MongoDB vs SQL - A Comparison

Slide 1: Introduction to SQL

SQL (Structured Query Language) databases are relational. Data is stored in tables with rows and columns. They use schemas to define the structure and enforce data integrity. Common SQL databases include MySQL, PostgreSQL, and Microsoft SQL Server.

Slide 2: Introduction to MongoDB

MongoDB is a NoSQL database that stores data in JSON-like documents. It is schema-less, which allows for flexible and dynamic data storage. It is well-suited for hierarchical data and rapid development.

Slide 3: Structure and Schema

SQL: Requires predefined schemas and structured tables.

MongoDB: Schema-less; documents can have different structures.

SQL is ideal for complex queries and transactions; MongoDB is better for handling unstructured or semi-structured data.

Slide 4: Scalability and Performance

SQL: Vertical scaling (adding more power to a single machine).

MongoDB: Horizontal scaling (distributing data across multiple machines).

MongoDB offers better performance with large-scale unstructured data.

Slide 5: Use Cases and Conclusion

SQL: Best for applications requiring complex queries, transactions, and data integrity (e.g., banking, ERP).

MongoDB: Ideal for big data, real-time analytics, content management, and IoT.

Choose based on project needs: structure vs flexibility, consistency vs speed.