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Potential Improvements:

1. Choose a better NoSQL database
2. Design a better database schema
3. Create a better index to support read operations
4. Create a better index to support the query
5. Reduce $lookup: For user running too many $lookup  operations on our data. Take advantage of MongoDB’s rich schema model to embed related data in a single collection.
6. Avoid unbounded array: If the documents contain array fields with many elements, which can degrade query performance.
7. Remove unnecessary index:  unnecessary indexes in the collection, which can consume disk space and degrade write performance.
8. Reduce the size of large documents: If we have excessively large documents, which can degrade the performance of our most frequent queries.
9. Reduce number of collections: If we have an exceedingly high number of collections in a database, which can result in unnecessary disk space usage.
10. Improve of case insensitive regex queries: we are executing case-insensitive regex queries which could be improved with an index.

Design Diagrams:

A picture containing diagram

Description automatically generated

Diagram, schematic

Description automatically generated

Graphical user interface, text, application, email

Description automatically generated

Graphical user interface, text, application

Description automatically generated

Diagram

Description automatically generated