

Assessment -6 MongoDB & MySQL

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College: UPES

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

```
Unknown operation mongodb.
arun@Arun-Parmar:~ $ sudo systemctl status mongodb

mongodb.service - An object/document-oriented database
Loaded: loaded (/lib/systemd/system/mongodb.service; enabled; vendor preset:
Active: active (running) since Fri 2020-02-21 11:57:13 IST; 56s ago
Docs: man:mongod(1)

Main PID: 21493 (mongod)
Tasks: 23 (limit: 4915)
CGroup: /system.slice/mongodb.service

—21493 /usr/bin/mongod --unixSocketPrefix=/run/mongodb --config /etc

Feb 21 11:57:13 Arun-Parmar systemd[1]: Started An object/document-oriented data

arun@Arun-Parmar:~ $ mongo
MongoDB shell version v3.6.3
connecting to: mongodb://127.0.0.1:27017
MongoDB server version: 3.6.3
Welcome to the MongoDB shell.
For interactive help, type "help".
For more comprehensive documentation, see
    http://docs.mongodb.org/
Questions? Try the support group
```

2. Create a database student.

```
> use student
switched to db student
> db
student
> show dbs
admin 0.000GB
config 0.000GB
local 0.000GB
> □
```

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

```
...

db.stu_detalls.insert([{Name:'Som',ContactNo:9872327666,City:'Agra',RollNo:46,Branch:'CS'},{Name:'Aman',ContactNo:987232762,City:'Jaipur',RollNo:47,Branch:'CS'},{Name:'Akash',ContactNo:9637327666,City:'Delhi',RollNo:52,Branch:'CS'},{Name:'Rahul',ContactNo:9989327666,City:'Panaji',RollNo:97,Branch:'CS'},{Name:'Rahul',ContactNo:9989327666,City:'Panaji',RollNo:52,Branch:'CS'},{Name:'Rahul',ContactNo:9989327666,City:'Panaji',RollNo:52,Branch:'CS'},{Name:'Rahul',ContactNo:9989327666,City:'Panaji',RollNo:52,Branch:'CS'},{Name:'Rahul',ContactNo:9989327666,City:'Panaji',RollNo:52,Branch:'CS'},{Name:'Rahul',ContactNo:9989327666,City:'Panaji',RollNo:52,Branch:'CS'},{Name:'Rahul',ContactNo:9989327666,City:'Panaji',RollNo:52,Branch:'CS'},{Name:'Rahul',ContactNo:9989327666,City:'Panaji',RollNo:52,Branch:'CS'},{Name:'Rahul',ContactNo:9989327666,City:'Panaji',RollNo:52,Branch:'CS'},{Name:'Rahul',ContactNo:9989327666,City:'Panaji',RollNo:52,Branch:'CS'},{Name:'Rahul',ContactNo:9989327666,City:'Panaji',RollNo:52,Branch:'CS'},{Name:'Rahul',ContactNo:9989327666,City:'Panaji',RollNo:52,Branch:'CS'},{Name:'Rahul',ContactNo:9989327666,City:'Panaji',RollNo:52,Branch:'CS'},{Name:'Rahul',ContactNo:9989327666,City:'Panaji',RollNo:52,Branch:'CS'},{Name:'Rahul',ContactNo:9989327666,City:'Panaji',RollNo:52,Branch:'CS'},{Name:'Rahul',ContactNo:9989327666,City:'Panaji',RollNo:52,Branch:'CS'},{Name:'Rahul',ContactNo:9989327666,City:'Panaji',RollNo:52,Branch:'CS'},{Name:'Rahul',ContactNo:9989327666,City:'Panaji',RollNo:52,Branch:'CS'},{Name:'Rahul',ContactNo:9989327666,City:'Panaji',RollNo:52,Branch:'CS'},{Name:'Rahul',ContactNo:9989327666,City:'Panaji',RollNo:52,Branch:'CS'},{Name:'Rahul',ContactNo:9989327666,City:'Panaji',RollNo:52,Branch:'CS'},{Name:'Rahul',ContactNo:9989327666,City:'Panaji',RollNo:52,Branch:'CS'},{Name:'Rahul',ContactNo:9989327666,City:'Panaji',RollNo:52,Branch:'CS'},{Name:'Rahul',ContactNo:9989327666,City:'Panaji',RollNo:52,Branch:'CS'},{Name:'Rahul',ContactNo:9989327666,City:'Panaji',RollNo:52,Branch:'CS'},{Name:'Ra
```

```
}
}
db.stu_details.find().pretty()

    "_id": ObjectId("5e52a124a3a111d370368dde"),
    "Name": "Rohit",
    "ContactNo": 9997888666,
    "City": "Ajmer",
    "RollNo": 46,
    "Branch": "CS"

}

{
    "_id": ObjectId("5e52a4bc6cc44e5767d711d2"),
    "Name": "Som",
    "ContactNo": 9972327666,
    "City": "Agra",
    "RollNo": 46,
    "Branch": "CS"

}

{
    "_id": ObjectId("5e52a4bc6cc44e5767d711d3"),
    "Name": "Aman",
    "ContactNo": 9972327262,
    "City": "Jaipur",
    "RollNo": 47,
    "Branch": "CS"

}

{
    "_id": ObjectId("5e52a4bc6cc44e5767d711d4"),
    "Name": "Akash",
    "ContactNo": 9637327666,
    "City": "Delhi",
    "RollNo": 52,
    "Branch": "CS"

}

{
    "_id": ObjectId("5e52a4bc6cc44e5767d711d4"),
    "Name": "Rahul",
    "Ame": "Rahul",
    "_id": ObjectId("5e52a4bc6cc44e5767d711d5"),
    "Name": "Rahul",
    "_id": ObjectId("5e52a4bc6cc44e5767d711d5"),
    "_id": ObjectId("5e52a4bc6cc44e5767d711d5"),
    "_id": ObjectId("5e52a4bc6cc44e57e7d711d5"),
    "_id": ObjectId("5e52a4bc6cc44e57e7d711d5"),
    "_id": ObjectId("5e52a4bc6cc44e57e7d711d5"),
    "_id": ObjectId("5e52a4bc6cc44e57e7d711d5"),
    "_id": ObjectId("5e52a4bc6cc44e57e7d711d5"),
    "_id": Ob
```

