BIBD Mini Project

Topic: Implementation of MongoDB

What is MongoDD?

- MongoDB is a source-available cross-platform document-oriented database program.
- Mongodb is a NoSQL database.
- MongoDB stores data in flexible, JSON-like documents, meaning fields can vary from document to document and data structure can be changed over time
- 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.

MongoDB Installation:

Follow the official site installation guide according to your OS:

link to download

<u>After installation type below commands to start and stop mongodb server.</u>

1. To start service

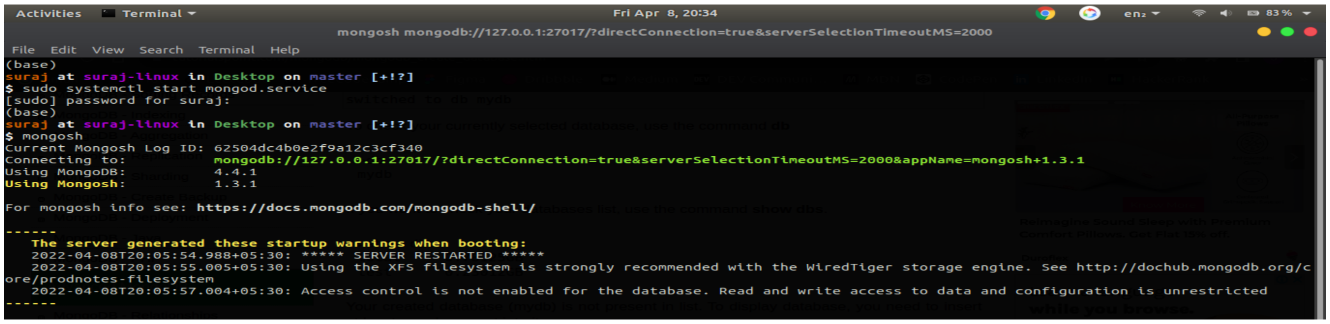
   $ sudo systemctl start mongo.service

2. To stop service

   $ sudo systemctl stop mongo.service

<u>After starting the server we need to open mongo shell</u>

$ mongosh


Activities
Terminal
Fri Apr 8, 20:34
en₂
83 %
mongosh mongodb://127.0.0.1:27017/?directConnection=true&serverSelectionTimeoutMS=2000
File Edit View Search Terminal Help

```
(base)
suraj at suraj-linux in Desktop on master [+!?]
$ sudo systemctl start mongod.service
[sudo] password for suraj:
(base)
suraj at suraj-linux in Desktop on master [+!?]
$ mongosh
Current Mongosh Log ID: 62504dc4b0e2f9a12c3cf340
Connecting to:          mongodb://127.0.0.1:27017/?directConnection=true&serverSelectionTimeoutMS=2000&appName=mongosh+1.3.1
Using MongoDB:          4.4.1
Using Mongosh:          1.3.1

For mongosh info see: https://docs.mongodb.com/mongodb-shell/

------
   The server generated these startup warnings when booting:
   2022-04-08T20:05:54.988+05:30: ***** SERVER RESTARTED *****
   2022-04-08T20:05:55.005+05:30: Using the XFS filesystem is strongly recommended with the WiredTiger storage engine. See http://dochub.mongodb.org/c
ore/prodnotes-filesystem
   2022-04-08T20:05:57.004+05:30: Access control is not enabled for the database. Read and write access to data and configuration is unrestricted
------
```

