

Introduction to Databases

A database is an organized collection of data so that it can be easily accessed. To manage these databases, **Database Management Systems (DBMS)** are used.

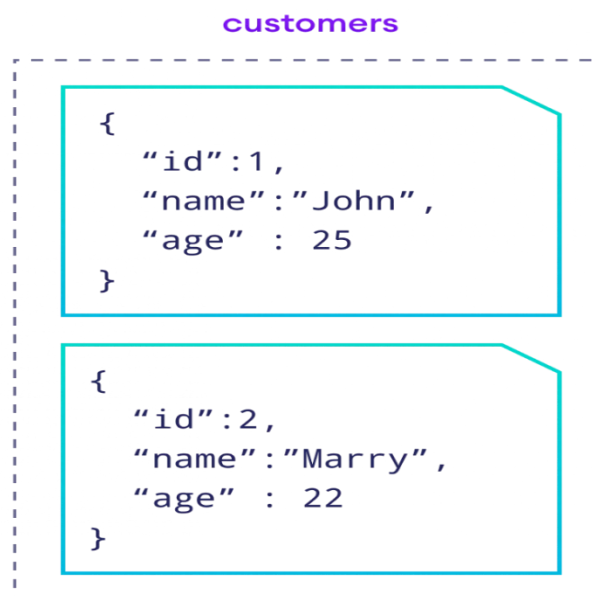
Types of DBMS:

In general, there are two common types of databases:

- Non-Relational
- Relational

Non-Relational Database Management System (Non-RDBMS)In

Non-RDBMS, data is stored in **key-value pairs**. For example:



Here, customers' data are stored in key-value pairs. **Commonly used Non-RDBMS:** MongoDB, Amazon DynamoDB, Redis, etc.

Relational Database Management System (RDBMS)

In RDBMS, data is stored in **tabular format**. For example,

Table: customers

customer_id	first_name	last_name	phone	country
1	John	Doe	817-646-8833	USA
2	Robert	Luna	412-862-0502	USA
3	David	Robinson	208-340-7906	UK
4	John	Reinhardt	307-242-6285	UK
5	Betty	Taylor	806-749-2958	UAE

Here, `Customer` is a table inside the database.

The first row is the attributes of the table. Each row after that contains the data of a customer.

In RDBMS, two or more tables may be related to each other. Hence the term "**Relational**" means. For example,

Table: orders

order_id	product	total	customer_id
1	Paper	500	5
2	Pen	10	2
3	Marker	120	3
4	Books	1000	1
5	Erasers	20	4

Table: customers

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Here, orders and customers are related through `customer_id`.

Commonly used RDBMS: MySQL, PostgreSQL, MSSQL, Oracle etc.

To access data from these relational databases, **SQL (Structured Query Language)** is used.