## **ASSESSMENT - 7**

## **MySql and Mongo**



## Mongodb

1. Install latest version of MongoDB from apt-get repository.

```
garima@garima:~$ sudo apt-get install -y mongodb-org
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
    mongodb-org-mongos mongodb-org-server mongodb-org-shell mongodb-org-tools
The following NEW packages will be installed:
    mongodb-org mongodb-org-mongos mongodb-org-server mongodb-org-shell
    mongodb-org tools
0 upgraded, 5 newly installed, 0 to remove and 26 not upgraded.
Need to get 97.4 MB of archives.
```

2. Create a database student

```
garima@garima:~$ mongo
MongoDB shell version v4.2.3
```

```
> use STUDENT;
switched to db STUDENT
>
```

# 3. Insert operation: 5 students data (Name, Contact, City, Roll No, Branch)

### 4. Read operation: All the students belong to a particular city

```
> use STUDENT;
switched to db STUDENT
```

```
> db.STUDENT.find();
{ "_id" : ObjectId("5e4998720371d452eb42c360"), "name" : "garima", "contact" : 9
99999999, "city" : "dun", "roll_no" : 24, "branch" : "cs" }
{ "_id" : ObjectId("5e4998900371d452eb42c361"), "name" : "dabral", "contact" : 8
888888888, "city" : "dun", "roll_no" : 18, "branch" : "cs" }
{ "_id" : ObjectId("5e4998e00371d452eb42c362"), "name" : "alen", "contact" : 777
7777777, "city" : "delhi", "roll_no" : 34, "branch" : "ec" }
{ "_id" : ObjectId("5e4999400371d452eb42c363"), "name" : "alex", "contact" : 666
6666666, "city" : "mumbai", "roll_no" : 78, "branch" : "mech" }
{ "_id" : ObjectId("5e4999720371d452eb42c364"), "name" : "sam", "contact" : 5555
555555, "city" : "dubai", "roll_no" : 74, "branch" : "ee" }
```

```
> db.STUDENT.find({city:{$eq:"dun"}});
{ "_id" : ObjectId("5e4998720371d452eb42c360"), "name" : "garima", "contact" : 9
99999999, "city" : "dun", "roll_no" : 24, "branch" : "cs" }
{ "_id" : ObjectId("5e4998900371d452eb42c361"), "name" : "dabral", "contact" : 8
88888888, "city" : "dun", "roll_no" : 18, "branch" : "cs" }
>
```

#### 5. Update operation: Update the branch of all the students to CSE

```
> db.STUDENT.find();
{ "_id" : ObjectId("5e4998720371d452eb42c360"), "name" : "garima", "contact" : 9
999999999, "city" : "dun", "roll_no" : 24, "branch" : "cs" }
{ "_id" : ObjectId("5e4998900371d452eb42c361"), "name" : "dabral", "contact" : 8
888888888, "city" : "dun", "roll_no" : 18, "branch" : "cs" }
{ "_id" : ObjectId("5e4998e00371d452eb42c362"), "name" : "alen", "contact" : 777
7777777, "city" : "delhi", "roll_no" : 34, "branch" : "ec" }
{ "_id" : ObjectId("5e4999400371d452eb42c363"), "name" : "alex", "contact" : 666
6666666, "city" : "mumbai", "roll_no" : 78, "branch" : "mech" }
{ "_id" : ObjectId("5e4999720371d452eb42c364"), "name" : "sam", "contact" : 5555
555555, "city" : "dubai", "roll_no" : 74, "branch" : "ee" }
```

```
> db.STUDENT.update( {},{$set:{branch: "CSE"}},{multi: true})
WriteResult({ "nMatched" : 5, "nUpserted" : 0, "nModified" : 5 })
```

```
> db.STUDENT.find();
{ "_id" : ObjectId("5e4998720371d452eb42c360"), "name" : "garima", "contact" : 9
999999999, "city" : "dun", "roll_no" : 24, "branch" : "CSE" }
{ "_id" : ObjectId("5e4998900371d452eb42c361"), "name" : "dabral", "contact" : 8
888888888, "city" : "dun", "roll_no" : 18, "branch" : "CSE" }
{ "_id" : ObjectId("5e4998e00371d452eb42c362"), "name" : "alen", "contact" : 777
7777777, "city" : "delhi", "roll_no" : 34, "branch" : "CSE" }
{ "_id" : ObjectId("5e4999400371d452eb42c363"), "name" : "alex", "contact" : 666
6666666, "city" : "mumbai", "roll_no" : 78, "branch" : "CSE" }
{ "_id" : ObjectId("5e4999720371d452eb42c364"), "name" : "sam", "contact" : 5555
555555, "city" : "dubai", "roll_no" : 74, "branch" : "CSE" }
```

