql+server+join+statement&fr2=sb-top&fr=mcafee&type=E210GB714G0) across related tables, sort and filtering with [Where](https://uk.search.yahoo.com/search;_ylt=AwrLAphwMGBj3BQ9WhQM34lQ;_ylc=X1MDMTM1MTIxMjgxMgRfcgMyBGZyA21jYWZlZQRmcjIDc2ItdG9wBGdwcmlkA0VIWHZ5SHJwUlBDOHZQVTBwVGhHdUEEbl9yc2x0AzAEbl9zdWdnAzAEb3JpZ2luA3VrLnNlYXJjaC55YWhvby5jb20EcG9zAzAEcHFzdHIDBHBxc3RybAMwBHFzdHJsAzI2BHF1ZXJ5A3NxbCUyMHNlcnZlciUyMHdoZXJlJTIwc3RhdGVtZW50BHRfc3RtcAMxNjY3MjQ4MzAw?p=sql+server+where+statement&fr2=sb-top&fr=mcafee&type=E210GB714G0), modifying data and using built in functions for [insert database name]:

*[Instructions: Use AdvantureWorksLT2019 -TSQL Cheat Sheet for examples on this section]*

|  |  |
| --- | --- |
| **.sql File for**  **TSQL03-08 Demos:** | [insert a hyperlink to the corresponding .sql file] |

## Module 3: Writing SELECT Queries with single Table

**Why write Select queries?**

The purpose of the SELECT statement is to query database tables, apply logical manipulation to the data, and result a result set.

### Demo A1: Writing Simple SELECT Query

[Instructions: utilise the structure by presenting your TSQL Demo code and results as follows]

|  |
| --- |
| **TSQL Demo Code and SSMS Screenshot Results or Evidence:** |
| USE AdventureWorksLT2019;  GO  -- Select and execute the following query to retrieve all columns,  -- all rows from SalesLT.ProductCategory table  SELECT \*  FROM SalesLT.ProductCategory;    -- Step 7: Simple SELECT query with calculated column  -- Select and execute the following query to manipulate columns from the Sales.OrderDetails table.  -- Note the lack of name for the new calculated column.  SELECT SalesOrderID, ProductID, UnitPrice, OrderQty, (UnitPrice \* OrderQty)  FROM SalesLT.SalesOrderDetail; |

### Demo A2: Eliminating Duplicates with DISTINCT

### Demo A3: Using Column and Table Aliases Lesson

### Demo A4: Writing Simple CASE Expressions

## Module 4: Joining and Querying Multiple Tables

**Why use Joining and Querying Multiple Tables?**

By making multiple queries and joining the data in code will make multiple requests to your database, one for each table you need data from. The advantage of using a join in the SQL query will reduce the number of connection made to just one. This is especially advantageous if your database server is on a separate machine.

### Demo B1: How to provide data from 2 related tables with a Join

### Demo B2: How to Query with Inner Joins

### Demo B3: How to Query with Outer Joins

### Demo B4: How Query with Cross Joins and Self Joins

## Module 5: Sorting and Filtering Data

### Demo C1: How to Sort Data

### Demo C2: How to Filter Data with Predicates

### Demo C3: How to Filter Data with TOP and OFFSET-FETCH

### Demo C4: How to work with Unknown Values

## Module 6: Working with Data Types

### Demo D1: Working with Data Type examples

### Demo D2: Working with Character Data

### Demo D3: Working with Date and Time Data

## Module 7: Using DML to Modify Data

Why use Using DML to Modify Data?

DML is an abbreviation for Data Manipulation Language. Represents a collection of programming languages explicitly used to make changes to the data

### Demo E1: Adding Data to Tables

### Demo E2: Modifying and Removing Data

### Demo E3: Generating Automatic Column Values

## Module 8: Using Built-In Functions

Why do programmers use built in functions?

TSQL and programming languages use functions. The biggest reasons are functions allow you to do calculation and break programming into more manageable pieces.

### Demo F1: Writing Queries with Built-In Functions

### Demo F2: Using Conversion Functions

### Demo F3: Using Logical Functions

### Demo F4: Using Functions to Work with NULL