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## Database

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A collection of data stored in a format that can be easily accessed.

### Database Management System (DBMS)

Allows for management and modification of databases through queries. Queries are requests used to access data from a database for retrieving and manipulating.

#### Relational DBMS

Data is stored in tables connected through relationships. Each table stores data about an object.

```
Customer <-> Orders
          ^
          |
          v
        Products
```

An example of a database containing three table. The customer is related to the orders table via what exactly he or she bought while the orders table is related to the products table as the orders table list exactly what products are being bought.

Examples of Relational DBMS:

1. MySQL
2. SQLite
3. MariaDB

Example of Relational DBMS Code (Query):

```
SELECT * FROM products WHERE category = 'food' ORDER BY price
```

#### Non-relational DBMS

Data is not stored in tables and there are no relationships.

Examples:

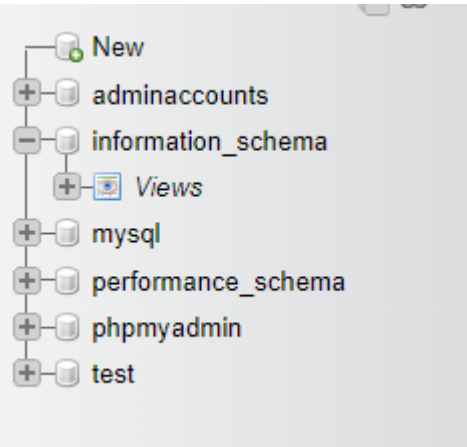
- 1. Spreadsheets
- 2. JSON
- 3. Text files
- 4. NoSQL

# MySQL

A widely used relational database management system. Free and open-source.

## Schema

A set of database objects -- such as tables and views. It includes the structure of those objects, but not the actual data that they contain.



## Tables

Contains the rows and columns of data. Each column has a unique name used to identify the type of data stored in it. Each row is a record of multiple kinds of data pertaining to a single object.

	customer_id	first_name	last_name	birth_date	phone	address	city	state	points
<input type="checkbox"/> Edit Copy Delete	1	Babara	MacCaffrey	1986-03-28	781-932-9754	0 Sage Terrace	Waltham	MA	2273
<input type="checkbox"/> Edit Copy Delete	2	Ines	Brushfield	1986-04-13	804-427-9456	14187 Commercial Trail	Hampton	VA	947
<input type="checkbox"/> Edit Copy Delete	3	Freddi	Boagey	1985-02-07	719-724-7869	251 Springs Junction	Colorado Springs	CO	2967
<input type="checkbox"/> Edit Copy Delete	4	Ambur	Roseburgh	1974-04-14	407-231-8017	30 Arapahoe Terrace	Orlando	FL	457

The above table contains the column customer\_id containing a unique id representing each customer. The other columns contain data pertaining to the name, birthdate, number, location, and customer points.

## Retrieving from Tables

```
SELECT * FROM `orders`
```

The above code will select all rows and columns in a table (and display them if you're using a visual database design tool).

**SELECT** - select a database for querying