

## SQL - Data Types

SQL Data Type is an attribute that specifies the type of data of any object. Each column, variable and expression has a related data type in SQL. You can use these data types while creating your tables. You can choose a data type for a table column based on your requirement.

SQL Server offers six categories of data types for your use which are listed below –

### Exact Numeric Data Types

DATA TYPE	FROM	TO
bigint	-9,223,372,036,854,775,808	9,223,372,036,854,775,807
int	-2,147,483,648	2,147,483,647
smallint	-32,768	32,767
tinyint	0	255
bit	0	1
decimal	$-10^{38} + 1$	$10^{38} - 1$
numeric	$-10^{38} + 1$	$10^{38} - 1$
money	-922,337,203,685,477.5808	+922,337,203,685,477.5807
smallmoney	-214,748.3648	+214,748.3647

### Approximate Numeric Data Types

DATA TYPE	FROM	TO
float	$-1.79E + 308$	$1.79E + 308$
real	$-3.40E + 38$	$3.40E + 38$

### Date and Time Data Types

DATA TYPE	FROM	TO
datetime	Jan 1, 1753	Dec 31, 9999
smalldatetime	Jan 1, 1900	Jun 6, 2079
date	Stores a date like June 30, 1991	
time	Stores a time of day like 12:30 P.M.	

**Note** – Here, datetime has 3.33 milliseconds accuracy where as smalldatetime has 1 minute accuracy.

## Character Strings Data Types

Sr.No.	DATA TYPE & Description
1	<b>char</b> Maximum length of 8,000 characters.( Fixed length non-Unicode characters)
2	<b>varchar</b> Maximum of 8,000 characters.(Variable-length non-Unicode data).
3	<b>varchar(max)</b> Maximum length of 2E + 31 characters, Variable-length non-Unicode data (SQL Server 2005 only).
4	<b>text</b> Variable-length non-Unicode data with a maximum length of 2,147,483,647 characters.

## Unicode Character Strings Data Types

Sr.No.	DATA TYPE & Description
1	<b>nchar</b> Maximum length of 4,000 characters.( Fixed length Unicode)
2	<b>nvarchar</b> Maximum length of 4,000 characters.(Variable length Unicode)
3	<b>nvarchar(max)</b> Maximum length of 2E + 31 characters (SQL Server 2005 only).( Variable length Unicode)
4	<b>ntext</b> Maximum length of 1,073,741,823 characters. ( Variable length Unicode )

## Binary Data Types

Sr.No.	DATA TYPE & Description
1	<b>binary</b> Maximum length of 8,000 bytes(Fixed-length binary data )
2	<b>varbinary</b> Maximum length of 8,000 bytes.(Variable length binary data)
3	<b>varbinary(max)</b> Maximum length of 2E + 31 bytes (SQL Server 2005 only). ( Variable length Binary data)
4	<b>image</b> Maximum length of 2,147,483,647 bytes. ( Variable length Binary Data)

## Misc Data Types

Sr.No.	DATA TYPE & Description
1	<b>sql_variant</b> Stores values of various SQL Server-supported data types, except text, ntext, and timestamp.
2	<b>timestamp</b> Stores a database-wide unique number that gets updated every time a row gets updated
3	<b>uniqueidentifier</b> Stores a globally unique identifier (GUID)
4	<b>xml</b> Stores XML data. You can store xml instances in a column or a variable (SQL Server 2005 only).
5	<b>cursor</b> Reference to a cursor object
6	<b>table</b> Stores a result set for later processing