Assigning Data Types

Introduction to SQL data types

- A data type defines what kind of value a column can hold: integer data, character data, monetary data, date and time data, binary strings, and so on.

- Each column in a database table is required to have a name and a data type.

- When designing a database table, it's important to decide what type of data that will be stored inside each column. The data type is a guideline for SQL to understand what type of data is expected inside of each column, and it also identifies how SQL will interact with the stored data.

Note: Data types might have different names in different databases. And even if the name is the same, the size and other details may be different. Always check the documentation for your database before assigning a data type.

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Common data types across all databases

Data Type (SQL Server / MYSQL / SQLite)	Description
char / CHAR / CHAR	Fixed width character string
varchar / VARCHAR / VARCHAR	Variable width character string
text / TEXT / TEXT	Variable width character string
bit / TINYINT(1) / BOOLEAN	Integer that can be 0, 1
int / INT / INTEGER	Allows whole numbers between -2,147,483,648 and 2,147,483,647
decimal / DECIMAL / DECIMAL	Fixed precision and scale numbers
float / FLOAT / NA	Floating precision number data from -1.79E + 308 to 1.79E + 308
date / DATE / DATE	Store a date only. From January 1, 0001 to December 31, 9999
datetime / DATETIME / DATETIME	From January 1, 1753 to December 31, 9999 with an accuracy of 3.33 milliseconds
timestamp / TIMESTAMP / NA	Stores a unique number that gets updated every time a row gets created or modified. The timestamp value is based upon an internal clock and does not correspond to real time.
time / TIME / TIME	Store a time only to an accuracy of 100 nanoseconds

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How data types are assigned in the DBMS

Data types are assigned similarly in all databases. Typically it's done in the table designer and in many cases the data types are available from a picklist widget. Once you assign a data type, it is common depending on the data type, to also assign a size for that column.