6. Take dump of the database

```
show collections
STUDENT
> show databases
STUDENT 0.000GB
admin
        0.000GB
config
        0.000GB
local
        0.000GB
> ^C
bve
garima@garima:~$ mongodump --db STUDENT -o mongodbdump
2020-02-17T17:20:49.450+0530
                                writing STUDENT.STUDENT to
2020-02-17T17:20:49.450+0530
                                done dumping STUDENT.STUDENT (5 documents)
garima@garima:~$ ls
a.sh
                   Documents
                                     f1.txt
                                                  myfile
                                                               output.txt
assessment-folder Downloads
                                     f2.txt
                                                  newdir
                                                               passwd backup
                   d.sh
                                     file1.txt
                                                  newdir1
                                                               Pictures
                                     gitdemo
b.sh
                   error.txt
                                                  newfile
                                                               Public
c.sh
                   examples.desktop mongodbdump oldfile
                                                               Templates
                   exercise
Desktop
                                     Music
                                                  outputs.txt Videos
garima@garima:~$ cd mongodbdump/
garima@garima:~/mongodbdump$ ls
STUDENT
garima@garima:~/mongodbdump$ cd STUDENT/
garima@garima:~/mongodbdump/STUDENT$ ls
STUDENT.bson STUDENT.metadata.json
garima@garima:~/mongodbdump/STUDENT$
```

7. Delete operation: Delete the record of last 2 students according to the roll number

```
> use STUDENT;
switched to db STUDENT
> db.STUDENT.find();
{ "_id" : ObjectId("5e4998720371d452eb42c360"), "name" : "garima", "contact" : 9
999999999, "city" : "dun", "roll_no" : 24, "branch" : "CSE" }
{ "_id" : ObjectId("5e4998900371d452eb42c361"), "name" : "dabral", "contact" : 8
88888888, "city" : "dun", "roll_no" : 18, "branch" : "CSE" }
{ "_id" : ObjectId("5e4998e00371d452eb42c362"), "name" : "alen", "contact" : 777
7777777, "city" : "delhi", "roll_no" : 34, "branch" : "CSE" }
{ "_id" : ObjectId("5e4999400371d452eb42c363"), "name" : "alex", "contact" : 666
66666666, "city" : "mumbai", "roll_no" : 78, "branch" : "CSE" }
{ "_id" : ObjectId("5e4999720371d452eb42c364"), "name" : "sam", "contact" : 5555
555555, "city" : "dubai", "roll no" : 74, "branch" : "CSE" }
```

```
> db.STUDENT.find().sort({"roll_no":-1}).limit(2).forEach(function(rem){db.getCo
llection("STUDENT").remove({_id:rem._id})})
```

```
> db.STUDENT.find();
{ "_id" : ObjectId("5e4998720371d452eb42c360"), "name" : "garima", "contact" : 9
99999999, "city" : "dun", "roll_no" : 24, "branch" : "CSE" }
{ "_id" : ObjectId("5e4998900371d452eb42c361"), "name" : "dabral", "contact" : 8
88888888, "city" : "dun", "roll_no" : 18, "branch" : "CSE" }
{ "_id" : ObjectId("5e4998e00371d452eb42c362"), "name" : "alen", "contact" : 777
7777777, "city" : "delhi", "roll_no" : 34, "branch" : "CSE" }
```

