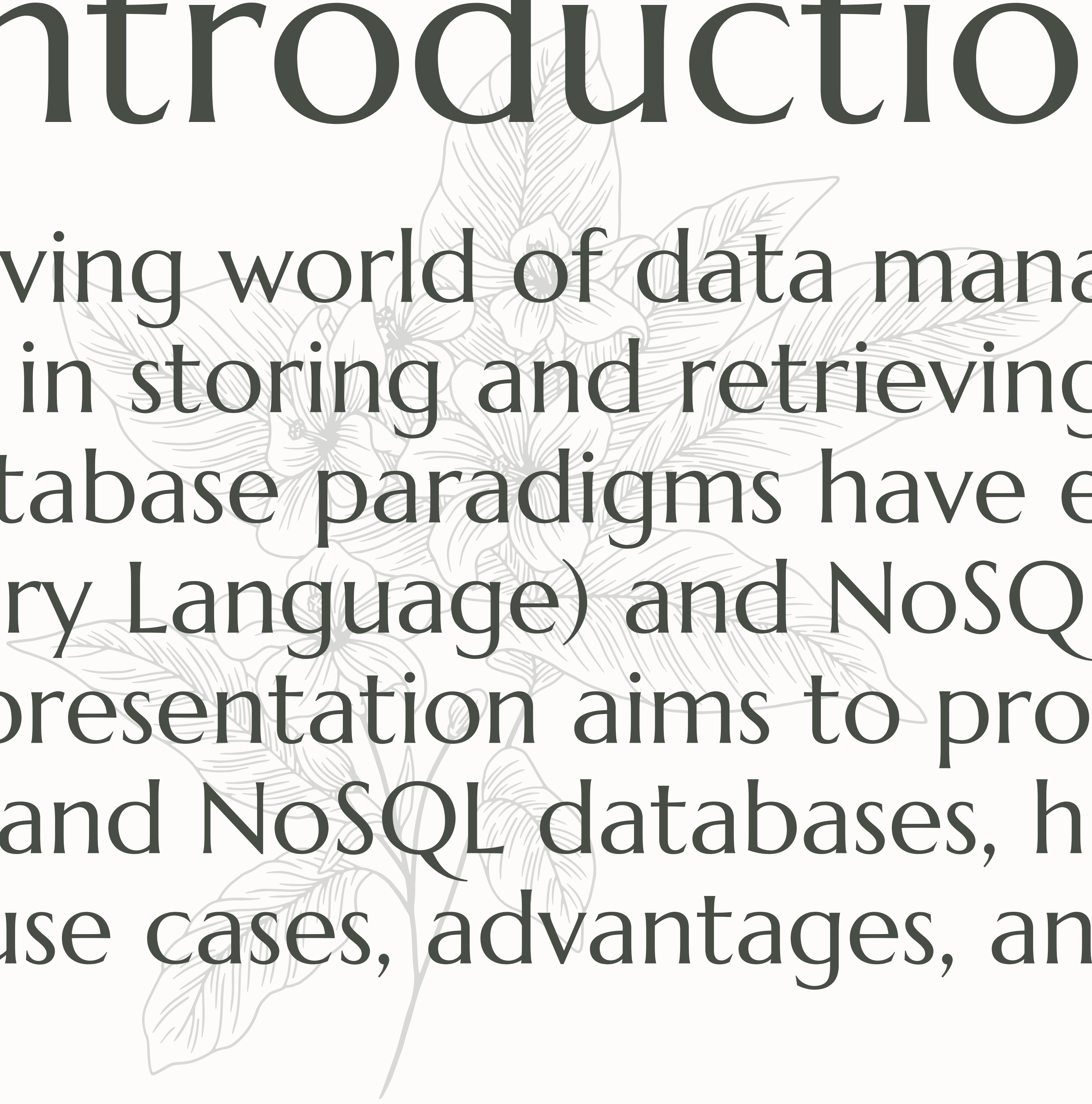
