INTRUDUCTION:

MongoDB is a document database with the scalability and flexibility that you want with the querying and indexing that you need. It has been built on a scale-out architecture that has become popular with developers of all kinds for developing scalable applications with evolving data schemas. As a document database, MongoDB makes it easy for developers to store structured or unstructured data.

- **Structured Data:** The information is typically organized in a specific format, often using tables with rows and columns. This makes it easier to search, filter, and analyse the data

- **Database Management System (DBMS):** This is the software that acts like the filing cabinet manager. It allows you to store, retrieve, update, and manage all the data within the database.

- **Data Types:** Databases can hold various kinds of information, including text, numbers, images, videos, and more

Fig: A SIMPLIFIED FIGURE OF DATABASE

- The picture above of the medical shop represents an data organized system for storage.
- "It takes time to store, but once it is arranged, it is ready to use easily.

Future of mango DB:

. AI-powered features: MongoDB is exploring ways to integrate AI for data analysis and automation within the database itself.

. Hybrid and multi-cloud adoption: As cloud computing evolves, MongoDB's ability to run on various cloud platforms or even a user's desktop positions it well for the future.

. Focus on sustainability: MongoDB's commitment to reducing its carbon footprint through renewable energy aligns with the growing focus on eco-friendly technology.

Where we use mongo DB:

Large and Diverse Data: If you're working with a massive amount of information from various sources, MongoDB's flexible schema lets you integrate it seamlessly into a unified view.

Complex and Evolving Data Structures: Need to store data with intricate structures that might change over time? MongoDB's document model allows for nesting documents and accommodates variations effortlessly.

High-Performance Applications: MongoDB is built for speed, making it ideal for applications that require fast data retrieval, updates, and delivery.

Cloud-Based Deployments: MongoDB integrates well with cloud environments, making it a perfect fit for applications leveraging cloud infrastructure.
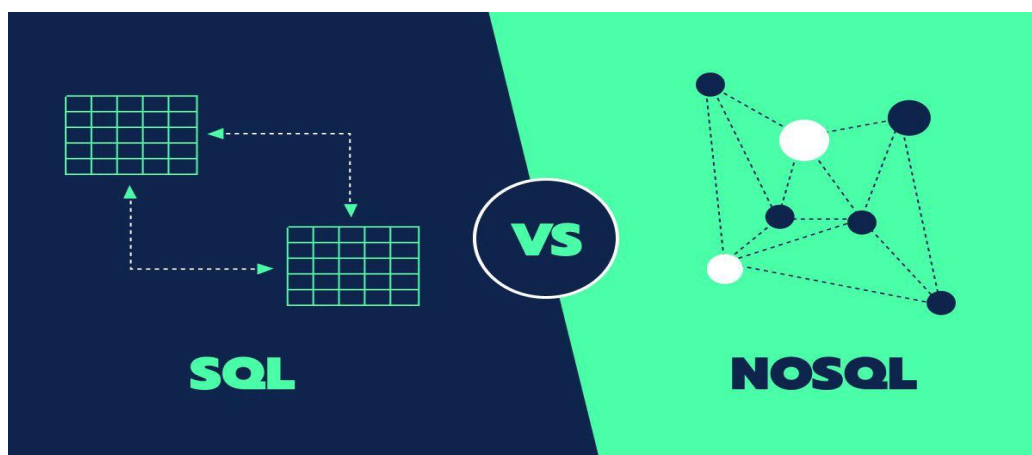
Agile Development: The flexible schema and case of use make MongoDB popular with agile development teams, allowing for rapid prototyping and iterative changes.

- What if we don't have database!!

- Every tablet shown in the picture is dumped in one place.
- "If we ask for a particular tablet, we have to wait a day because it's unorganized."

❖ SQL VS NOSQL

❖ SQL (Structured Query Language) Databases:

Structure: SQL databases are table-based. They store data in rows and columns, similar to a
spreadsheet.

Schema: They use a fixed schema, meaning you must define the structure of your data (like
columns and data types) before you can store anything.

Queries: They use SQL to interact with the database, which is a standardized language for
managing and manipulating data.

Examples: Popular SQL databases include MySQL, PostgreSQL, Oracle, and SQL Server.

Best for: They are great for applications that require complex queries and transactions, such as
financial systems and enterprise applications.

❖ NoSQL (Not Only SOL) Databases:

Structure: NoSQL databases are more flexible and can store data in various formats like
documents, key-value pairs, graphs, or wide-columns.

Schema: They use a dynamic schema, allowing you to store data without defining the structure
beforehand. You can change the structure of your data without downtime.

Queries: They use different query languages depending on the database type. For example,
MongoDB uses a JSON-like query language.

Examples: Popular NoSQL databases include MongoDB (document-based), Redis (key-value),
Neo4j (graph), and Cassandra (wide-column).

Best for: They are ideal for applications that need to handle large volumes of unstructured data,
such as big data applications, real-time web apps, and content management systems.

- **Advantages and Disadvantages:**