## 8. Drop the database

```
> db.dropDatabase()
{ "dropped" : "STUDENT", "ok" : 1 }
>
```

## 9. Restore the database again to have the full data

```
garima@garima:~$ cd mongodbdump/
garima@garima:~/mongodbdump$ cd STUDENT/
garima@garima:~/mongodbdump/STUDENT$ mongorestore -d STUDENT STUDENT.bson
                                checking for collection data in STUDENT.bson
2020-02-17T21:21:44.989+0530
2020-02-17T21:21:44.989+0530
                                reading metadata for STUDENT.STUDENT from STUDENT.
metadata.json
2020-02-17T21:21:45.037+0530
                                restoring STUDENT.STUDENT from STUDENT.bson
2020-02-17T21:21:45.099+0530
                                no indexes to restore
                                finished restoring STUDENT.STUDENT (5 documents, 0
2020-02-17T21:21:45.099+0530
failures)
2020-02-17T21:21:45.100+0530
                                5 document(s) restored successfully. 0 document(s)
 failed to restore.
```

## 10. Enable authentication on the Mongo

```
garima@garima:~$ mongo --port 27017
MongoDB shell version v4.2.3
connecting to: mongodb://127.0.0.1:27017/?compressors=disabled&gssapiServiceName=mongodb
Implicit session: session { "id" : UUID("88e84d37-8f6c-4cc3-b11e-4879af8320bb") }
MongoDB server version: 4.2.3
Server has startup warnings:
2020-02-17T00:45:56.831+0530 I STORAGE [initandlisten]
```

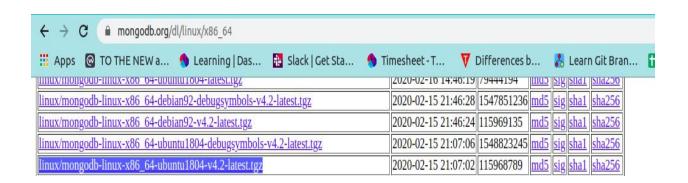
```
garima@garima:~$ mongo --port 27017 -u "myUserAdmin" -p "abc123" --authenticatio
nDatabase "admin"
MongoDB shell version v4.2.3
connecting to: mongodb://127.0.0.1:27017/?authSource=admin&compressors=disabled&
gssapiServiceName=mongodb
Implicit session: session { "id" : UUID("4fb92e38-9ba8-4e33-8987-e17ffd53c0ad")
}
MongoDB server version: 4.2.3
```

```
# how the process runs
processManagement:
    timeZoneInfo: /usr/share/zoneinfo

#security:
auth=true
#operationProfiling:
#replication:
#sharding:
"/etc/mongod.conf" [readonly] 43L, 635C
```

```
> show databases
STUDENT 0.000GB
admin 0.000GB
config 0.000GB
local 0.000GB
> use STUDENT
switched to db STUDENT
> show collections
STUDENT
```

