

- **1. Relational database**

- Relational databases have been around since the 1970s. The name comes from the way that data is stored in multiple, related tables. Within the tables, data is stored in rows and columns.
- The relational database management system (RDBMS) is the program that allows you to create, update, and administer a relational database.
- Structured Query Language (SQL) is the most common language for reading, creating, updating and deleting data. Relational databases are very reliable. They are compliant with ACID (Atomicity, Consistency, Isolation, Durability), which is a standard set of properties for reliable database transactions. Relational databases work well with structured data. Organizations that have a lot of unstructured or semi-structured data should not be considering a relational database.

- **Examples:** Microsoft SQL Server, Oracle Database, MySQL, PostgreSQL and IBM Db2

DDBMS

- A DDBMS (distributed database management system) is a centralized application that manages a distributed database as if it were all stored on the same computer.
- The DDBMS synchronizes all the data periodically, and in cases where multiple users must access the same data, ensures that updates and deletes performed on the data at one location will be automatically reflected in the data stored elsewhere.

2. NoSQL databases

- NoSQL is a broad category that includes any database that doesn't use SQL as its primary data access language. These types of databases are also sometimes referred to as non-relational databases. Unlike in relational databases, data in a NoSQL database doesn't have to conform to a pre-defined schema, so these types of databases are great for organizations seeking to store unstructured or semi-structured data. One advantage of NoSQL databases is that developers can make changes to the database on the fly, without affecting applications that are using the database.
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- **Examples:** Apache Cassandra, MongoDB, CouchDB, and CouchBase

Cloud databases

A cloud database refers to any database that's designed to run in the cloud. Like other cloud-based applications, cloud databases offer flexibility and scalability, along with high availability. Cloud databases are also often low-maintenance, since many are offered via a SaaS model.

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- **Examples:** Microsoft Azure SQL Database, Amazon Relational Database Service, Oracle Autonomous Database.

Object-oriented databases

- An object-oriented database is based on object-oriented programming, so data and all of its attributes, are tied together as an object. Object-oriented databases are managed by object-oriented database management systems (OODBMS). These databases work well with object-oriented programming languages, such as C++ and Java. Like relational databases, object-oriented databases conform to ACID standards.
- **Examples:** Wakanda, ObjectStore

Hierarchical databases

- Hierarchical databases use a parent-child model to store data. If you were to draw a picture of a hierarchical database, it would look like a family tree, with one object on top branching down to multiple objects beneath it. The one-to-many format is rigid, so child records can't have more than one parent record. Originally developed by IBM in the early 1960s, hierarchical databases are commonly used to support high-performance and high availability applications.
- **Examples:** IBM Information Management System (IMS), Windows Registry