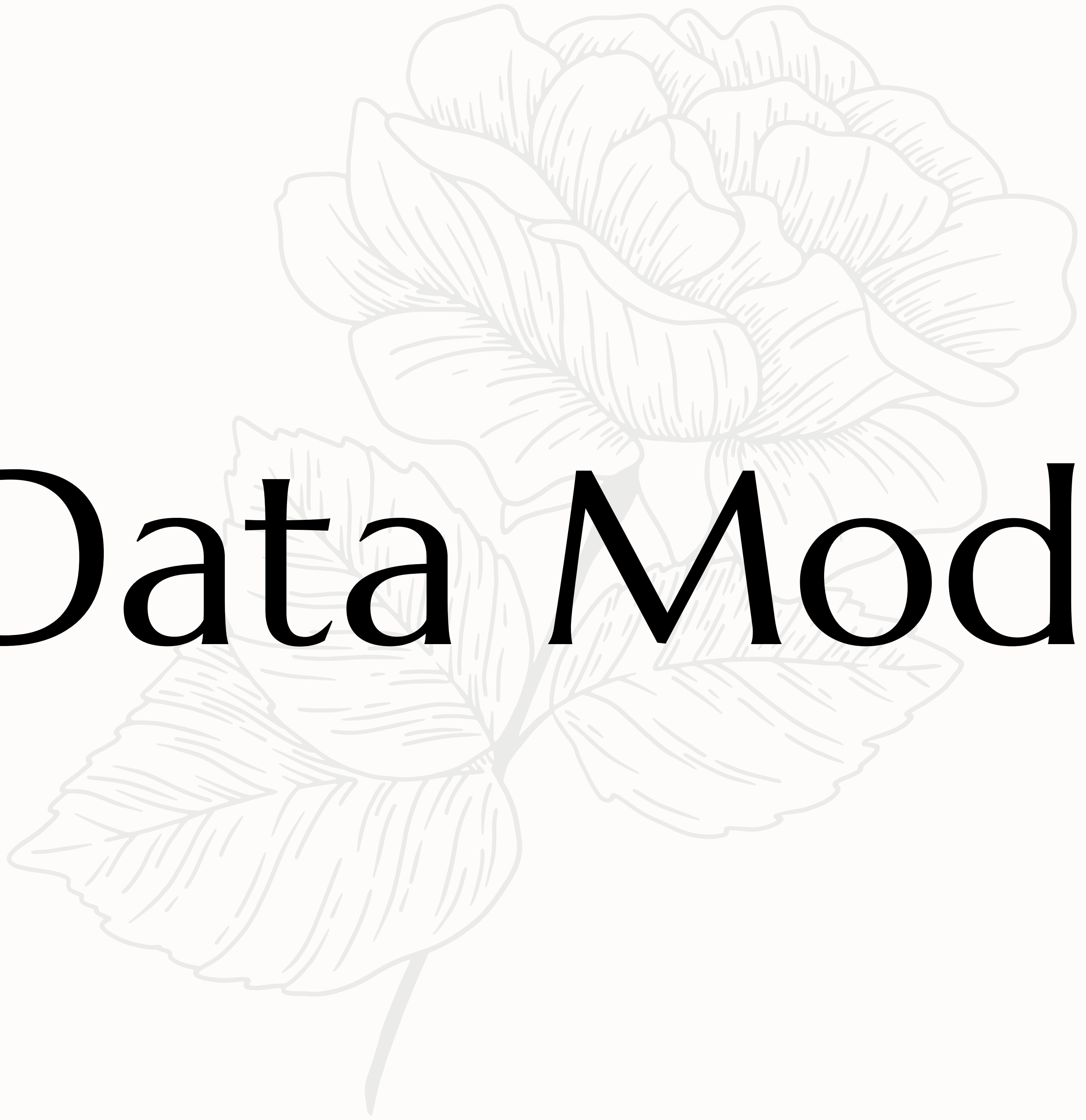
Comparing NoSQL to SQL

