



## **MONGODB:**

MongoDB is a NoSQL database that stores data in flexible, JSON-like documents. It provides high performance, scalability, and availability, making it suitable for managing large volumes of diverse data types. MongoDB supports dynamic schemas, powerful querying, indexing, and aggregation capabilities.

Example:

```
{  
  title: "Post Title 1",  
  body: "Body of post.",  
  category: "News",  
  likes: 1,  
  tags: ["news", "events"],  
  date: Date()  
}
```

## **Key Features of MongoDB:**

### 1. Document-Oriented Storage:

- Data is stored in flexible, JSON-like documents, which means fields can vary from document to document and data structure can be changed over time.

## 2. Schema Flexibility:

- MongoDB allows for dynamic schemas, meaning you do not need to define the structure of the documents in advance.

## 3. Scalability:

- Designed for horizontal scalability through sharding, MongoDB can handle large volumes of data and high throughput by distributing data across multiple servers.

## 4. Indexing:

- Supports various types of indexes including single field, compound, geospatial, and text indexes to improve query performance.

## 5. Replication:

- Provides high availability with replica sets, which are groups of MongoDB instances that maintain the same data set, ensuring data redundancy and failover.

## **Core Components:**

### 1. Database:

- A physical container for collections. Each database gets its own set of files on the file system.

### 2. Collection:

- A grouping of MongoDB documents, equivalent to a table in relational databases. Collections do not enforce a schema.

### 3. Document:

- The basic unit of data in MongoDB, similar to a row in a table. A document is a set of key-value pairs and is stored in BSON (Binary JSON) format.

### 4. Field:

- A key-value pair in a document, equivalent to a column in a relational database.

## **Advantages of MongoDB:**

- Performance Levels.
- High Speed and Higher Availability.
- Simplicity
- Easy Environment and a Quick Set-up.
- Flexibility.
- Sharding.
- Scalability.

## **Mongodb Installation Process:**

- <https://www.geeksforgeeks.org/how-to-install-mongodb-on-windows/>
- <https://www.mongodb.com/docs/mongodb-shell/install/#install-mongosh>