

SQL - Data Types

An SQL data type refers to the type of data which can be stored in a column of a database table. For example integer data, character data, monetary data, date and time data, binary strings, and so on.

For every database, data types are primarily classified into three categories.

- Numeric Data Types
- Date and Time Data Types
- String Data Types

Numeric Data Types in MYSQL

Exact Numeric Data Type

Data Type	Range	Description
INT	-2147483648 to 2147483647 (signed)	11 digits Normal sized integer value.
TINYINT	-128 to 127(signed) 0 to 255(unsigned)	Very small integer values.
SMALLINT	-32768 to 32767	Small integer value.
MEDIUMINT	-8388608 to 8388607 (signed) 0 to 16777215 (unsigned)	Medium sized integer value.
BIGINT	-9223372036854775808 to 9223372036854775807	Large integer value.

Approximate Numeric Data Type

Data Type	Range	Description
FLOAT(m,d)	-1.79E+308 to 1.79E+308	A floating point number whose decimal precision can go up to 24 places. The display length (m) and the number of decimals (d) can be defined but they have a default value of m=10 and d = 2. It cannot be unsigned.
DOUBLE(m,d)	-1.79E+308 to 1.79E+308	A floating point number whose decimal precision can go up to 53 places. The display length (m) and the number of decimals (d) can be defined but they have a default value of m=16 and d = 4. It cannot be unsigned.
DECIMAL(m,d)	$-10^{38}+1$ to $10^{38}-1$	An unpacked floating point number where each decimal is represented by one byte. Here defining m (display length) and d (decimals) is necessary.

Date and Time Data Types in MYSQL

Data Type	Range	Description
DATE	'1000-01-01' to '9999-12-31'	A data type is used to store the data of date in a record Format : (yyyy-mm-dd)
DATETIME	'1000-01-01 00:00:00' to '9999-12-31 23:59:59'	A data type is used to store both the data,date and time in the record. Format : (yyyy-mm-dd hh:mm:ss)
TIME	'-838:59:59' to '838:59:59'	A data type is used to store the data of time in a record Format : (HH:MM:SS)
YEAR[(2 4)]	2 digits or 4 digits value	A data type is used to store the year. Format : (yyyy / yy)

String Data Types in MYSQL

Data Type	Range	Description
CHAR(size)	255 characters	Here, size is equal to the number of characters to store. It is used for fixed-length strings with space padded on right to equal size characters.
VARCHAR(size)	255 characters	Here, size is equal to the number of characters to store. It is used for variable-length strings.
TINYTEXT(size)	255 characters	Here, size is equal to the number of characters to store.
TEXT(size)	65,535 characters	Here, size is equal to the number of characters to store.
MEDIUMTEXT(size)	16,777,215 characters	Here, size is equal to the number of characters to store.
LONGTEXT(size)	4GB or 4,294,967,295 characters	Here, size is equal to the number of characters to store.
BINARY(size)	255 characters	Here, size is equal to the number of binary characters to store.
VARBINARY(size)	255 characters	Here, size is equal to the number of binary characters to store. It is used for variable-length strings.

Large Object (LOB) Data Types:

Data Type	Maximum Size
TINYBLOB	255 bytes
BLOB(size)	-65,535 bytes
MEDIUMBLOB	16,777,215 bytes
LONGTEXT	4GB or 4,294,967,295 characters