VERSION 1.0 - 2023

Introduction



In the rapidly evolving world of data management, databases play a crucial role in storing and retrieving information. Two ___prominent database paradigms have emerged - SQL___ (Structured Query Language) and NoSQL (Not Only SQL) databases. This presentation aims to provide an in-depth comparison of SQL and NoSQL databases, highlighting their key characteristics, use cases, advantages, and disadvantages.

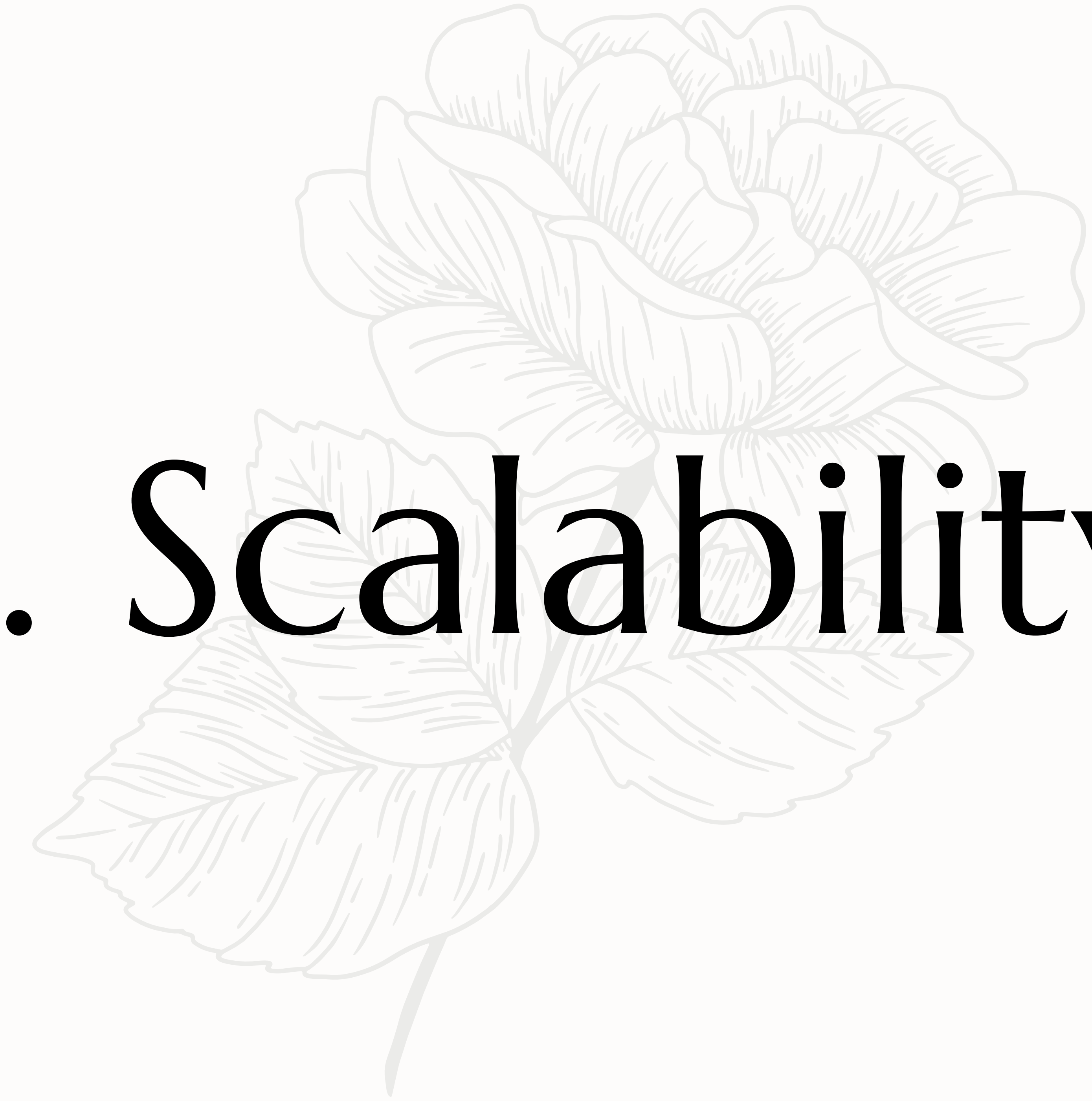


1. Data Model:

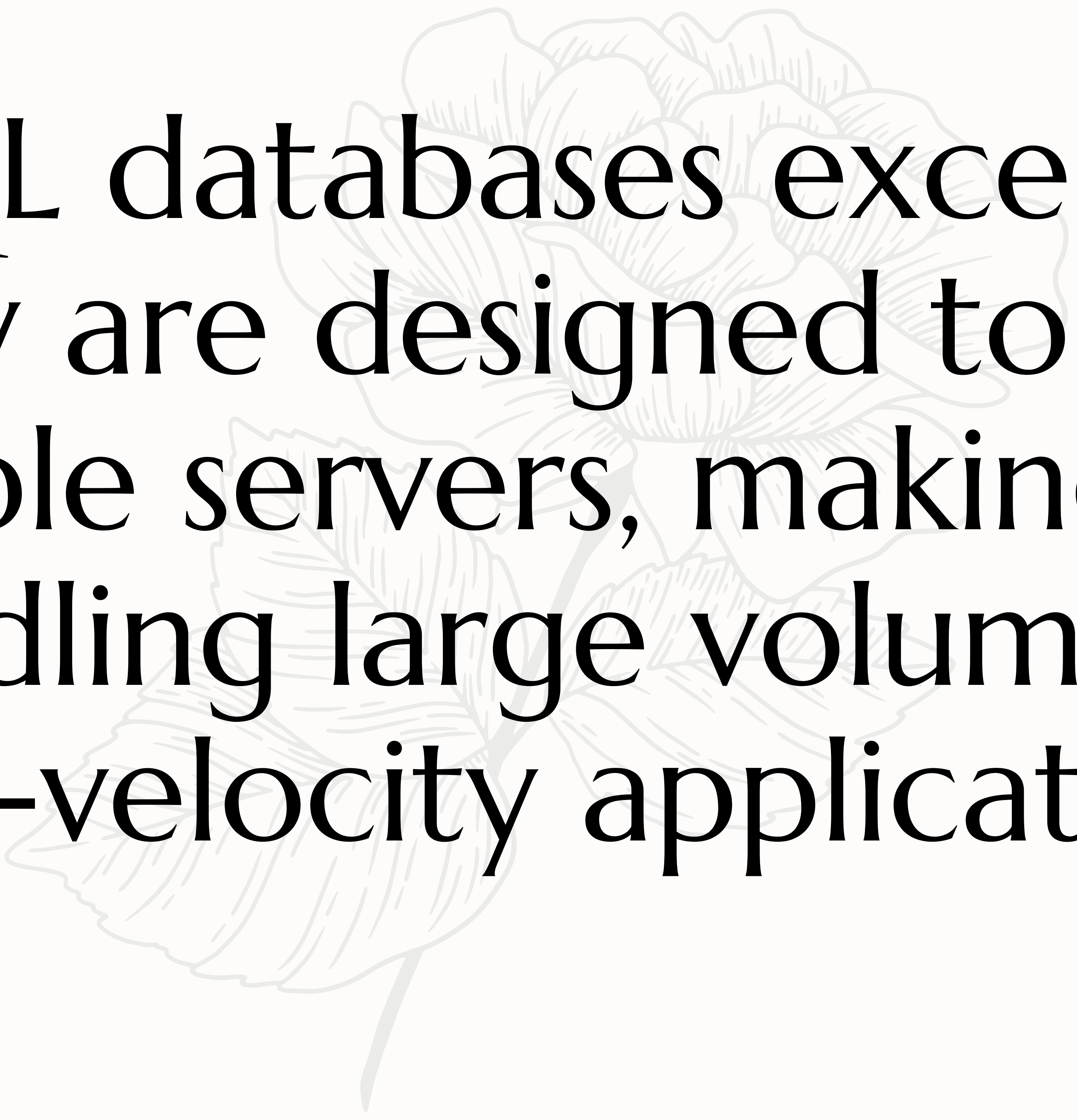
SQL: SQL databases adhere to a structured data model where data is organized into tables with predefined schemas. Relationships between tables are established through keys, enabling efficient data integrity and consistency.

NoSQL: NoSQL databases embrace a more flexible data model. They can be divided into four main types: document, key-value, column-family, and graph databases. Each type is optimized for specific use cases and allows for dynamic schema changes.