11. Install another version of MongoDB from source (Version 2.6.3) and run it on port 27009



```
garima@garima:/opt$ sudo cp ~/Downloads/mongodb-linux-x86 64-ubuntu1804-v4.2-lat
est.tgz .
[sudo] password for garima:
garima@garima:/opt$ sudo tar -xvzf mongodb-linux-x86_64-ubuntu1804-v4.2-latest.t
mongodb-linux-x86 64-ubuntu1804-4.2.3-48-gc685bbe/THIRD-PARTY-NOTICES.gotools
mongodb-linux-x86 64-ubuntu1804-4.2.3-48-gc685bbe/README
mongodb-linux-x86 64-ubuntu1804-4.2.3-48-gc685bbe/THIRD-PARTY-NOTICES
mongodb-linux-x86 64-ubuntu1804-4.2.3-48-gc685bbe/MPL-2
mongodb-linux-x86 64-ubuntu1804-4.2.3-48-qc685bbe/LICENSE-Community.txt
mongodb-linux-x86 64-ubuntu1804-4.2.3-48-gc685bbe/bin/mongodump
mongodb-linux-x86_64-ubuntu1804-4.2.3-48-gc685bbe/bin/mongorestore
mongodb-linux-x86_64-ubuntu1804-4.2.3-48-gc685bbe/bin/mongoexport
mongodb-linux-x86_64-ubuntu1804-4.2.3-48-gc685bbe/bin/mongoimport
mongodb-linux-x86 64-ubuntu1804-4.2.3-48-gc685bbe/bin/mongostat
mongodb-linux-x86 64-ubuntu1804-4.2.3-48-gc685bbe/bin/mongotop
mongodb-linux-x86 64-ubuntu1804-4.2.3-48-gc685bbe/bin/bsondump
mongodb-linux-x86 64-ubuntu1804-4.2.3-48-gc685bbe/bin/mongofiles
mongodb-linux-x86 64-ubuntu1804-4.2.3-48-gc685bbe/bin/mongoreplay
mongodb-linux-x86 64-ubuntu1804-4.2.3-48-gc685bbe/bin/mongod
mongodb-linux-x86 64-ubuntu1804-4.2.3-48-gc685bbe/bin/mongos
mongodb-linux-x86_64-ubuntu1804-4.2.3-48-gc685bbe/bin/mongo
mongodb-linux-x86 64-ubuntu1804-4.2.3-48-gc685bbe/bin/install compass
```

```
garima@garima:~$ sudo netstat -nltp | grep mongo
[sudo] password for garima:
                  0 127.0.0.1:27009
                                                                                18301/./mongod
tcp
                                            0.0.0.0:*
                                                                    LISTEN
                 0 127.0.0.1:27017
                                            0.0.0.0:*
                                                                                22902/mongod
tcp
                                                                    LISTEN
garima@garima:~$ cd /opt/mongodb-linux-x86 64-ubuntu1804-4.2.3-48-gc685bbe/bin/
garima@garima:/opt/mongodb-linux-x86 64-ubuntu1804-4.2.3-48-gc685bbe/bin$ ./mongo --port 27009
MongoDB shell version v4.2.3-48-gc685bbe
connecting to: mongodb://127.0.0.1:27009/?compressors=disabled&gssapiServiceName=mongodb
Implicit session: session { "id" : UUID("2e01985d-6652-45b2-afe0-78e559531954") }
MongoDB server version: 4.2.3-48-gc685bbe
```

## 12. Create init service of Mongo installed later\*

A. Create unit file to define a systemd service at lib/systemd/system/newmongo.service

```
garima@garima:~$ sudo vim /lib/systemd/system/mewmongofile.service
garima@garima:~$ cat /lib/systemd/system/mewmongofile.service
[Unit]
Description=New Mongo Service.

[Service]
Type=Simple
ExecStart=/opt/mongodb-linux-x86_64-ubuntu1804-4.2.3-48-gc685bbe/bin/mongod --port 27009 --dbpath /home/garima/data/db

[Install]
WantedBy=Multi-user.target
garima@garima:~$
```

B. Copy new\_mongo.service to /etc/systemd/system/ and set 644 permissions to that file

```
garima@garima:/lib/systemd/system$ sudo cp mewmongofile.service /etc/systemd/system
garima@garima:/lib/systemd/system$ sudo chmod 644 /etc/systemd/system/mewmongofile.s
ervice
garima@garima:/lib/systemd/system$
```

C. Run sudo systemctl enable newmongofile.service to create symlink

```
garima@garima:~$ cd /tmp/
garima@garima:/tmp$ sudo systemctl enable mewmongofile.service
Created symlink /etc/systemd/system/Multi-user.target.wants/mewmongofile.service →/
etc/systemd/system/mewmongofile.service.
garima@garima:/tmp$
```

## **MYSQL**

### 13. Install latest version of MongoDB from apt-get repository

```
garima@garima:~$ sudo apt install mysql-server
[sudo] password for garima:
Reading package lists... Done
Building dependency tree
Reading state information... Done
mysql-server is already the newest version (5.7.29-Oubuntu0.18.04.1).
O upgraded, O newly installed, O to remove and 26 not upgraded.
```

#### 14. Create a database student

```
garima@garima:~$ sudo mysql -u root -p
Enter password:
Welcome to the MySQL monitor. Commands end with ; or \g.
Your MySQL connection id is 9
Server version: 5.7.29-OubuntuO.18.04.1 (Ubuntu)
Copyright (c) 2000, 2020, Oracle and/or its affiliates. All rights reserved.
Oracle is a registered trademark of Oracle Corporation and/or its affiliates. Other names may be trademarks of their respective owners.
Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.
mysql> create database student;
Query OK, 1 row affected (0.00 sec)
```

