CSP 554 — Big Data Technologies

Project Proposal - Group - 4

Project topic #1 - Explore use of cloud NoSQL databases in depth

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DocumentDB vs. MongoDB: Comparing NoSQL Databases

Problem Statement:

The objective of this project is to distinguish between NoSQL and traditional databases by providing a comparison of MongoDB and DocumentDB. It will go into their various applications, benefits, and drawbacks. Furthermore, the study will thoroughly investigate various applications for each database type, using real-world examples to support the comparison research.Deciding between DocumentDB and MongoDB poses a significant challenge for corporations due to the unique characteristics and functionalities of both databases. In the lack of a defined decision framework, there is a danger of development delays, wasteful resource allocation, and performance concerns. To solve this, our study intends to undertake a full comparison of DocumentDB vs MongoDB. This investigation will thoroughly assess their distinct qualities, scalability options, performance indicators, data modeling capabilities, and diverse use cases.

Proposed Solution:

Our primary focus in this project will be a detailed exploration and analysis of two leading NoSQL databases: DocumentDB and MongoDB. Our goal is to gain a thorough understanding of their individual use cases and application scenarios, identifying the distinct characteristics and attributes that make each of these databases suited for specific sectors and operational environments. Furthermore, we intend to thoroughly compare and evaluate the essential CRUD (Create, Read, Update, and Delete) actions on datasets within DocumentDB and MongoDB. We hope to provide significant insights into the operational intricacies and performance benchmarks of DocumentDB and MongoDB through this extensive investigation, assisting organizations in making educated decisions about the best database option for their specific operational requirements.

Goals:

Benchmarking Performance: Conduct detailed performance tests to benchmark the query execution, write/read operations, and scalability of DocumentDB and MongoDB.

Use Case Evaluation: Analyze and evaluate specific use cases where DocumentDB and MongoDB thrive, discovering industries or applications where each database displays superior performance and applicability.

CRUD operations Contrast: Using each of the databases, we will perform CRUD (Create, Read, Update, Delete) activities on a dataset, evaluating the time and utilization of resources for each operation.

Scalability Assessment: Examine the scalability options provided by competing databases and determine how well they tolerate data growth, particularly in dynamic and fast developing operating scenarios.
Time contrast: To evaluate the real-time responsiveness of MongoDB, and AWS DocumentDB, measure and compare their read and write latency under varied workloads and data quantities.

REFERENCES:

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