

**WEEK 6**

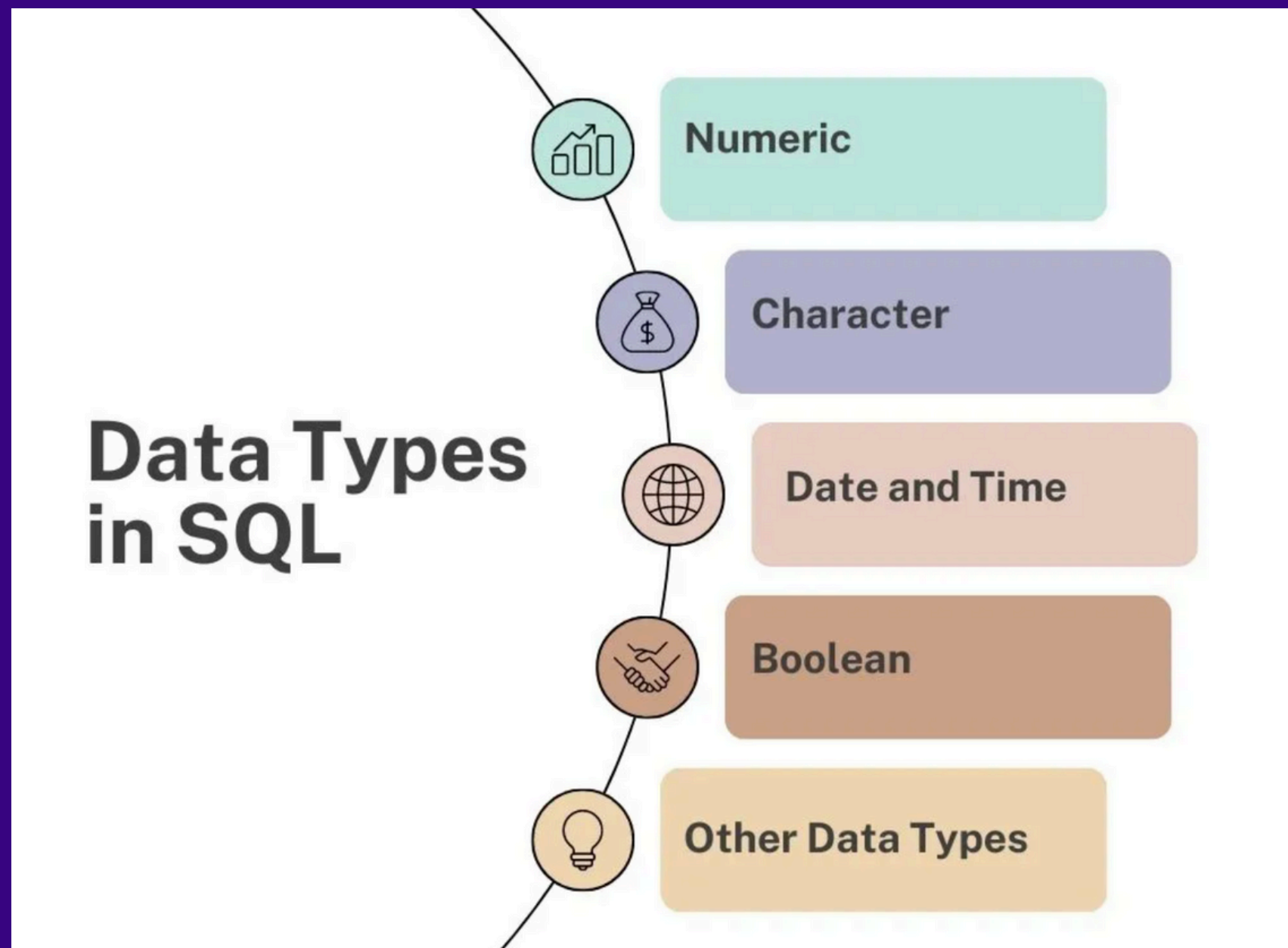
# What are the **SQL** data types?

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# SQL Data Types



- SQL data types define the kind of data stored in database table columns.
- Categories include:
  - **Boolean:** Stores logical values.
  - **Numeric:** Stores numbers (integers and real numbers).
  - **String:** Stores text and character data.
  - **Datetime:** Stores date and time information.

# Boolean Data Type



**Definition:** Stores logical values.

**Examples:**

- TRUE
- FALSE

**SQL Keyword:** BOOL

# Numeric Data Types

NUMERIC	<b>INT (OR INTEGER)</b>	Stores any integer value that uses up to 4 bytes of storage.	<ul style="list-style-type: none"><li>It can typically store integer values between -2,147,483,648 to 2,147,483,647</li></ul>
	<b>BIGINT</b>	Stores any integer value that uses up to 8 bytes of storage.	<ul style="list-style-type: none"><li>It can typically store integer values in the range of -9,223,372,036,854,775,808 to 9,223,372,036,854,775,807.</li></ul>
	<b>SMALLINT</b>	Stores any integer value that uses up to 2 bytes of storage.	<ul style="list-style-type: none"><li>It can typically store integer values in the range of -32,768 to 32,767.</li></ul>
	<b>FLOAT</b>	Stores any real number value that uses up to 8 bytes of storage.	<ul style="list-style-type: none"><li>-1, 0, 7.2598234, <math>\pi</math>, <math>\frac{1}{3}</math>, sqrt 2 etc.</li></ul>

# String Data Types

STRING	<b>CHAR(n)</b>	Stores fixed-length character strings.	<ul style="list-style-type: none"><li>CHAR(2) can store 2 characters, if less than 2 characters are entered the remaining space will be filled with whitespace</li></ul>
	<b>VARCHAR(n)</b>	Variable-length character strings with a maximum length of n.	<ul style="list-style-type: none"><li>VARCHAR(24) can store any length of characters between 1-24. As opposed to CHAR(n) which fills empty spaces with whitespace, any unused space will be saved.</li></ul>
	<b>TEXT</b>	Variable-length character strings with no maximum length.	



# Identifying Data Types in a Database

## SQL Syntax Example:

- To describe the structure of a table:
  - DESCRIBE table;
- To describe a table within a specific database:
  - DESCRIBE database.table;

- Syntax
  - Describe `TBL_NAME;`
  - Desc `TBL_NAME;`
- Describes a given table
- It Display Column name, not null constraints, data type and size of each table.

# Recap and Next Steps

- Summary:
  - SQL is the backbone of database management.
  - Mastering commands, functions, clauses, and operators empowers efficient database operations.
  - A solid understanding of SQL structures enhances performance in real-world database tasks.
- Next Steps:
  - Complete Week 5 Quiz