## **SQL Programming with T-SQL**

**Stored Procedure Basics**

# **SQL Server Programming Part 1 - Stored Procedure Basics**

<https://www.youtube.com/watch?v=fjNsRV4zLdc>

- Working with Simple Stored Procedures

* What is a Stored Procedure?
* Creating a Basic Procedure
* Executing Stored Procedures
* Making Changes to a Procedure
* Deleting a Procedure

If you ever find yourself writing the same SQL query over and over again, a Stored Procedure could be just the time-saving tool you're looking for.  This video introduces you to the concept of stored procedures and will show you how to create, execute and modify these useful elements of SQL Server.

**Stored Procedure Parameters**

# **SQL Server Programming Part 2 - Stored Procedure Parameters**

<https://www.youtube.com/watch?v=Vs-atxMs4mw>

Stored Procedures are extremely useful tools in SQL Server, and they become even more powerful when you use parameters to pass information to them.  This video teaches you how to define a list of parameters for a stored procedure and how to call a parameterised procedure and pass information to it.  You'll also learn how to create optional parameters with default values, how to handle NULLs passed to a procedure and, finally, how to use your procedure in other applications such as Reporting Services.

**Variables**

# **SQL Server Programming Part 3 - Variables**

[**https://www.youtube.com/watch?v=NmYaOlcbfZM**](https://www.youtube.com/watch?v=NmYaOlcbfZM)

- Basics of Variables

* What are Variables?
* Declaring Variables
* Assigning a Value to a Variable
* Referring to a Variable in a Query

- Using Variables in SQL Server

* Storing Query Results in Variables
* Displaying the Value of a Variable
* Reading a Record into Variables
* Accumulating Values in Variables
* Global Variables

Using variables allows you to give your SQL procedures a memory.  You can store a value in a variable and then retrieve and reuse that value at any point later in the same procedure.  This video teaches you how to declare variables, assign values to them and make use of those values in a query.  You'll also see how to store the result of a SELECT statement in a variable, as well as how to accumulate the value of a variable.  You'll see a couple of methods of displaying the value stored in a variable and we'll end with a quick overview of the global variables in SQL Server.

**Output Parameters and Return Values**

# **SQL Server Programming Part 4 - Output Parameters & Return Values**

[**https://www.youtube.com/watch?v=GvRv4V-AK70**](https://www.youtube.com/watch?v=GvRv4V-AK70)

- Returning Values from Stored Procedures

* Recap of Input Parameters
* Defining Output Parameters
* Getting the Result of an Output Parameter
* Using Return Values in Stored Procedures

Output parameters and return values are two methods in SQL for getting information out of a stored procedure.  This video teaches you how to use both methods, including how to define output parameters and set their values within a procedure, how to add a return statement to a stored procedure, and how to capture the output of a procedure when you execute it.

**IF Statements**

# **SQL Server Programming Part 5 - IF Statements**

[**https://www.youtube.com/watch?v=Wo3WbUBefZw**](https://www.youtube.com/watch?v=Wo3WbUBefZw)

- Testing Conditions in SQL

* The Basic Syntax of IF
* Using the ELSE Clause
* Nesting IF Statements
* Using IF Statements in Stored Procedures

IF statements in SQL allow you to check if a condition has been met and, if so, to perform a sequence of actions.  This video teaches you everything from the basic syntax of IF statements, including how to use the ELSE clause and perform multiple actions using a BEGIN and END block.  We'll also teach you how to nest your IF statements, including a few useful tips on how to make your nested IFs readable!

**WHILE Loops**

# **SQL Server Programming Part 6 - WHILE Loops**

[**https://www.youtube.com/watch?v=gWnhFn0ugoM**](https://www.youtube.com/watch?v=gWnhFn0ugoM)

- While Loops in SQL

* The Basic Syntax of WHILE
* SELECT Statements in a Loop
* Ending a Loop Prematurely
* Endless Loops
* Looping with Cursors

In SQL Server there is only one type of loop: a WHILE loop.  This video teaches you how to use them, from the basic syntax of the WHILE statement, through how to use a SELECT statement within a loop.  We'll also cover how to use the BREAK command to exit from a loop, what to do when you inevitably find yourself in an endless loop and, finally, a quick introduction to using loops with cursors.

**User Defined Functions**

# **SQL Server Programming Part 7 - User Defined Functions**

[**https://www.youtube.com/watch?v=6BslHItOTjU**](https://www.youtube.com/watch?v=6BslHItOTjU)

- Creating Custom Functions

* What are Scalar Functions?
* Defining a Function
* Adding Code to a Function
* Using Functions in Queries
* Altering Functions

- More Complex Functions

* Using Variables
* Using Conditional Statements
* Returning Different Answers

If you have a calculation that you frequently use in SQL queries you're probably bored of writing out the same code time after time. Why not try creating a user-defined function to save you the hassle! This video teaches you how to define your own custom functions, including how to use input parameters, how to alter a function after you've created it, and even how to use fancy programming techniques such as variables and IF statements to help structure complex sequences of calculations.