<u>How to create database:</u>

$ use <database_name>

Eg: use mydbs

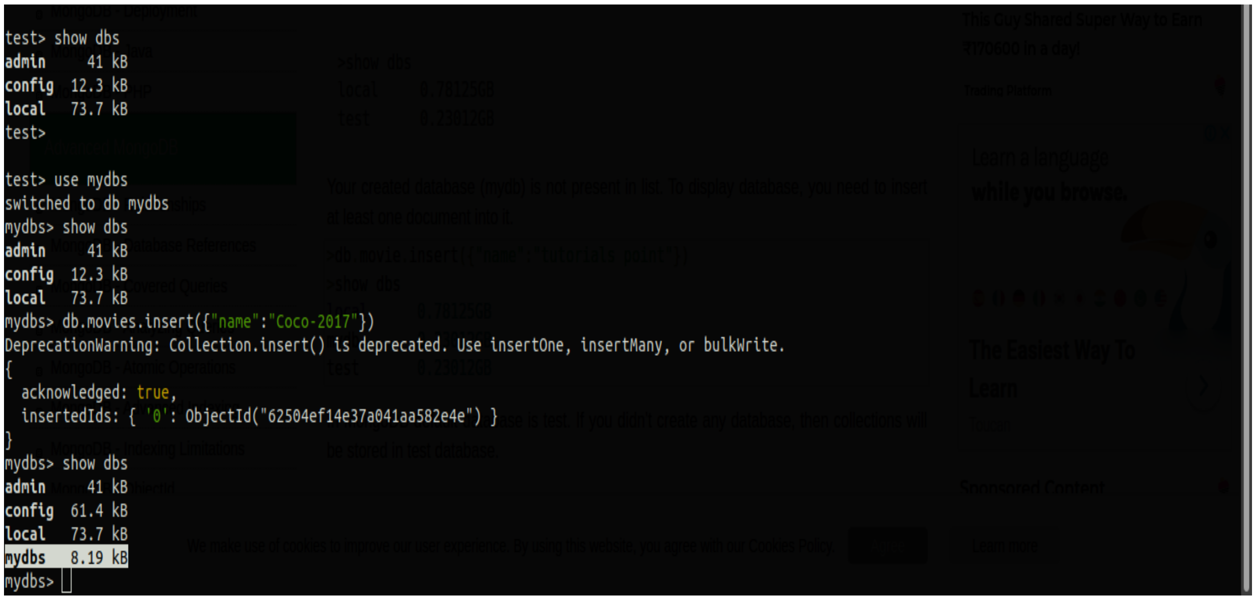
How to show existing databases:

```
$ show dbs
```

Now, Your created database (mydb) is not present in the list. To display a database, you need to insert at least one document into it.

```
$ db.movies.insert({“name”:”Interstellar”})

$ show dbs
```

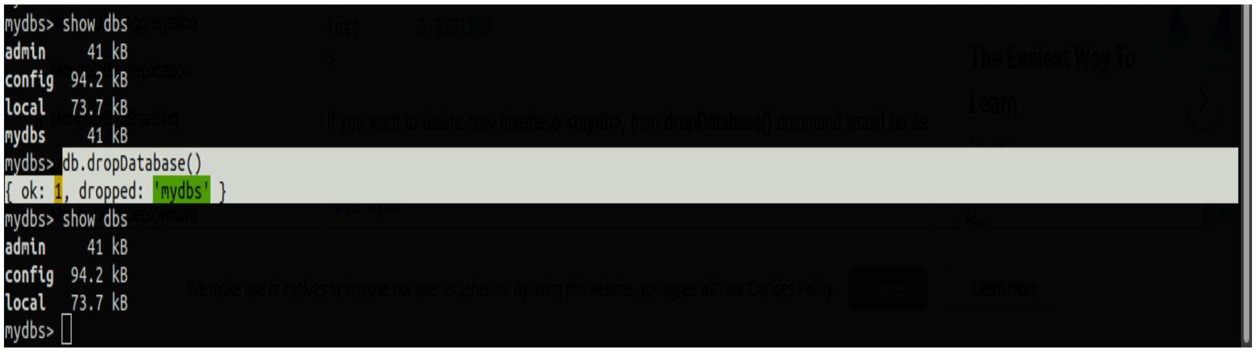
Now our created database will be shown in the list



```
test> show dbs
admin     41 kB
config  12.3 kB
local   73.7 kB
test>

test> use mydbs
switched to db mydbs
mydbs> show dbs
admin     41 kB
config  12.3 kB
local   73.7 kB
mydbs> db.movies.insert({"name":"Coco-2017"})
DeprecationWarning: Collection.insert() is deprecated. Use insertOne, insertMany, or bulkWrite.
{
  acknowledged: true,
  insertedIds: { '0': ObjectId("62504ef14e37a041aa582e4e") }
}
mydbs> show dbs
admin     41 kB
config  61.4 kB
local   73.7 kB
mydbs   8.19 kB
mydbs>
```

