■ Introduction to MongoDB Database

■ What is MongoDB?

MongoDB is a NoSQL database that stores data in JSON-like documents (BSON). It's used for handling large, flexible, and fast-changing data structures.

■ What is JSON?

JSON (JavaScript Object Notation) is a lightweight, human-readable format used for data exchange. Example: { "name": "Ali", "age": 25 }

■ What is BSON?

BSON (Binary JSON) is the binary-encoded format used by MongoDB to store data. It's faster and supports more data types like Date, ObjectId, etc.

■ Flexible Schema vs Relational Schema

MongoDB allows flexible schema — different documents can have different fields. Relational databases require a fixed structure (tables and columns).

■ SQL vs NoSQL

Relational databases use SQL for queries. MongoDB uses a JavaScript-like query language and stores data in JSON format for flexibility and compatibility with web applications.

■ Benefits of MongoDB Database

- Flexible schema design – different documents can have different fields.
- Horizontal scalability through sharding – data is split across multiple servers.
- High performance for read and write operations – fast insert and search.
- Powerful query language – search, filter, sort, and aggregate using simple syntax.
- Built-in replication for high availability – data is backed up on multiple servers.
- Geospatial data support – work with location-based queries and maps.
- Real-time analytics capability – analyze and visualize live data instantly.