SQL Data Types

.NET

*A software system used to maintain a relational database is called a Relational Database Management System (RDBMS). Many relational database systems use **Structured Query Language (SQL)** for querying and maintaining a database.*

SQL – String Data Types

https://docs.microsoft.com/en-us/sql/t-sql/data-types/char-and-varchar-transact-sql?view=sql-server-ver15

Data Type	Description
CHAR(n)	Fixed-length up to "n", 0 to 255, Default 1
VARCHAR(n)	Variable length up to "n". 0 to 65535
NCHAR(7)	Fixed-length, Unicode string
NVARCHAR(n)	variable-length Unicode string up to "n". *Use this unless you specifically need to use something else.

There are a many built-in functions to deal with strings:
- LEN(), SUBSTRING(), CHARINDEX(), REPLACE(), LOWER(), UPPER()

SQL – Integer Data Types

Data Type	Description
BIT	It's a bit. Values 1 to 64. Default 1
TINYINT	Signed = -128 to 127. unsigned = 0 to 255
BOOL	Max 255 bytes. 0 = false, 1 = true
SMALLINT	Max 65535 bytes
INT	signed = -2147483648 to 2147483647. (Use this unless you need something else) unsigned = 0 to 4294967295
BIGINT	-2^63 (-9,223,372,036,854,775,808) to 2^63-1 (9,223,372,036,854,775,807)

SQL –Data Types with decimals

Data Type	Description
FLOAT(n)	n is the number of bits that are used to store the floats *mantissa* and dictates the precision and storage size. If n is specified, it must be a value between **1** and **53**. Default is **53**.
DECIMAL(*size*, *d*)	An exact fixed-point number. size = total digits(default 10, max 65). d = number of digits after the decimal point(default 0, max 30).

FLOAT stores an <u>approximate</u> value and DECIMAL stores an <u>exact</u> value. Exact values like money should use decimal, and approximate values like scientific measurements should use float.

SQL – Date and Time Data Types

https://docs.microsoft.com/en-us/sql/t-sql/data-types/date-and-time-types?view=sql-server-ver15

Data Type	Description
DATE	Format: YYYY-MM-DD. From '1000-01-01' to '9999-12-31'
DATETIME2(fsp)	Format: YYYY-MM-DD hh:mm:ss. Add *DEFAULT* and *ON UPDATE* in the column definition to get automatic initialization and updating to the current date and time. Microsoft recommends use of DATETIME2 for more precision.
TIMESTAMP(fsp)	The number of seconds since the Unix "epoch". Format: YYYY-MM-DD hh:mm:ss. Automatic initialization and updating with DEFAULT CURRENT_TIMESTAMP and ON UPDATE CURRENT_TIMESTAMP in the column definition.
TIME(fsp)	hh:mm:ss. Range: '-838:59:59' to '838:59:59'
YEAR	1901 to 2155, and 0000. MySQL 8.0 does not support year in two-digit format.
DATETIMEOFFSET	For storing intervals of time. Use *YEAR()* to extract parts of the dates/times, DATEPART(YEAR FROM '2019-01-01') or DATEPART(YEAR, '2019-01-01')

*fsp = fractional seconds precision

SQL – Currency Data Types

MONEY and SMALLMONEY are accurate to a ten-thousandth of the monetary units that they represent. Both MONEY and SMALLMONEY support the monetary symbols to the right.

Data Type	Description
MONEY	From -922,337,203,685,477.5808 to 922,337,203,685,477.5807 prints with '$'
SMALLMONEY	From -214,748.3648 to 214,748.3647 prints with '$'

Symbol	Currency	Hexadecimal value
$	Dollar sign	0024
¢	Cent sign	00A2
£	Pound sign	00A3
¤	Currency sign	00A4
¥	Yen sign	00A5
৲	Bengali Rupee mark	09F2
৳	Bengali Rupee sign	09F3
฿	Thai currency symbol Baht	0E3F
៛	Khmer currency symbol Riel	17DB
₠	Euro-Currency sign	20A0
₡	Colon sign	20A1
₢	Cruzeiro sign	20A2
₣	French Franc sign	20A3
₤	Lira sign	20A4
₥	Mill sign	20A5
₦	Naira sign	20A6
₧	Peseta sign	20A7
₨	Rupee sign	20A8
₩	Won sign	20A9
₪	New Sheqel sign	20AA
₫	Dong sign	20AB
€	Euro sign	20AC
₭	Kip sign	20AD
₮	Tugrik sign	20AE
₯	Drachma sign	20AF
₰	German Penny sign	20B0
₱	Peso sign	20B1
﷼	Rial sign	FDFC
﹩	Small Dollar sign	FE69
＄	Fullwidth Dollar sign	FF04
￠	Fullwidth Cent sign	FFE0
￡	Fullwidth Pound sign	FFE1
￥	Fullwidth Yen sign	FFE5
￦	Fullwidth Won sign	FFE6