<u>MongoDB db.dropDatabase() command is used to drop a existing database.</u>

$ db.dropDatabase() //this will drop current database



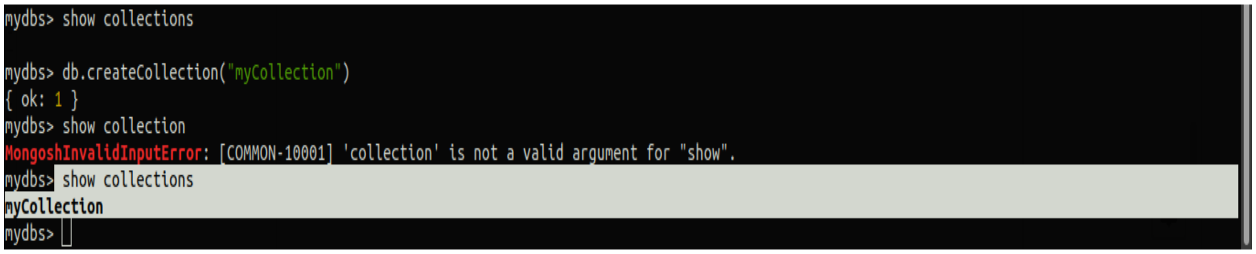
```
mydbs> show dbs
admin     41 kB
config  94.2 kB
local   73.7 kB
mydbs     41 kB
mydbs> db.dropDatabase()
{ ok: 1, dropped: 'mydbs' }
mydbs> show dbs
admin     41 kB
config  94.2 kB
local   73.7 kB
mydbs> 
```

<u>MongoDB db.createCollection(name, options) is used to create collections.</u>

$ db.createCollection("mycollection")

<u>To display collection use</u>

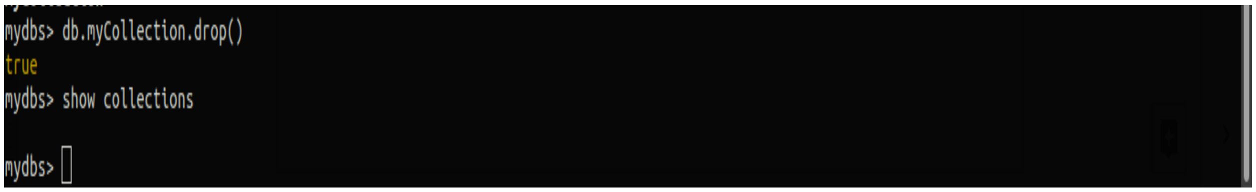
$ show collection



```
mydbs> show collections

mydbs> db.createCollection("myCollection")
{ ok: 1 }
mydbs> show collection
MongoshInvalidInputError: [COMMON-10001] 'collection' is not a valid argument for "show".
mydbs> show collections
myCollection
mydbs> 
```

MongoDB's db.collection.drop() is used to drop a collection from the database.

```
$ db.mycollection.drop()
```



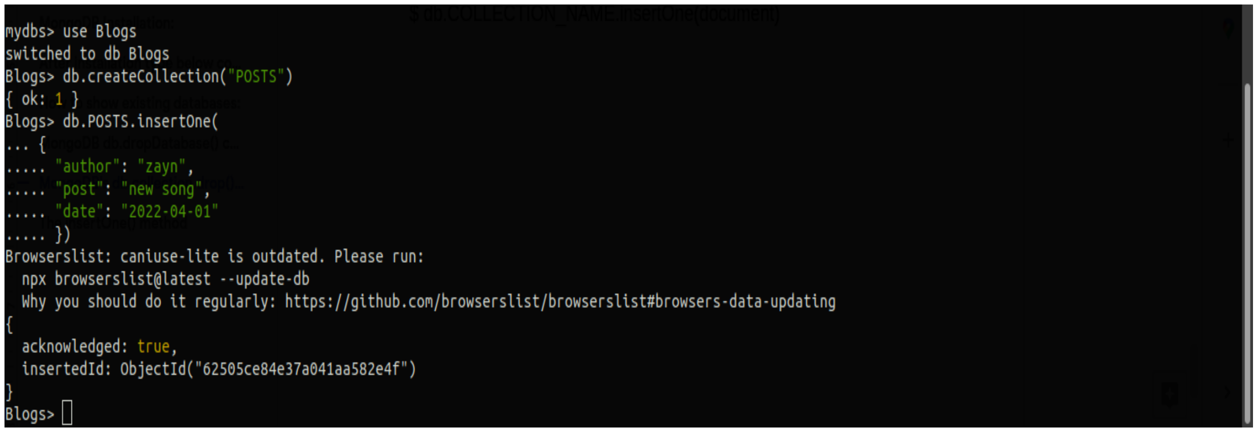
```
mydbs> db.myCollection.drop()
true
mydbs> show collections

mydbs> 
```

