



# Introduction to Database & Data types

Devi Gopinath

# DATABASE



**An organized collection of structured data to make it easily accessible and manageable.**

## DBMS

**Helps to manage data in response to queries.**

## SQL

**Most Databases use structured query language (SQL) for writing and querying data**



# Database Components

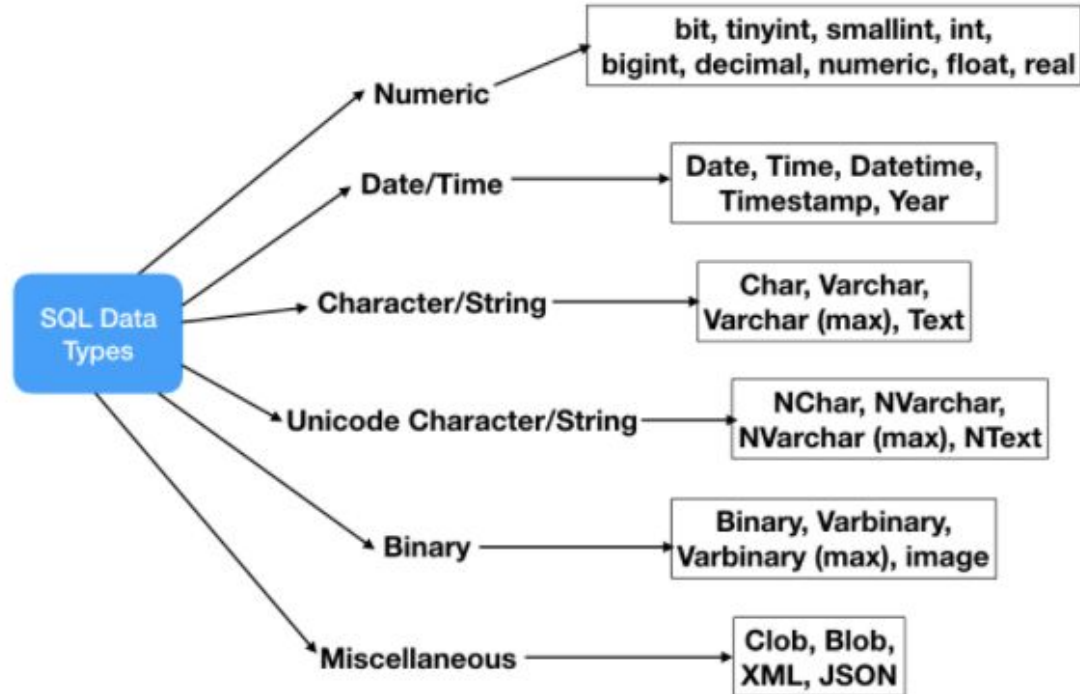
- Hardware
- Software
- Data
- Procedure
- Database Access Language



# Common Database Data Types:

- Integer
- Character
- String
- Floating Point
- Array
- Boolean

# SQL Data types



# SQL Numeric Data types



DATA TYPES	FROM	TO
bit	0	1
tinyint	0	255
smallint	-32,768	32,767
int	-2,147,483,648	2,147,483,647
bigint	-9,223,372,036, 854,775,808	9,223,372,036, 854,775,807
decimal	$-10^{38} + 1$	$10^{38} - 1$
numeric	$-10^{38} + 1$	$10^{38} - 1$
float	$-1.79E + 308$	$1.79E + 308$
real	$-3.40E + 38$	$3.40E + 38$

# SQL Date & Time Data types



DATA TYPES	DESCRIPTION
DATE	Stores date in the format YYYY-MM-DD
TIME	Stores time in the format HH:MI:SS
DATETIME	Stores date and time information in the format YYYY-MM-DD HH:MI:SS
TIMESTAMP	Stores number of seconds passed since the Unix epoch ('1970-01-01 00:00:00' UTC)
YEAR	Stores year in 2 digit or 4 digit format. Range 1901 to 2155 in 4-digit format. Range 70 to 69, representing 1970 to 2069.

# SQL Character & String Data types



DATA TYPES	DESCRIPTION
CHAR	Fixed length with maximum length of 8,000 characters
VARCHAR	Variable length storage with maximum length of 8,000 characters
VARCHAR(max)	Variable length storage with provided max characters, not supported in MySQL
TEXT	Variable length storage with maximum size of 2GB data



# SQL Unicode Character & String Data types



DATA TYPES	DESCRIPTION
NCHAR	Fixed length with maximum length of 4,000 characters
NVARCHAR	Variable length storage with maximum length of 4,000 characters
NVARCHAR(max)	Variable length storage with provided max characters
NTEXT	Variable length storage with maximum size of 1GB data

# SQL Binary Data types



DATA TYPES	DESCRIPTION
BINARY	Fixed length with maximum length of 8,000 bytes
VARBINARY	Variable length storage with maximum length of 8,000 bytes
VARBINARY(max)	Variable length storage with provided max bytes
IMAGE	Variable length storage with maximum size of 2GB binary data

# SQL Miscellaneous Data types



DATA TYPES	DESCRIPTION
CLOB	Character large objects that can hold up to 2GB
BLOB	For binary large objects
XML	for storing xml data
JSON	for storing JSON data



**THANK YOU!**