Databases

**Introduction**

* Title: "Comparing MongoDB and SQL: A Database Showdown"
* Subtitle: "Understanding the differences between NoSQL and Relational Databases"

**What is SQL?**

* Title: "SQL: The Relational Database"
* Bullet points:
  + Stores data in tables with fixed schemas
  + Uses Structured Query Language (SQL) for querying and manipulation
  + Supports ACID (Atomicity, Consistency, Isolation, Durability) transactions
  + Examples: MySQL, PostgreSQL, Microsoft SQL Server
* Code example: ```sql CREATE TABLE users ( id INT PRIMARY KEY, name VARCHAR(255), email VARCHAR(255) );

**What is MongoDB?**

* **Definition:** MongoDB is a NoSQL database that stores data in flexible, JSON-like documents.
* **Key Features:**
  + **Schema-less:** Flexible schema design, allowing for dynamic changes.
  + **Scalability:** Horizontally scalable, designed to handle large volumes of data.
  + **High Performance:** Optimized for read and write operations.
  + **Document-Oriented:** Data is stored in BSON (Binary JSON) format.

**Visuals:**

* Diagram of a document in MongoDB.
* Example of a MongoDB document.

**Comparison**

* Title: "SQL vs MongoDB: A Comparison"
* Table comparing key features:

| **Feature** | **SQL** | **MongoDB** |
| --- | --- | --- |
| Data Model | Fixed schema | Flexible schema |
| Query Language | SQL | Query language and indexing |
| Scalability | Vertical scaling | Horizontal scaling |
| Transactions | ACID support | Limited transaction support |
| Data Normalization | Required | Not required |

**Conclusion**

* Title: "Choosing the Right Database"
* Summary of key points:
  + SQL is suitable for structured, relational data with fixed schemas
  + MongoDB is suitable for semi-structured, flexible data with high scalability requirements