Inserting document into collection

The insertOne() method

If you need to insert only one document into a collection you can use this method.

```
$ db.COLLECTION_NAME.insertOne(document)
```

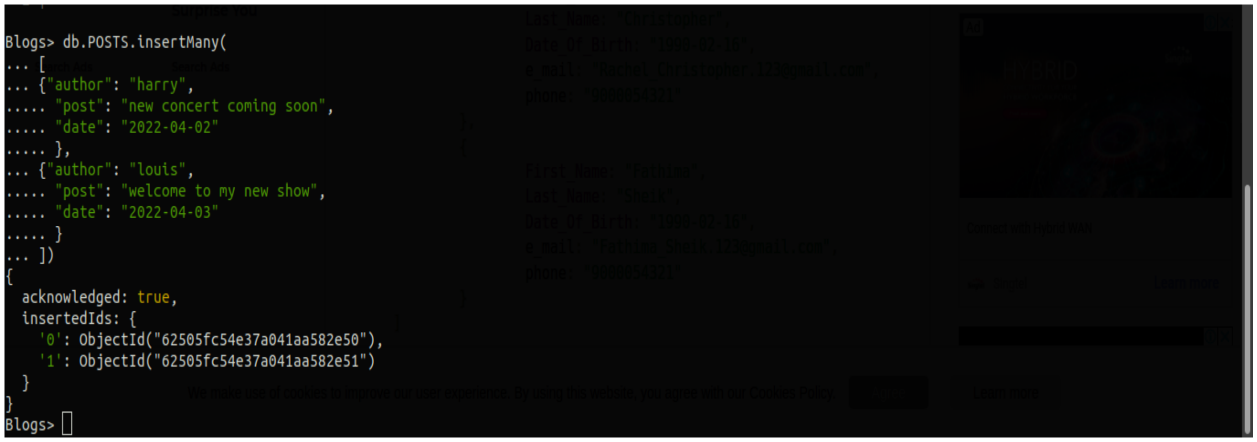


```
mydbs> use Blogs
switched to db Blogs
Blogs> db.createCollection("POSTS")
{ ok: 1 }
Blogs> db.POSTS.insertOne(
... {
..... "author": "zayn",
..... "post": "new song",
..... "date": "2022-04-01"
..... })
Browserslist: caniuse-lite is outdated. Please run:
  npx browserslist@latest --update-db
  Why you should do it regularly: https://github.com/browserslist/browserslist#browsers-data-updating
{
  acknowledged: true,
  insertedId: ObjectId("62505ce84e37a041aa582e4f")
}
Blogs> 
```

The insertMany() method

You can insert multiple documents using the insertMany() method. To this method you need to pass an array of documents.

$ db.COLLECTION_NAME.insertMany([document1, document2, ...])

