MongoDB Practical Report – Week 1

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Course: Full Stack Web Development with MERN
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Objective:

Learn the fundamentals of MongoDB including installation, creating collections, performing CRUD operations, using aggregation pipelines, and implementing indexing for performance optimization.

Tasks Completed:

Task	Description
Task 1	Installed MongoDB (v8.2.0) and MongoDB Shell (v2.5.8). Created database 'plp_bookstore' and collection
Task 2	Inserted at least 10 book documents with fields: title, author, genre, published_year, price, in_stock, pages
Task 3	Executed CRUD operations and queries using find(), update(), and delete() methods.
Task 4	Performed advanced queries with projection, sorting, and pagination.
Task 5	Created aggregation pipelines and implemented indexes for performance improvement.

Sample MongoDB Queries:

// Find all books in a specific genre db.books.find({ genre: "Romance" }).pretty(); // Find books published after a certain year db.books.find({ year: { $gt: 2015 } }).pretty(); // Find books by a particular author db.books.find({ author: "John Doe" }).pretty(); // Update price of a specific book db.books.updateOne({ title: "Love in JavaScript" }, { $set: { price: 24.99 } }); // Delete a book by title db.books.deleteOne({ title: "Old Tales" });

Expected Outcome:

A functioning MongoDB database named 'plp_bookstore' containing a 'books' collection with 10+ documents. The student successfully demonstrated CRUD operations, aggregation pipelines, and indexing techniques.

Conclusion:

Through this practical, I gained hands-on experience in managing data using MongoDB, understanding how CRUD operations, indexing, and aggregation pipelines optimize data handling in full stack web development.