**Temporary Tables**

# **SQL Server Programming Part 8 - Temporary Tables**

[**https://www.youtube.com/watch?v=3ZtYrELHP8M**](https://www.youtube.com/watch?v=3ZtYrELHP8M)

- The Basics of Temporary Tables

* What are Temporary Tables?
* Two Ways to Create Temporary Tables
* Adding Records to Temporary Tables

- How Temporary Tables Work

* Where Temporary Tables Live
* The Scope of Temporary Tables
* How Temporary Tables are Removed
* Using Temporary Tables with Stored Procedures

There are many techniques in SQL Server for working with temporary data: this video deals with Temporary Tables (you know, the ones that begin with a #).  You'll learn how to create and remove temporary tables, where they live during their short lifespans, how to extend their scope by using global temp tables, and how you can use temporary tables within stored procedures.

**Table Variables**

# **SQL Server Programming Part 9 - Table Variables**

[**https://www.youtube.com/watch?v=MdVd0fI1s-A&t=3s**](https://www.youtube.com/watch?v=MdVd0fI1s-A&t=3s)

- Working with Table Variables

* Recap of Temporary Tables
* Declaring a Table Variable
* Inserting Data into a Table Variable

- Table Variables vs. Temporary Tables

* Why Use Table Variables?
* Drawbacks of Table Variables
* Myths of Table Variables
* Which is Better?

In SQL Server, Table Variables provide an alternative to Temporary Tables when working with temporary sets of data. This video teaches you how to declare table variables and insert records into them.  You'll learn about the differences between table variables and temporary tables, including why one technique isn't always better than the other. Finally, you'll also hear about one of the common rumours surrounding table variables and why it's actually just a myth!

**Table Valued Functions**

# **SQL Server Programming Part 10 - Table Valued Functions**

[**https://www.youtube.com/watch?v=nCAEgNxC7nU**](https://www.youtube.com/watch?v=nCAEgNxC7nU)

- Simple Table-Valued Functions

* A Recap of User-Defined Functions
* Defining an Inline Table-Valued Function
* Using and Modifying a Function

-Multi-Statement Table-Valued Functions

* Defining an MSTVF
* Using Table Variables
* Using MSTVFs in Queries

Table-Valued Functions in SQL Server represent yet another method for working with a temporary set of data. This video teaches you how to create both Inline Table-Valued Functions and Multi-Statement Table-Valued Functions. You'll learn how to define functions, including how to add parameters to them, and how to work with Table Variables within a function's definition.

**Transactions**

# **SQL Server Programming Part 14 - Transactions**

[**https://www.youtube.com/watch?v=is03uRYFgqc**](https://www.youtube.com/watch?v=is03uRYFgqc)

- Basic Syntax of Transactions

* What are Transactions?
* Beginning a Transaction
* Committing or Rolling Back
* Creating Named Transactions

-Making Use of Transactions

* Conditonally Committing or Rolling Back
* Transactions with Error Handlers
* Automatic Rollback
* Nested Transactions
* Using Save Points
* Transactions in Stored Procedures

Transactions take place whenever you modify data in your database. Normally this process is handled by SQL Server but this video teaches you how to control your transactions.  You'll learn how to specify when your transactions begin, when the changes are committed and even how to undo the changes using the Rollback statement. We'll also cover how to use transactions with error handling code, how to create savepoints within a transaction, and how to use nested transactions in stored procedures.

**DML Triggers**

# **SQL Server Programming Part 15 - DML Triggers**

[**https://www.youtube.com/watch?v=WBmE4Utu6P4**](https://www.youtube.com/watch?v=WBmE4Utu6P4)

-DML Triggers in SQL Server

* What are Triggers?
* Data Manipulation Events
* Creating AFTER and INSTEAD OF Triggers
* Using the Inserted and Deleted Tables
* Validating Data using Triggers

Triggers are special stored procedures that you can attach to various events within a database. This video covers DML, or Data Manipulation Language triggers, which you can use to handle events associated with inserting, updating and deleting data in tables and views.

**DDL Triggers**

# **SQL Server Programming Part 16 - DDL Triggers**

**https://www.youtube.com/watch?v=9XCB0y44b1g**

- DDL Triggers in SQL Server

* What are Triggers?
* Data Definition Events
* Creating DDL Triggers
* DDL Trigger Scope
* Changing the Firing Order of Triggers

Triggers are special stored procedures that you can attach to various events within a database. This video covers DDL, or Data Definition Language triggers, which you can use to handle events associated with changing the objects in a datatbase. This video concentrates on creating triggers to handle the CREATE, ALTER and DROP events and will show you how to scope a trigger to a single database or to an entire server. You'll also see how to disable and enable triggers, as well as how to change the order in which your triggers fire.