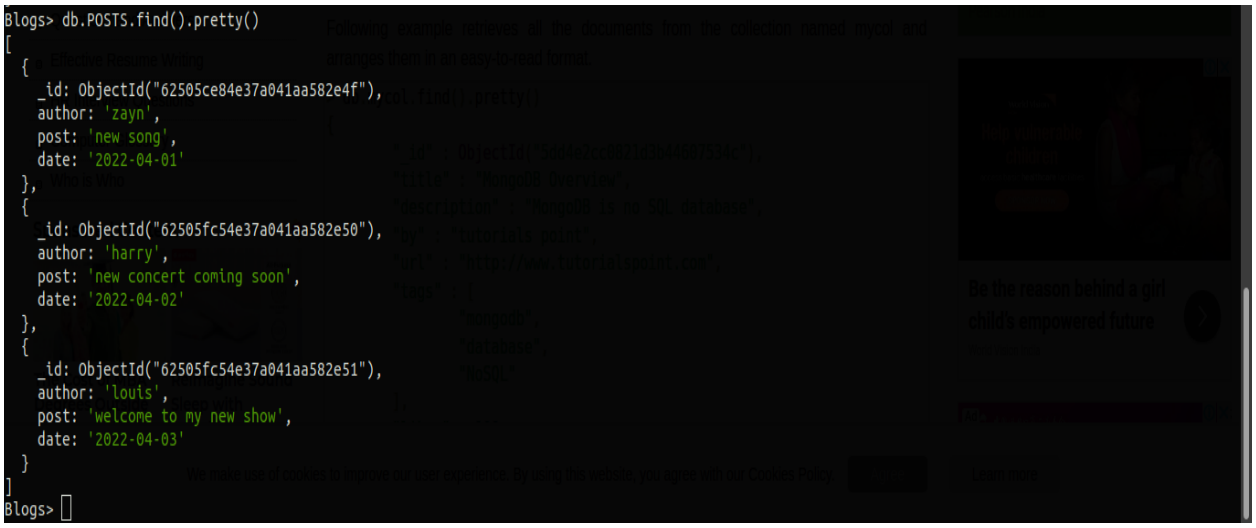


```
Blogs> db.POSTS.insertMany(
... [
... {"author": "harry",
..... "post": "new concert coming soon",
..... "date": "2022-04-02"
..... },
... {"author": "louis",
..... "post": "welcome to my new show",
..... "date": "2022-04-03"
..... }
... ])
{
  acknowledged: true,
  insertedIds: {
    '0': ObjectId("62505fc54e37a041aa582e50"),
    '1': ObjectId("62505fc54e37a041aa582e51")
  }
}
Blogs> 
```

To display the inserted document into the collection use find() method

$ db.COLLECTION_NAME.find().pretty()

// pretty() method is used to display data in a neat way.



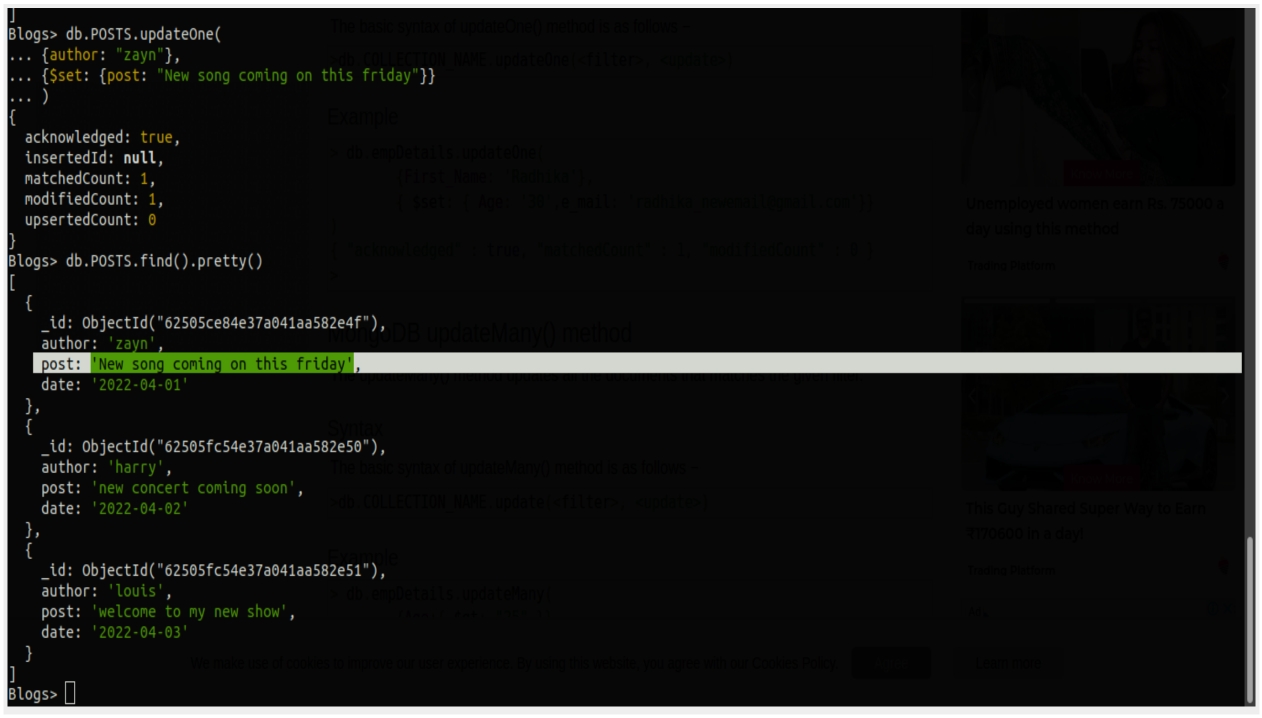
```
Blogs> db.POSTS.find().pretty()
[
  {
    _id: ObjectId("62505ce84e37a041aa582e4f"),
    author: 'zayn',
    post: 'new song',
    date: '2022-04-01'
  },
  {
    _id: ObjectId("62505fc54e37a041aa582e50"),
    author: 'harry',
    post: 'new concert coming soon',
    date: '2022-04-02'
  },
  {
    _id: ObjectId("62505fc54e37a041aa582e51"),
    author: 'louis',
    post: 'welcome to my new show',
    date: '2022-04-03'
  }
]
Blogs> 
```

