

Aggregate Functions

SQL Functions

SQL has a lot of built-in functions for counting and calculations.

Function Syntax

```
SELECT function(column) FROM table
```

Types of Functions

There are several basic types and categories of functions in SQL. The basic types of functions are:

- Aggregate Functions
- Scalar functions

Aggregate Functions

Aggregate functions operate against a collection of values, but return a *single* value.

Note: If used among many other expressions in the item list of a SELECT statement, the SELECT must have a GROUP BY clause!!

Aggregate Functions in SQL Server

The table below lists some of the more useful Aggregate Functions (not an exhaustive list)

Function	Description
AVG(<i>column</i>)	Returns the average value of a column
COUNT(<i>column</i>)	Returns the number of rows (without a NULL value) of a column
COUNT(*)	Returns the number of selected rows
COUNT(DISTINCT <i>column</i>)	Returns the number of distinct results
MAX(<i>column</i>)	Returns the highest value of a column
MIN(<i>column</i>)	Returns the lowest value of a column
SUM(<i>column</i>)	Returns the sum of a column

Aggregate Functions

Scalar Functions

Scalar functions operate against a single value and return a single value based on the input value.

There are many different types of Scalar Function in SQL Server 2000. It's even possible to define your own functions using T-SQL. The following categories contain the most useful functions:

- Date and Time Functions
- Mathematical Functions
- String Functions

For example, the function UPPER (a string function), returns a character expression with lowercase character data converted to uppercase.

```
SELECT UPPER(first_name) FROM sales_contacts
```

A comprehensive list of SQL Server Functions can be found here:
http://msdn.microsoft.com/library/default.asp?url=/library/en-us/tsqlref/ts_fa-fz_9dyr.asp