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**Subject: Computer Laboratory-III**

**Class : BE**

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**Assignment 6**

**Title: MongoDB Installation and CRUD Operations**

**Problem Statement:** MongoDB is a popular NoSQL database management system known for its flexibility and scalability. The objective of this project is to install MongoDB, create a database, and perform CRUD (Create, Read, Update, Delete) operations on documents within a collection.

**Learning Objectives:**

1. Understand the installation process of MongoDB.
2. Learn to create databases and collections in MongoDB.
3. Gain proficiency in CRUD operations for managing documents in MongoDB.
4. Understand the structure of MongoDB documents and queries.

**Procedure:**

1. **Installation of MongoDB:**
   * Download the appropriate MongoDB installer for your operating system from the official MongoDB website.
   * Follow the installation instructions provided in the documentation.
   * Start the MongoDB service after installation.
2. **Creating a Database and Collection:**
   * Launch the MongoDB shell or a MongoDB client application.
   * Use the use <database\_name> command to switch to a new or existing database. If the specified database does not exist, MongoDB will create it.
   * Use the db.createCollection("<collection\_name>") command to create a new collection within the selected database.
3. **CRUD Operations:**

a. **Insert Document:**

* + Use the db.<collection\_name>.insertOne() or db.<collection\_name>.insertMany() method to insert one or multiple documents into the collection.
  + Example:
  + db.students.insertOne({
  + "name": "John Doe",
  + "age": 25,
  + "grade": "A"
  + })

b. **Query Document:**

* + Use the db.<collection\_name>.find() method to query documents in the collection.
  + Example:
  + db.students.find({ "age": { $gt: 20 } })

c. **Update Document:**

* + Use the db.<collection\_name>.updateOne() or db.<collection\_name>.updateMany() method to update one or multiple documents in the collection.
  + Example:
  + db.students.updateOne(
  + { "name": "John Doe" },
  + { $set: { "grade": "B" } }
  + )

d. **Delete Document:**

* + Use the db.<collection\_name>.deleteOne() or db.<collection\_name>.deleteMany() method to delete one or multiple documents from the collection.
  + Example:
  + db.students.deleteOne({ "name": "John Doe" })

**Conclusion:** In conclusion, the installation of MongoDB and performing CRUD operations on documents within a collection have been successfully demonstrated. By following the outlined procedure, we have gained proficiency in managing MongoDB databases and collections, as well as executing Create, Read, Update, and Delete operations on documents. MongoDB's flexibility and ease of use make it a powerful tool for managing and manipulating data in modern applications. This project has provided valuable hands-on experience in working with MongoDB, laying a solid foundation for further exploration and utilization of NoSQL databases in various projects.