Introduction to Database Systems

Content:

- Briefly introduce the concept of databases.
- Mention the two main types: SQL (Relational Databases) and NoSQL (Non-Relational Databases).
- State the purpose of the presentation: comparing MongoDB (NoSQL) and SQL databases.

SQL Databases

- Define SQL as Structured Query Language.
- Highlight characteristics of SQL databases:
  - Tabular structure with predefined schema.
  - Relational model with tables, rows, and columns.
  - ACID properties (Atomicity, Consistency, Isolation, Durability).
- Examples: MySQL, PostgreSQL, SQLite, etc.
- Use an image or diagram to illustrate the relational model.

MongoDB (NoSQL) Database

- Define NoSQL as "Not Only SQL."
- Highlight characteristics of MongoDB:
  - Document-oriented database.
  - No predefined schéma.
  - Flexible, scalable, and schema-less.
  - BSON (Binary JSON) data format.
- Examples: MongoDB.
- Use an image or diagram to illustrate the document-oriented model.

Feature Comparison

- Compare features between MongoDB and SQL databases:
  - Schéma: Defined (SQL) vs. Dynamic (MongoDB).
  - Scaling: Vertical (SQL) vs. Horizontal (MongoDB).
  - Query Language: SQL (Structured) vs. JSON-like (MongoDB).
  - Transactions: ACID (SQL) vs. BASE (MongoDB).
- Use a table or visual representation for easy comparison.

Use Cases and Summary

- Present use cases for each type:
  - SQL: Complex queries, structured data, transactions.
  - MongoDB: Rapid development, unstructured or semi-structured data, scalability.
- Summarize key points from previous slides.
- Conclude with considerations for choosing between SQL and MongoDB based on project requirements.

Remember to use visuals, bullet points, and concise text for a clear and engaging presentation. Additionally, you can add more details and specifics based on your audience's familiarity with databases.