In my Hospital Management System application, I integrated both Redis and MongoDB to explore the differences between relational and NoSQL databases, as well as to enhance the performance and flexibility of data storage and retrieval.

Redis Integration: I began by setting up a connection to Redis, a powerful NoSQL database known for its speed and efficiency with in-memory data structures. By performing basic operations such as **set**, **get**, **hash**, **and** **list**, I leveraged Redis to store and retrieve frequently accessed data with minimal latency. To streamline access to Redis, I utilized Spring Data Redis, allowing me to manage data through a repository-based approach. This integration made it easy to work with Redis data structures while maintaining a clean and manageable codebase.

MongoDB Integration: In addition to Redis, I integrated MongoDB into the application, transitioning from traditional relational databases to a more flexible NoSQL solution. MongoDB is well-suited for handling unstructured data and provides a schema-less data model, which aligns well with the evolving data requirements of a hospital management system. I established a connection to MongoDB and created a collection to store hospital-related data. Using Spring Data MongoDB, I was able to perform CRUD operations on documents, allowing for more dynamic and scalable data handling.

Querying NoSQL Databases: To fully utilize the capabilities of Redis and MongoDB, I explored both basic and advanced querying techniques. With Redis, I took advantage of its data structures to perform efficient lookups and manipulations, such as using hash maps for quick access to specific fields in patient records. For MongoDB, I executed various queries ranging from simple key-value lookups to more complex queries involving aggregation and filtering, enabling sophisticated data analysis directly within the database.

By integrating Redis and MongoDB into my Hospital Management System, I enhanced the application's ability to handle diverse data needs. Redis provided fast, in-memory storage for high-frequency data access, while MongoDB offered a flexible, document-oriented approach for more complex, evolving data structures. Together, these NoSQL databases improved the performance and scalability of the system, supporting the dynamic data requirements of modern healthcare management.