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

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

```
db.stu_details.updateMany({},{$set:{Branch:"CSE"}});
{ "acknowledged" : true, "matchedCount" : 5, "modifiedCount" : 5 }
> db.stu_details.find().pretty()
{
    "_id" : ObjectId("5e52a124a3a111d370368dde"),
    "Name" : "Rohtt",
    "ContactNo" : 9997888666,
    "City" : "Agimer",
    "RollNo" : 46,
    "Branch" : "CSE"
}
{
    "_id" : ObjectId("5e52a4bc6cc44e5767d711d2"),
    "Name" : "Som",
    "ContactNo" : 9872327666,
    "City" : "Agra",
    "RollNo" : 46,
    "Branch" : "CSE"
}
{
    "_id" : ObjectId("5e52a4bc6cc44e5767d711d3"),
    "Name" : "Anan",
    "ContactNo" : 987232762,
    "City" : "Jaipur",
    "RollNo" : 47,
    "Branch" : "CSE"
}
{
    "_id" : ObjectId("5e52a4bc6cc44e5767d711d4"),
    "Name" : "Akash",
    "ContactNo" : 9637327666,
    "City" : "Delhi",
    "RollNo" : 52,
    "Branch" : "CSE"
}
```

6. Take dump of the database.

```
> > exit bye arun@Arun-Parmar:~ $ cd arun@Arun-Parmar:~ $ sudo mongodump --db student --out /home/arun/Documents/mongoBackup/'date +"%m-%d-%y"' [sudo] password for arun:
2020-02-23T22:04:03.582+0530 writing student.stu_details to 2020-02-23T22:04:03.583+0530 done dumping student.stu_details (5 documents) arun@Arun-Parmar:~ $ []
```

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

```
> use student switched to db student switched to db student | Stud
```

```
db.stu_details.find().pretty()

    "_id" : ObjectId("5e52a124a3a111d370368dde"),
    "Name" : "Rohit",
    "ContactNo" : 9997888666,
    "City" : "Ajmer",
    "RollNo" : 46,
    "Branch" : "CSE"

{
    "_id" : ObjectId("5e52a4bc6cc44e5767d711d2"),
    "Name" : "Som",
    "ContactNo" : 9872327666,
    "City" : "Agra",
    "RollNo" : 46,
    "Branch" : "CSE"

}

{
    "_id" : ObjectId("5e52a4bc6cc44e5767d711d3"),
    "Name" : "Aman",
    "ContactNo" : 9872327262,
    "City" : "Jaipur",
    "RollNo" : 47,
    "Branch" : "CSE"
}
```