## 15. Insert operation: 5 students data (Name, Contact, City, Roll No, Branch)

```
mysql> use student;
Database changed
mysql> CREATE TABLE student_tab(name VARCHAR(50),contact INT,city VARCHAR(50),roll
_no INT, branch VARCHAR(30));
Query OK, 0 rows affected (0.02 sec)
```

```
mysql> INSERT INTO student_tab VALUES("garima",1111,"dun",1,"cse"),("dabral",2222,
"dun",2,"cse"),("diksha",3333,"lucknow",3,"civil"),("tomar",4444,"mumbai",4,"ec"),
("revant",5555,"delhi",5,"ee");
Query OK, 5 rows affected (0.02 sec)
Records: 5 Duplicates: 0 Warnings: 0
```

16. Read operation : All the students belong to a particular city

## 17. Update operation: Update the branch of all the students to CSE

```
mysql> update student_tab set branch="cse";
Query OK, 3 rows affected (0.04 sec)
Rows matched: 5 Changed: 3 Warnings: 0
```

## 18. **Take dump of the database**

```
garima@garima:~$ sudo mysqldump -u root -p student > mysqldump.sql
[sudo] password for garima:
Enter password:
garima@garima:~$ vim mysqldump.sql
garima@garima:~$ ls -l mysqldump.sql
-rw-r--r-- 1 garima garima 2151 Feb 17 22:43 mysqldump.sql
garima@garima:~$
```

## 19. Delete operation : Delete the record of last 2 students according to the roll number

```
mysql> select * from student tab;
| name | contact | city | roll no | branch |
| garima | 1111 | dun | 1 | cse
| dabral | 2222 | dun | 2 | cse
                                3 | cse
4 | cse
| diksha |
           3333 | lucknow |
           4444 | mumbai |
 tomar
| revant | 5555 | delhi | 5 | cse
5 rows in set (0.00 sec)
mysql> DELETE FROM student_tab ORDER BY roll_no DESC LIMIT 2;
Query OK, 2 rows affected (0.00 sec)
mysql> select * from student tab;
+----+
| name | contact | city | roll no | branch |
| garima | 1111 | dun | 1 | cse
| dabral | 2222 | dun | 2 | cse
| diksha | 3333 | lucknow | 3 | cse
3 rows in set (0.00 sec)
```

## 20. Drop the database

```
mysql> drop database student;
Query OK, 1 row affected (0.01 sec)
```

## 21. Restore the database again to have the full data

```
mysql> show databases;
Database
| information schema |
garima
 mysql
 performance_schema |
 student
svs
6 rows in set (0.00 sec)
mysql> use student;
Reading table information for completion of table and column names
You can turn off this feature to get a quicker startup with -A
Database changed
mysql> show tables;
| Tables_in_student |
| student_tab |
1 row in set (0.00 sec)
```

### 22. Enable authentication on the Mongo

```
mysql> create database dd1;
Query OK, 1 row affected (0.00 sec)

mysql> use dd1;
Database changed
mysql> create table tt1(id INT);
Query OK, 0 rows affected (0.02 sec)

mysql> insert into tt1 values(12);
Query OK, 1 row affected (0.04 sec)
```

```
mysql> create user 'newuser'@'%' identified by 'pwd';
Query OK, 0 rows affected (0.00 sec)

mysql> grant select on dd1.* to 'newuser';
Query OK, 0 rows affected (0.00 sec)

mysql> select * from tt1;
+----+
| id |
+----+
| 12 |
+----+
1 row in set (0.00 sec)
```

```
garima@garima:~$ sudo mysql -u newuser -p
Enter password:
Welcome to the MySQL monitor. Commands end with ; or \setminus g.
Your MySQL connection id is 28
Server version: 5.7.29-Oubuntu0.18.04.1 (Ubuntu)
Copyright (c) 2000, 2020, Oracle and/or its affiliates. All rights reserved.
Oracle is a registered trademark of Oracle Corporation and/or its
affiliates. Other names may be trademarks of their respective
owners.
Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.
mysql> show databases;
Database
+-----+
| information_schema |
| dd1
2 rows in set (0.00 sec)
```