

SQL Server Data Types - Detailed Explanation

SQL Server Data Types (International Documentation Standard)

1. Exact Numeric Data Types

- bigint: Stores large integer values (8 bytes).
- int: Stores standard integer values (4 bytes).
- smallint: Stores small integer values (2 bytes).
- tinyint: Stores very small integer values (1 byte).
- bit: Stores Boolean values (0 or 1).
- decimal (or dec): Fixed precision and scale numeric values.
- numeric: Same as decimal.
- money: Stores monetary values (4 decimal places, 8 bytes).
- smallmoney: Stores smaller monetary values (4 decimal places, 4 bytes).

2. Approximate Numeric Data Types

- float: Floating-point number with approximate precision (4-8 bytes).
- real: Less precise floating-point number (4 bytes).

3. Date and Time Data Types

- date: Stores date (YYYY-MM-DD).
- datetime: Stores date and time (accuracy 3.33 ms).
- datetime2: Enhanced datetime with higher precision.
- smalldatetime: Stores date and time (accuracy 1 minute).
- datetimeoffset: Date and time with time zone offset.
- time: Stores only time of day.

4. Character Strings

- char(n): Fixed-length non-Unicode string.
- varchar(n): Variable-length non-Unicode string.
- text: Large non-Unicode text data.

5. Unicode Character Strings

- nchar(n): Fixed-length Unicode string.
- nvarchar(n): Variable-length Unicode string.
- ntext: Large Unicode text data.

6. Binary Data Types

- binary(n): Fixed-length binary data.
- varbinary(n): Variable-length binary data.
- image: Large binary objects.

7. Other Data Types

- sql_variant: Stores values of various SQL Server-supported data types.
- uniqueidentifier: Stores globally unique identifiers (GUID).
- xml: Stores XML data.
- cursor: Stores a reference to a cursor for database operations.
- table: Stores a set of rows as a table type.
- hierarchyid: Represents hierarchical data.
- geometry: Stores planar spatial data.
- geography: Stores geospatial data on a spherical surface.