SQL - DATA TYPES

SQL data type is an attribute that specifies type of data of any object. Each column, variable and expression has related data type in SQL.

You would use these data types while creating your tables. You would choose a particular data type for a table column based on your requirement.

SQL Server offers six categories of data types for your use:

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:

DATA TYPE	FROM	TO
char	char	Maximum length of 8,000 characters. *Fixed length non − Unicode characters*
varchar	varchar	Maximum of 8,000 characters. *Variable − length non − Unicode data.*
varchar*max*	varchar*max*	Maximum length of 2^{31} characters, Variable-length non-Unicode data *SQL Server 2005 only.*
text	text	Variable-length non-Unicode data with a maximum length of 2,147,483,647 characters.

Unicode Character Strings Data Types:

DATA TYPE	Description
nchar	Maximum length of 4,000 characters. *Fixed length Unicode*
nvarchar	Maximum length of 4,000 characters. *Variable length Unicode*
nvarchar*max*	Maximum length of 2^{31} characters *SQL Server 2005 only.* *Variable length Unicode*
ntext	Maximum length of 1,073,741,823 characters. *Variable length Unicode*

Binary Data Types:

DATA TYPE	Description
binary	Maximum length of 8,000 bytes *Fixed − length binary data*
varbinary	Maximum length of 8,000 bytes. *Variable length binary data*
varbinary*max*	Maximum length of 2^{31} bytes *SQL Server 2005 only.* *Variable length Binary data*
image	Maximum length of 2,147,483,647 bytes. *Variable length Binary Data*

Misc Data Types:

DATA TYPE	Description
sql_variant	Stores values of various SQL Server-supported data types, except text, ntext, and timestamp.
timestamp	Stores a database-wide unique number that gets updated every time a row gets updated
uniqueidentifier	Stores a globally unique identifier *GUID*
xml	Stores XML data. You can store xml instances in a column or a

	variable $SQLServer2005only$.
cursor	Reference to a cursor object
table	Stores a result set for later processing