MongoDB vs SQL – Database Comparison

Understanding NoSQL and Relational Databases

What is SQL?

- Relational Database Management System (RDBMS)
- Stores data in tables (rows & columns)
- Uses Structured Query Language (SQL)
- ACID compliant (Atomicity, Consistency, Isolation, Durability)
- **Examples:** MySQL, Oracle, PostgreSQL

What is MongoDB? (NoSQL)

- NoSQL document-oriented database
- Stores data as JSON-like documents (BSON)
- Schema-less structure (flexible)
- Horizontal scalability & high performance
- **Example:** MongoDB

MongoDB vs SQL Comparison

Feature	SQL	MongoDB
Data Model	Tables, fixed schema	Documents, flexible schema
Query Language	SQL	BSON / Query API
Scalability	Vertical	Horizontal
Transactions	ACID support	Limited / Multi-document ACID (MongoDB 4+)
Use Case	Structured data, reports	Big data, unstructured, real-time apps

Choosing Between SQL and MongoDB

- **SQL:** Best for structured data and strong consistency
- **MongoDB:** Best for flexible schema, large-scale, high-performance apps
- Hybrid approaches possible depending on application needs