

MYSQL DATATYPES

- ✓ A data type is a classification or categorization that specifies which type of data a particular variable, column, or value can hold in a programming language or database system.
- ✓ Data types define the format and size of data that can be stored, as well as the operations that can be performed on that data.

Characteristics of data types:

- ✓ It **ensure data integrity**, Data types **specify the range of values that can be stored**, ensure that only **valid data is stored**, provide **constraints on data values**, and enable **efficient storage and retrieval** of data
- ✓ **Data types determine how data is stored in memory or in a database.**

- In MySQL, there are several data types that you can use to define the type of data a column can hold. Here are some commonly used data types along with examples

DIFFERENT TYPES OF DATATYPES

- 1- Numeric Data Types:** Used for storing whole numbers
- 2- String Data Types:** Used for variable-length character strings.
- 3- Date and Time Data Types:** Used for storing dates in 'YYYY-MM-DD' format.
- 4- Boolean Data Types:** Used for storing true/false values.
- 5- Binary Data Types:** Used for storing binary data (e.g., images).
- 6- Enumerated Data Types:** Used for defining a list of allowed values.

Numeric Data Types:

Numeric data types are used to store numerical values. MySQL supports a variety of integer and floating-point data types

INT: Used for storing whole numbers.

Example: **age INT**

DECIMAL: Used for storing fixed-point numbers.

Example: **price DECIMAL(10, 2)** (stores up to 10 digits with 2 decimal places)

FLOAT: Used for storing approximate numeric values.

Example: **temperature FLOAT**

String Data Types:

String data types are used to store character data. MySQL supports both fixed-length and variable-length string data types

- VARCHAR**: Used for variable-length character strings.

Example: **first_name VARCHAR(50)** (up to 50 characters)

A variable length string up to 65535 characters.

- CHAR**: Used for fixed-length character strings.

Example: **country CHAR(3)** (always 3 characters, e.g., 'USA')

A fixed length string up to 255 characters. (default is 1)

- TEXT**: Used for longer text strings.

Example: **description TEXT**

Char, Varchar, Date and Time values should be enclosed with single (' ') or double (" ") quotes in MySQL. varchar is used in MySQL and varchar2 is used in Oracle.

Date and Time Data Types:

Date and time data types are used to store dates, times, and timestamps.

- DATE**: Used for storing dates in 'YYYY-MM-DD' format.

Example: **birthdate DATE**

- TIME**: Used for storing time values in 'HH:MM:SS' format.

Example: **appointment_time TIME**

- DATETIME**: Used for storing date and time values.

Example: **created_at DATETIME**

Boolean Data Type:

- **BOOLEAN**: Used for storing true/false values.
- Example: **is_active BOOLEAN**

Enumerated Data Type:

- **ENUM**: Used for defining a list of allowed values.
- Example: **gender ENUM('Male', 'Female', 'Other')**

Binary Data Types:

- **BLOB**: Used for storing binary data (e.g., images).
- Example: **image_data BLOB**