Database Management Systems Laboratory

Assignment B1

Date of Submission: 06-10-2020

Title: Study of Open Source NOSQL Database: MongoDB

Roll number: 31301

Name: Aboli Marathe

Class: TE-3

Batch: K-3

PICT, Pune

ASSIGNMENT 9

TITLE OPEN SOURCE NoSQL DATABASES

DATE

PROBLEM STATEMENT Study of Open Sarce NoSQL Database : MongoDB (Installation, Basic [RUD operations, Execution)

LEARNING OBJECTIVES
- Understand the concept of NoSQL DB.
- Understand the operation of MongoDB with CRUD Operation.

LEARNING OUTCOMES
- Studerts will be able to execute Operations of MongoDB.

SW & HW REQUIREMENTS MongoDB, 64-bit Fedora linux, Keyboard, Mouse, Monitor

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

Eg

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

Setup & Installation

For Windows

1) Download msi installer from https://www.mongodb.com/

2) Run the installation package

3) Set PATH variable in Environment section

4) Set path :
C:\Program Files\MongoDB\Server\4.0\bin

5) mongod -dbpath "C:\Program Files\MongoDB\Server\4.0\data\db"

6) Write the command mongo to start MongoShell.

7) Test the installation by starting the query
> show dbs
If installed correctly, the output will be

admin 0.000 GB
config 0.000 GB
local 0.000 GB

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 foll methods.

```
db.collection.insertOne();
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.

CONCLUSION Thus we have successfully studied MongoDB and have executed CRUD oper

SOURCE CODE AND OUTPUTS

```
> show dbs;
admin   0.000GB
config  0.000GB
local   0.000GB
> use shopping;
switched to db shopping
```

```
> db.products.insertOne({name:'abc',price:30,color:'red'});
{
        "acknowledged" : true,
        "insertedId" : ObjectId("5f7c7ec5a6fe83d89746803a")
}
> db.products.find();
{ "_id" : ObjectId("5f7c7ec5a6fe83d89746803a"), "name" : "abc", "price" : 30, "color" : "red" }
> db.products.find().pretty();
{
        "_id" : ObjectId("5f7c7ec5a6fe83d89746803a"),
        "name" : "abc",
        "price" : 30,
        "color" : "red"
}
```

```
> db.products.insertMany([{name:'mno',price:50},{name:'pqr',price:100,qty:1}]);
{
        "acknowledged" : true,
        "insertedIds" : [
                ObjectId("5f7c7f65a6fe83d89746803b"),
                ObjectId("5f7c7f65a6fe83d89746803c")
        ]
}
> db.products.find().pretty();
{
        "_id" : ObjectId("5f7c7ec5a6fe83d89746803a"),
        "name" : "abc",
        "price" : 30,
        "color" : "red"
}
{
        "_id" : ObjectId("5f7c7f65a6fe83d89746803b"),
        "name" : "mno",
        "price" : 50
}
{
        "_id" : ObjectId("5f7c7f65a6fe83d89746803c"),
        "name" : "pqr",
        "price" : 100,
        "qty" : 1
}
```

```
> db.products.insertOne({name:'abc',_id:"p01"});
{ "acknowledged" : true, "insertedId" : "p01" }
> db.products.updateOne({name:'mno'},{$set:{price:100,qty:10}});
{ "acknowledged" : true, "matchedCount" : 1, "modifiedCount" : 1 }
> db.products.find().pretty();
{
        "_id" : ObjectId("5f7c7ec5a6fe83d89746803a"),
        "name" : "abc",
        "price" : 30,
        "color" : "red"
}
{
        "_id" : ObjectId("5f7c7f65a6fe83d89746803b"),
        "name" : "mno",
        "price" : 100,
        "qty" : 10
}
{
        "_id" : ObjectId("5f7c7f65a6fe83d89746803c"),
        "name" : "pqr",
        "price" : 100,
        "qty" : 1
}
{ "_id" : "p01", "name" : "abc" }
```

```
> db.products.deleteOne({_id:'p01'});
{ "acknowledged" : true, "deletedCount" : 1 }
> db.products.find().pretty();
{
        "_id" : ObjectId("5f7c7ec5a6fe83d89746803a"),
        "name" : "abc",
        "price" : 30,
        "color" : "red"
}
{
        "_id" : ObjectId("5f7c7f65a6fe83d89746803b"),
        "name" : "mno",
        "price" : 100,
        "qty" : 10
}
{
        "_id" : ObjectId("5f7c7f65a6fe83d89746803c"),
        "name" : "pqr",
        "price" : 100,
        "qty" : 1
}
> db.dropDatabase();
{ "dropped" : "shopping", "ok" : 1 }
> db.products.find().pretty();
>
```