Name: Rowen Jane S. Orbillo

Year & Section: 3-BSCS-B

Activity

Types of Database

**Relational**[**Database**](https://searchdatamanagement.techtarget.com/definition/database)

A relational [database](https://searchdatamanagement.techtarget.com/definition/database) is a collection of information that organizes data points with defined relationships for easy access. In the relational database model, the data structures including data tables, indexes and views remain separate from the physical storage structures, enabling database administrators to edit the physical data storage without affecting the logical data structure. Relational databases are used to organize data and identify relationships between key data points. They make it easy to sort and find information, which helps organizations make business decisions more efficiently and minimize costs. They work well with structured data.

**Analytical (OLAP) Online Analytical Processing**

**OLAP** stands for **On-Line Analytical Processing**. OLAP is a classification of software technology which authorizes analysts, managers, and executives to gain insight into information through fast, consistent, interactive access in a wide variety of possible views of data that has been transformed from raw information to reflect the real dimensionality of the enterprise as understood by the clients. **OLAP** implement the multidimensional analysis of business information and support the capability for complex estimations, trend analysis, and sophisticated data modeling. It is rapidly enhancing the essential foundation for Intelligent Solutions containing Business Performance Management, Planning, Budgeting, Forecasting, Financial Documenting, Analysis, Simulation-Models, Knowledge Discovery, and Data Warehouses Reporting. OLAP enables end-clients to perform ad hoc analysis of record in multiple dimensions, providing the insight and understanding they require for better decision making.

**The key-value database**

A key-value database is a type of nonrelational database that uses a simple key-value method to store data. A key-value database stores data as a collection of key-value pairs in which a key serve as a unique identifier. Both keys and values can be anything, ranging from simple objects to complex compound objects. Key-value databases are highly partitionable and allow horizontal scaling at scales that other types of databases cannot achieve. For example, [Amazon DynamoDB](https://aws.amazon.com/dynamodb/) allocates additional partitions to a table if an existing partition fills to capacity and more storage space is required.

**Column Family**

A column family is a database object that contains columns of related data. It is a [tuple](https://en.wikipedia.org/wiki/Tuple) or pair that consists of a [key–value pair](https://en.wikipedia.org/wiki/Attribute%E2%80%93value_pair), where the key is mapped to a value that is a set of columns. In analogy with relational databases, a column family is as a "table", each key-value pair being a "row". Each column is a [tuple](https://en.wikipedia.org/wiki/Tuple) ([triplet](https://en.wikipedia.org/wiki/Triplet_(disambiguation))) consisting of a column name, a value, and a [timestamp](https://en.wikipedia.org/wiki/Timestamp). In a [relational](https://en.wikipedia.org/wiki/Relational_database) [database table](https://en.wikipedia.org/wiki/Database_table), this data would be grouped together within a table with other non-related data. There are two types of column families exist, [Standard column family](https://en.wikipedia.org/wiki/Standard_column_family): contains only columns, [Super column family](https://en.wikipedia.org/wiki/Super_column_family): contains a map of [super columns](https://en.wikipedia.org/wiki/Super_column).

**Graph database**

In computing, a graph database (GDB) 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 (or edge or relationship). The graph relates the data items in the store to a collection of nodes and edges, the edges representing the relationships between the nodes. The relationships allow data in the store to be linked together directly and, in many cases, retrieved with one operation. Graph databases hold the relationships between data as a priority. Querying relationships is fast because they are perpetually stored in the database. Relationships can be intuitively visualized using graph databases, making them useful for heavily inter-connected data.

**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. The flexible, semi structured, and hierarchical nature of documents and document databases allows them to evolve with applications’ needs. The document model works well with use cases such as catalogs, user profiles, and content management systems where each document is unique and evolves over time. Document databases enable flexible indexing, powerful ad hoc queries, and analytics over collections of documents.