

# SQL DATA TYPES-

Data types are used to represent the **nature of the data that can be stored in the database table**. For example, in a particular column of a table, if we want to store a string type of data then we will have to declare a string data type of this column.

Data types mainly classified into three categories for every database.

- String Data types
- Numeric Data types
- Date and time Data types

## MySQL Data Types

### MySQL String Data Types

<b>CHAR(Size)</b>	It is used to specify a fixed length string that can contain numbers, letters, and special characters. Its size can be 0 to 255 characters. Default is 1.
<b>VARCHAR(Size)</b>	It is used to specify a variable length string that can contain numbers, letters, and special characters. Its size can be from 0 to 65535 characters.
<b>BINARY(Size)</b>	It is equal to CHAR() but stores binary byte strings. Its size parameter specifies the column length in the bytes. Default is 1.
<b>VARBINARY(Size)</b>	It is equal to VARCHAR() but stores binary byte strings. Its size parameter specifies the maximum column length in bytes.
<b>TEXT(Size)</b>	It holds a string that can contain a maximum length of 255 characters.
<b>TINYTEXT</b>	It holds a string with a maximum length of 255 characters.
<b>MEDIUMTEXT</b>	It holds a string with a maximum length of 16,777,215.

<b>LONGTEXT</b>	It holds a string with a maximum length of 4,294,967,295 characters.
<b>ENUM(val1, val2, val3,...)</b>	It is used when a string object having only one value, chosen from a list of possible values. It contains 65535 values in an ENUM list. If you insert a value that is not in the list, a blank value will be inserted.
<b>SET(val1,val2,val3,...)</b>	It is used to specify a string that can have 0 or more values, chosen from a list of possible values. You can list up to 64 values at one time in a SET list.
<b>BLOB(size)</b>	It is used for BLOBs (Binary Large Objects). It can hold up to 65,535 bytes.

### MySQL Numeric Data Types

<b>BIT(Size)</b>	It is used for a bit-value type. The number of bits per value is specified in size. Its size can be 1 to 64. The default value is 1.
<b>INT(size)</b>	It is used for the integer value. Its signed range varies from -2147483648 to 2147483647 and unsigned range varies from 0 to 4294967295. The size parameter specifies the max display width that is 255.
<b>INTEGER(size)</b>	It is equal to INT(size).
<b>FLOAT(size, d)</b>	It is used to specify a floating point number. Its size parameter specifies the total number of digits. The number of digits after the decimal point is specified by <b>d</b> parameter.
<b>FLOAT(p)</b>	It is used to specify a floating point number. MySQL used p parameter to determine whether to use FLOAT or DOUBLE. If p is between 0 to 24, the data type becomes FLOAT (). If p is from 25 to 53, the data type becomes DOUBLE().

<b>DOUBLE(size, d)</b>	It is a normal size floating point number. Its size parameter specifies the total number of digits. The number of digits after the decimal is specified by d parameter.
<b>DECIMAL(size, d)</b>	It is used to specify a fixed point number. Its size parameter specifies the total number of digits. The number of digits after the decimal parameter is specified by <b>d</b> parameter. The maximum value for the size is 65, and the default value is 10. The maximum value for <b>d</b> is 30, and the default value is 0.
<b>DEC(size, d)</b>	It is equal to DECIMAL(size, d).
<b>BOOL</b>	It is used to specify Boolean values true and false. Zero is considered as false, and nonzero values are considered as true.

### MySQL Date and Time Data Types

<b>DATE</b>	It is used to specify date format YYYY-MM-DD. Its supported range is from '1000-01-01' to '9999-12-31'.
<b>DATETIME(fsp)</b>	It is used to specify date and time combination. Its format is YYYY-MM-DD hh:mm:ss. Its supported range is from '1000-01-01 00:00:00' to 9999-12-31 23:59:59'.
<b>TIMESTAMP(fsp)</b>	It is used to specify the timestamp. Its value is stored as the number of seconds since the Unix epoch('1970-01-01 00:00:00' UTC). Its format is YYYY-MM-DD hh:mm:ss. Its supported range is from '1970-01-01 00:00:01' UTC to '2038-01-09 03:14:07' UTC.
<b>TIME(fsp)</b>	It is used to specify the time format. Its format is hh:mm:ss. Its supported range is from '-838:59:59' to '838:59:59'
<b>YEAR</b>	It is used to specify a year in four-digit format. Values allowed in four digit format from 1901 to 2155, and 0000.

