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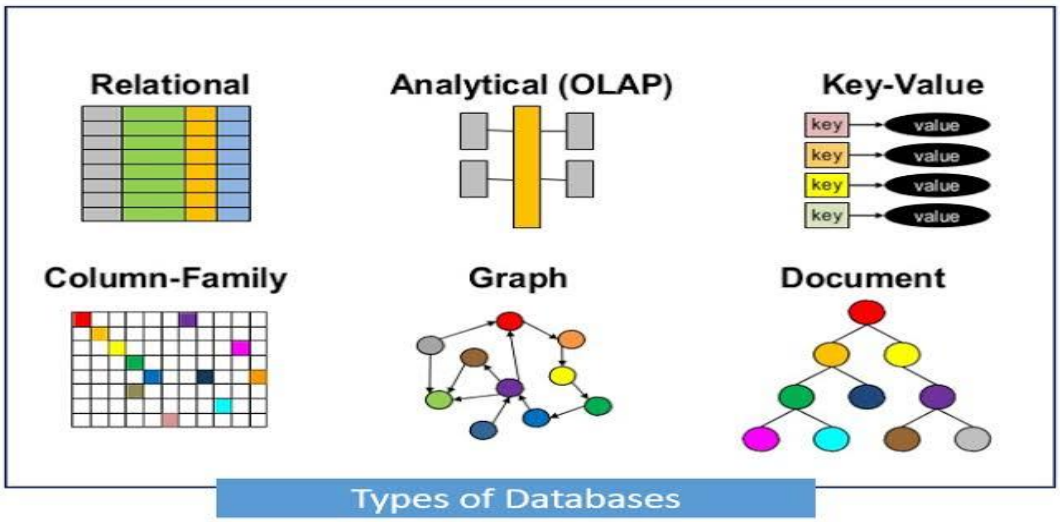
What are the types of DATABASES?

- Databases are computer structures that save, organize, protect, and deliver data. We discussed four main types of databases: text databases, desktop database programs, relational database management systems (RDMS), and NoSQL and object-oriented databases.



Relational Database

- A relational database is a digital database based on the relational model of data, as proposed by E. F. Codd in 1970. A system used to maintain relational databases is a relational database management system. Many relational database systems have an option of using the SQL for querying and maintaining the database. Standard relational databases enable users to manage predefined data relationships across multiple databases.

Example:

Popular examples of standard relational databases include **Microsoft SQL Server, Oracle Database, MySQL and IBM DB2**. Cloud relational databases include Amazon Relational Database Service, Google Cloud SQL, IBM DB2 on Cloud, SQL Azure and Oracle Cloud.

Analytical (OLAP) Database

- An analytic database, also called an analytical database, is a read-only system that stores historical data on business metrics such as sales performance and inventory levels. Business analysts, corporate executives and other workers run queries and reports against an analytic database.

Example:

HP Vertica, Pivotal Greenplum, Teradata, Paraccel/Actian, Netezza, SAP IQ.

Key-Value Database

- A key–value database, or key–value store, is a data storage paradigm designed for storing, retrieving, and managing associative arrays, and a data structure more commonly known today as a dictionary or hash table. Dictionaries contain a collection of objects, or records, which in turn have many different fields within them, each containing data.

Example:

Key-value databases are the simplest of the NoSQL databases: The basic data structure is a dictionary or map. You can store a value, such as an integer, string, a JSON structure, or an array, along with a key used to reference that value. **Redis, Riak, and Oracle NoSQL database** are examples of key-value databases.

Column-Family Database

- A **column family** is a database object that contains columns of related data. It is a tuple (pair) that consists of a key–value pair, where the key is mapped to a value that is a set of columns.

Ex:

Bigtable, Cassandra, HBase, Vertica, Druid, Accumulo, Hypertable.

Graph Database

- In computing, a graph database is a database that uses graph structures for semantic queries with nodes, edges, and properties to represent and store data. A key concept of the system is the graph.

  Ex:

  Instagram, Twitter, Facebook, Amazon, and, practically, all applications, which must rapidly query information scattered across an exponentially-growing and highly-dynamic network of data, are already taking advantage of Graph Databases.

Document Database

- A document database is a type of nonrelational database that is designed to store and query data as JSON-like documents. Document databases make it easier for developers

to store and query data in a database by using the same document-model format they use in their application code.

Ex:

Common examples of document DBMS include **JSON, XML docs, Catalogs**, serialized PDFs and Excel docs, Profile data, and serialized objects.