Updating the document

MongoDB updateOne() method

This method updates a single document which matches the given filter.

```
$ db.COLLECTION_NAME.updateOne(<filter>, <update>)
```



```
]
Blogs> db.POSTS.updateOne(
... {author: "zayn"},
... {$set: {post: "New song coming on this friday"}}
... )
{
  acknowledged: true,
  insertedId: null,
  matchedCount: 1,
  modifiedCount: 1,
  upsertedCount: 0
}
Blogs> db.POSTS.find().pretty()
[
  {
    _id: ObjectId("62505ce84e37a041aa582e4f"),
    author: 'zayn',
    post: 'New song coming on this friday',
    date: '2022-04-01'
  },
  {
    _id: ObjectId("62505fc54e37a041aa582e50"),
    author: 'harry',
    post: 'new concert coming soon',
    date: '2022-04-02'
  },
  {
    _id: ObjectId("62505fc54e37a041aa582e51"),
    author: 'louis',
    post: 'welcome to my new show',
    date: '2022-04-03'
  }
]
Blogs> 
```

MongoDB updateMany() method

The updateMany() method updates all the documents that matches the given filter.

```
$ db.COLLECTION_NAME.updateMany(<filter>, <update>)
```

Deleting the document

The remove() Method

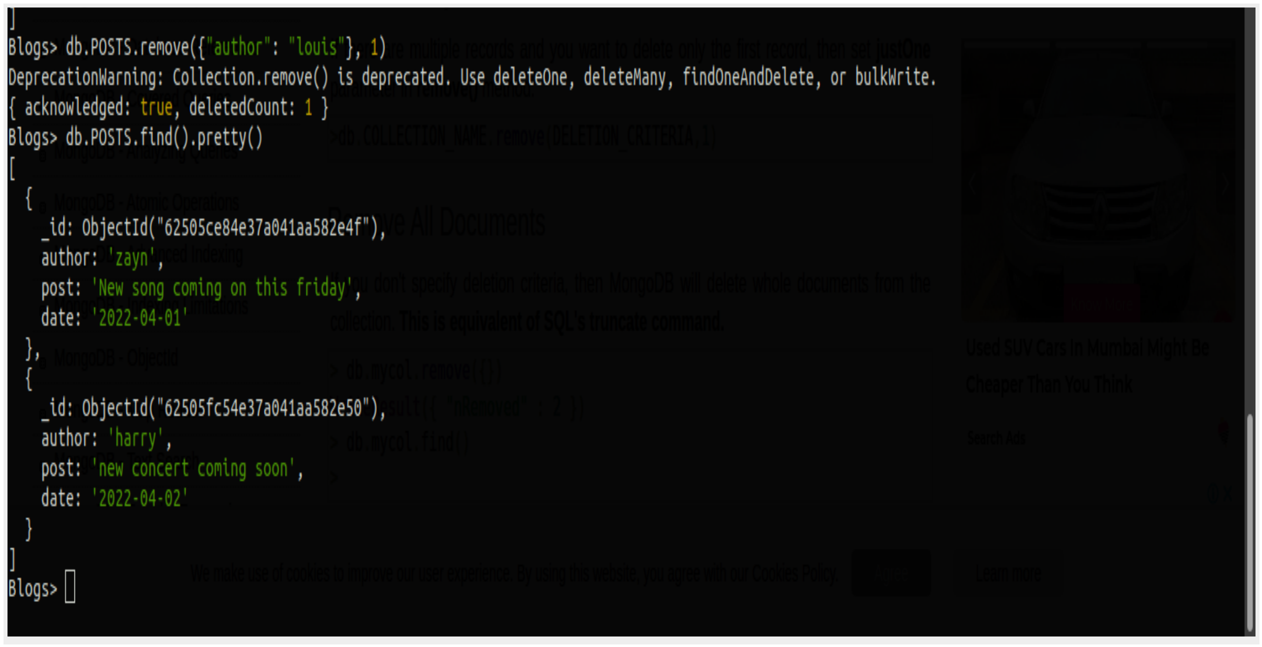
MongoDB's remove() method is used to remove a document from the collection. remove() method accepts two parameters. One is the deletion criteria and second is justOne flag.

