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Assignment B1

Problem Statement:
Implement database with suitable example using Mongo DB and Implement Study of Open Source NOSQL Database: MongoDB (Installation, Basic CRUD operations, Execution)

Learning Objective:
1. Understand the concept of NOSQL DB
2. Understand the concept of Mongo DB with CRUD operation
3. Understand the basic installation and administrative commands of MongoDB.

Learning Outcomes: The student will be able to implement:
1. Implement the commands
2. Implement the Database in MongoDB

Hardware and software requirements:
PL/SQL, Linux based OS

Theory:
MongoDB is an open-source document database that provides high performance, high availability, and automatic scaling.

Document Database
A record in MongoDB is a document, which is a data structure composed of field and value pairs. MongoDB documents are similar to JSON objects. The values of fields may include other documents, arrays, and arrays of documents.

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Example:

```
{
  name: "sue",
  age: 26,
  status: "A",
  groups: ["news", "sports"]
}
```

Create Operations

Create or insert operations add new documents to a collection. If the collection does not currently exist, insert operations will create the collection.

MongoDB provides the following methods to insert documents into a collection:

1. db.collection.insertOne()
2. db.collection.insertMany()

In MongoDB, insert operations target a single collection. All write operations in MongoDB are atomic on the level of a single document.

Read Operations:

Read operations retrieve documents from a collection, i.e, query a collection from documents. MongoDB provides the following method to read documents from a collection:

db.collection.find()

You can specify query filters or criteria that identify the documents to return.

Update Operations:

Update operations modify existing documents in a collection. MongoDB provides the following methods to update documents of a collection:

1. db.collection.updateOne()

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2. db.collection.updateMany()
3. db.collection.replaceOne()

Delete Operations:

Delete operations remove documents from a collection. MongoDB provides the following methods to delete documents of a collection.

1. db.collection.deleteOne()
2. db.collection.deleteMany()

Conclusion:

Thus, we learnt the installation procedure of MongoDB, and understood how to create a collection and perform all CRUD operations.