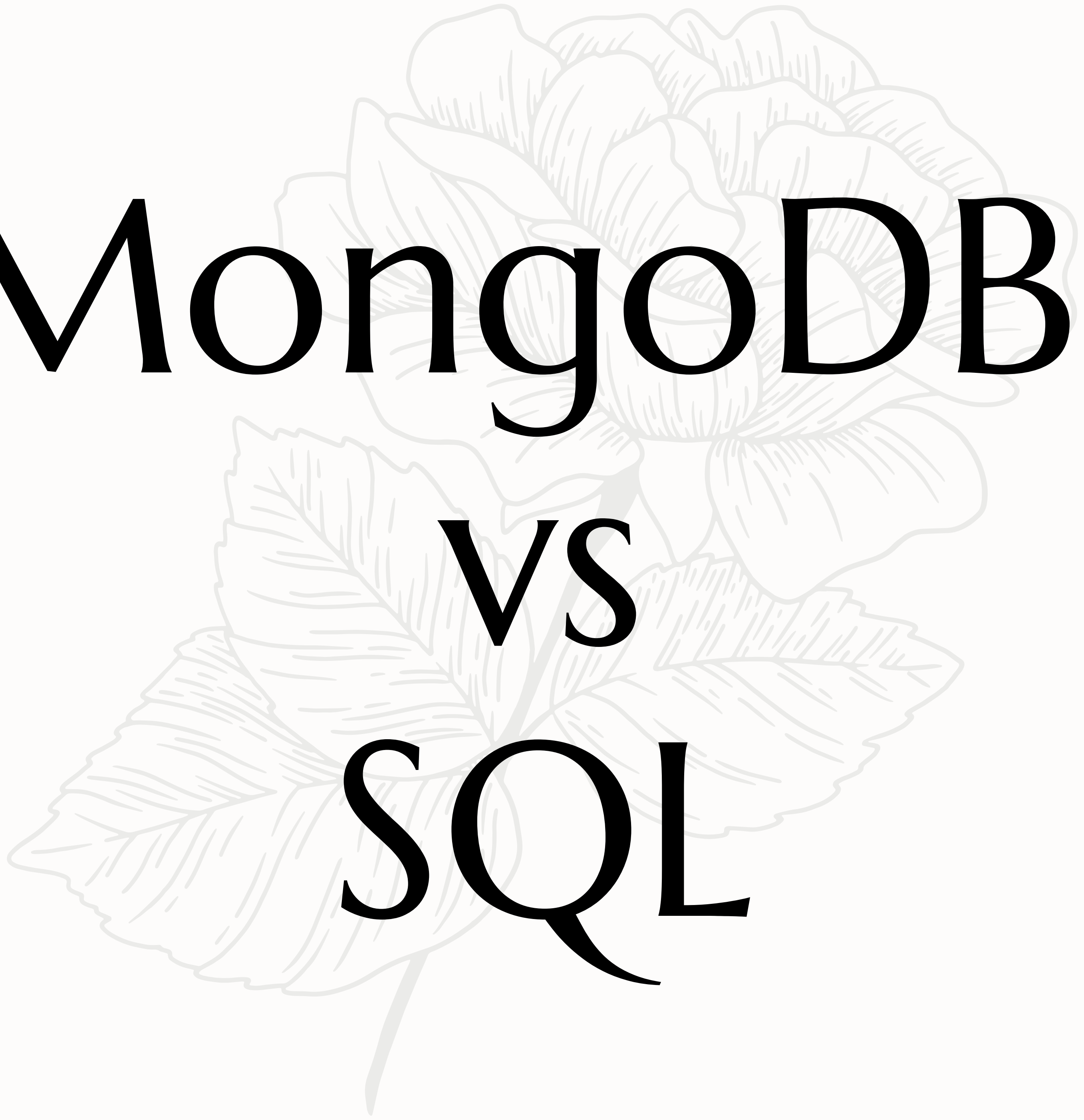
2. Scalability:



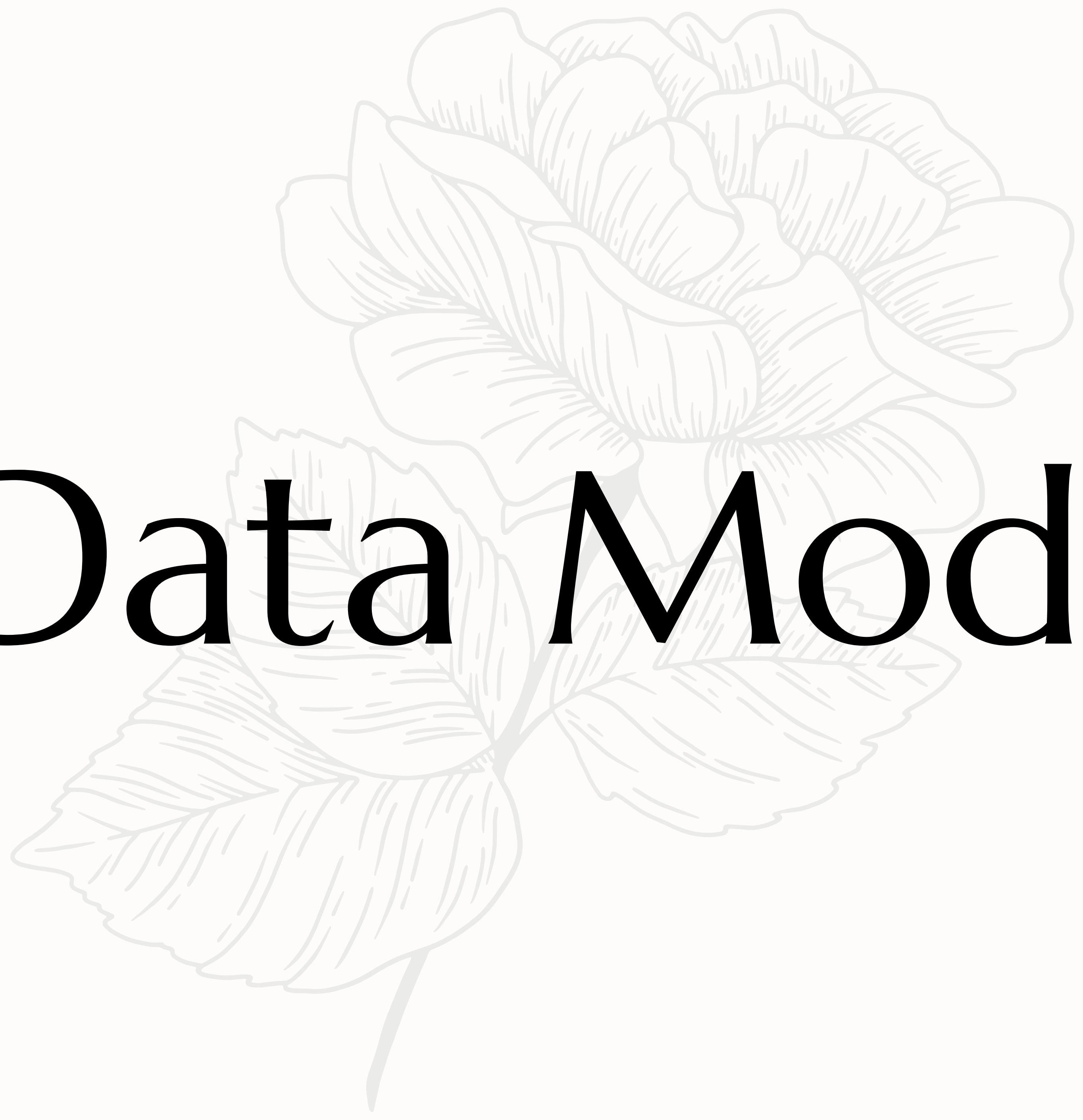
SQL: Traditional SQL databases usually face scalability challenges as they require extensive vertical scaling (adding more resources to a single server). Sharding and replication can be complex to implement.



NoSQL: NoSQL databases excel in horizontal scalability. They are designed to distribute data across multiple servers, making them well-suited for handling large volumes of data and high-velocity applications.



MongoDB vs SQL



1. Data Model:

MongoDB: Uses flexible, document-oriented storage for dynamic data with BSON documents.
SQL Databases: Employs structured, tabular models with predefined schemas for relational data.

In the choice between MongoDB and SQL databases, consider your application's specific requirements. MongoDB offers flexibility and scalability, making it a strong choice for dynamic, rapidly changing applications. SQL databases provide robust data integrity and structured querying, making them well-suited for applications with complex relationships and stringent consistency needs. Understanding these differences is crucial for making informed decisions that align with your project's goals and challenges.