- deletion criteria − (Optional) deletion criteria according to documents will be removed.
- justOne − (Optional) if set to true or 1, then remove only one document.

Remove Only One

If there are multiple records and you want to delete only the first record, then set justOne parameter in remove() method.

```
$ db.COLLECTION_NAME.remove(DELETION_CRITERIA,1)
```

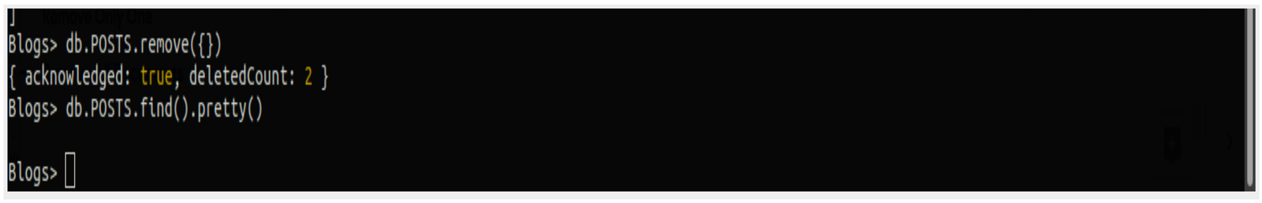


```
]
Blogs> db.POSTS.remove({"author": "louis"}, 1)
DeprecationWarning: Collection.remove() is deprecated. Use deleteOne, deleteMany, findOneAndDelete, or bulkWrite.
{ acknowledged: true, deletedCount: 1 }
Blogs> db.POSTS.find().pretty()
[
  {
    _id: ObjectId("62505ce84e37a041aa582e4f"),
    author: 'zayn',
    post: 'New song coming on this friday',
    date: '2022-04-01'
  },
  {
    _id: ObjectId("62505fc54e37a041aa582e50"),
    author: 'harry',
    post: 'new concert coming soon',
    date: '2022-04-02'
  }
]
Blogs> 
```

Remove All Documents

If you don't specify deletion criteria, then MongoDB will delete whole documents from the collection.

```
$ db.COLLECTION_NAME.remove({})
```



```
]
Blogs> db.POSTS.remove({})
{ acknowledged: true, deletedCount: 2 }
Blogs> db.POSTS.find().pretty()

Blogs> 
```

systemctl start mong