

## Post Pandemic Mobility Analysis through Indexing and Sharding in MongoDB: Performance Optimization and Insights

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**Abstract :** The COVID-19 pandemic has pushed healthcare professionals to use big data analytics as a vital tool for tracking and evaluating the effects of contagious viruses. To effectively analyze huge datasets, efficient NoSQL databases are needed. The analysis of post-COVID-19 health and well-being outcomes and the evaluation of the effectiveness of government efforts during the pandemic is made possible by this research's integration of several datasets, which cuts down on query processing time and creates predictive visual artifacts. We recommend applying sharding and indexing technologies to improve query effectiveness and scalability as the dataset expands. Effective data retrieval and analysis are made possible by spreading the datasets into a sharded database and doing indexing on individual shards. Analysis of connections between governmental activities, poverty levels, and post-pandemic well being is the key goal. We want to evaluate the effectiveness of governmental initiatives to improve health and lower poverty levels. We will do this by utilising advanced data analysis and visualisations. The findings provide relevant data that supports the advancement of UN sustainable objectives, future pandemic preparation, and evidence-based decision-making. This study shows how Big Data and NoSQL databases may be used to address problems with global health.

**Keywords :** big data, COVID-19, health, indexing, NoSQL, sharding, scalability, well being

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