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-- Useful T-SQL Scripts for SQL Development
--
-- Created for the online course on Udemy: "Working with Python® on Windows® and SQL Server® Databases"
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-- Course URL: https://www.udemy.com/course/python-windows-sql-server/
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-- Disclaimer: This set of SQL scripts which is part of the online course on Udemy "Working with Python®
-- on Windows® and SQL Server® Databases", is intended to be used only for demo purposes. Do not
-- use it for Production systems as it is simplified for demo purposes.
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```

```
USE [DatabaseName];
GO

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-- 1. Solutions to common issues
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-- Resolving the "Divide by zero" error (by example)
DECLARE @denominator INT
SET @denominator = 0
--SELECT 1 / 0
SELECT 1 / ISNULL(NULLIF(@denominator, 0), 1)

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--Handling the error "The conversion of a char data type to a datetime data
--type resulted in an out-of-range datetime value"

--Change the default language to "us_english" for the given SQL Server login:
USE [master];
ALTER LOGIN "LOGIN_NAME" WITH DEFAULT_LANGUAGE = us_english;

--Best practice: Always use the ISO date format in your data applications/T-SQL scripts: YYYY-MM-DD

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--Handling the error "Database [Database_Name] cannot be upgraded because it is read-only
--or has read-only files"
--Make sure that the user account on which the SQL Server instance database engine is
--running has full access to the database files.
```

-- 2. Basic String Functions

-- Returns @length characters from @expression starting from @start_index

SELECT SUBSTRING(@expression, @start_index, @length)

SELECT SUBSTRING('This is a Test', 1, 4)

-- Finds the given @pattern in the @string and replaces it with the @replacement_string

SELECT REPLACE(@string, @pattern, @replacement_string)

SELECT REPLACE('This is a Test', 'Test', 'New Test')

-- Returns the size of @string in terms of number of characters

SELECT LEN(@string)

SELECT LEN('This is a Test')

-- Returns the first @num_chars characters of the @string counting from the left

SELECT LEFT(@string, @num_chars)

SELECT LEFT('This is a Test',4)

-- Returns the first @num_chars characters of the @string counting from the right

SELECT RIGHT(@string, @num_chars)

SELECT RIGHT('This is a Test',4)

-- Removes the leading blank spaces

SELECT LTRIM(@expression)

SELECT LTRIM(' This is a Test')

-- Removes the trailing blank spaces

SELECT RTRIM(@expression)

SELECT RTRIM('This is a Test ')

-- 3. Performance-Related Tips

-- Avoiding locking when reading data (however, dirty reads are allowed)
-- You need to take into consideration, possible dirty-read issues when using this approach

```
SELECT [columnName]
FROM [tableName] WITH (NOLOCK)
```

-- Rebuild a specific index with using parameters

```
USE [DATABASE_NAME];
ALTER INDEX [INDEX_NAME] ON [SCHEMA.TABLE]
REBUILD WITH (FILLFACTOR=[FILL_FACTOR_VALUE_BETWEEN_0_100], ONLINE=[ON|OFF]);
```

-- Rebuild all indexes in a table with using parameters

```
USE [DATABASE_NAME];
ALTER INDEX ALL ON [SCHEMA.TABLE]
REBUILD WITH (FILLFACTOR=[FILL_FACTOR_VALUE_BETWEEN_0_100], ONLINE=[ON|OFF]);
```

-- Updating database tables without causing blocking

-- You need to take into consideration, possible dirty-read issues when using this approach

```
UPDATE [TABLE_NAME] WITH (READPAST)
SET ...
WHERE ...
```

-- 4. Maintenance-Related Tips

-- Truncating a data/log file

```
USE [DBName];  
DBCC SHRINKFILE ([Data_Log_LogicalName], TRUNCATEONLY);
```

-- Renaming a Windows login

```
ALTER LOGIN "[Domain or Server Name]\[Windows Username]"  
WITH NAME="[New Domain or New Server Name]\[Windows Username]";
```

-- Renaming a SQL Server login

```
ALTER LOGIN "[SQL Server Login Name]"  
WITH NAME="[New SQL Server Login Name]";
```

-- Creating Logins for orphaned SQL Server users

```
USE [DBName];  
EXEC sp_change_users_login 'Auto_Fix', '[UserName]', NULL, '[Password]';
```

-- Changing the Database Owner in a SQL Server Database (SQL Login)

```
USE [DBName];  
EXEC sp_changedbowner '[SQL_Login_Name]';
```

-- Changing the Database Owner in a SQL Server Database (Windows Login)

```
USE [DBName];  
EXEC sp_changedbowner '[DomainNameUserName]';
```