8. Drop the database

9. Restore the database again to have the full data

```
Activities ☐ Terminal ▼
                                                                           root@Arun-Parmar: ~
       File Edit View Search Terminal Help
       arun@Arun-Parmar:02-16-20 $ mongorestore -d student /home/arun/Documents/mongoBackup/02-16-20/student/
       2020-02-23T22:27:02.254+0530
                                        the --db and --collection args should only be used when restoring from a B
      and will not exist in the future; use --nsInclude instead
      2020-02-23T22:27:02.255+0530 building a list of collections to restore from /home/arun/Documents/mongoB reading metadata for student.stu_details from /home/arun/Documents/mongoBa
      2020-02-23T22:27:02.255+0530
      tadata.json
      2020-02-23T22:27:02.276+0530
                                         restoring student.stu_details from /home/arun/Documents/mongoBackup/02-16-
      2020-02-23T22:27:02.277+0530
      2020-02-23T22:27:02.277+0530
                                         finished restoring student.stu_details (5 documents)
      2020-02-23T22:27:02.277+0530
      arun@Arun-Parmar:02-16-20 $ cd
      arun@Arun-Parmar:~ $ mongo
      MongoDB shell version v3.6.3
      connecting to: mongodb://127.0.0.1:27017
      MongoDB server version: 3.6.3
       Server has startup warnings:
      2020-02-21T11:57:13.292+0530 I STORAGE [initandlisten]
      2020-02-21T11:57:13.292+0530 I STORAGE [initandlisten] ** WARNING: Using the XFS filesystem is strongly r
      ae enaine
       2020-02-21T11:57:13.292+0530 I STORAGE [initandlisten] **
                                                                                See http://dochub.mongodb.org/core/pro
      2020-02-21T11:57:13.773+0530 I CONTROL
                                                  [initandlisten]
       2020-02-21T11:57:13.773+0530 I CONTROL
                                                  [initandlisten] ** WARNING: Access control is not enabled for the
                                                  [initandlisten] **
      2020-02-21T11:57:13.773+0530 I CONTROL
                                                                                Read and write access to data and conf
      2020-02-21T11:57:13.773+0530 I CONTROL [initandlisten]
       use student
      switched to db student
       > db.stu_details.find().pretty()
               "_id" : ObjectId("5e52a124a3a111d370368dde"),
               "Name" : "Rohit",
"ContactNo" : 9997888666,
               "City" : "Ajmer",
"RollNo" : 46,
"Branch" : "CSE"
               "_id" : ObjectId("5e52a4bc6cc44e5767d711d2"),
```

10. Enable authentication on the Mongo

a. Start MongoDB without access control

```
? •( □
                                                                                                                 root@Arun-Parmar: ~
         File Edit View Search Terminal Help
Dasn: ២2-10-20/: Is a Otrectory
arun@Arun-Parmar:mongoBackup $ cd 02-16-20/
arun@Arun-Parmar:02-16-20 $ mongod --port 27017 --dbpath /data/db1
          2020-02-23T22:36:18.145+0530 I CONTROL
2020-02-23T22:36:18.145+0530 I CONTROL
                                                                          [initandlisten] MongoDB starting : pid=29123 port=27017 dbpath=/data/db1 64-bit host=Arun-Parmar
[initandlisten] db version v3.6.3
                                                                           [initandlisten] git version: 9586e557d54ef70f9ca4b43c26892cd55257e1a5
[initandlisten] OpenSSL version: OpenSSL 1.1.1 11 Sep 2018
          2020-02-23T22:36:18.145+0530 I CONTROL
           020-02-23T22:36:18.145+0530 I CONTROL
           2020-02-23T22:36:18.145+0530 I CONTROL
                                                                           [initandlisten] allocator: tcmalloc
                                                                           [initandlisten] modules: none
[initandlisten] build environment:
           020-02-23T22:36:18.145+0530 I CONTROL
          2020-02-23T22:36:18.145+0530 I CONTROL
          2020-02-23T22:36:18.145+0530 I CONTROL
2020-02-23T22:36:18.145+0530 I CONTROL
                                                                           [initandlisten]
[initandlisten]
                                                                                                          distarch: x86_64
                                                                          [initandlisten] target_arch: X86_64
[initandlisten] options: { net: { port: 27017 }, storage: { dbPath: "/data/db1" } }
[initandlisten] exception in initAndListen: NonExistentPath: Data directory /data/db1 not found., term
          2020-02-23T22:36:18.145+0530 I CONTROL
2020-02-23T22:36:18.146+0530 I STORAGE
          toating
2020-02-23T22:36:18.146+0530 I CONTROL [initandlisten] now exiting
2020-02-23T22:36:18.146+0530 I CONTROL [initandlisten] shutting down with code:100
```

- b. Connect to the instance
- c. Create the user administrator.

```
root@Arun-Parmar: ~
                         arun@Arun-Parmar:02-16-20 $ mongo --port 27017
                          connecting to: mongodb://127.0.0.1:27017/
MongoDB server version: 3.6.3
Server has startup warnings:
                          2020-02-21T11:57:13.292+0530 I STORAGE [initandlisten]
2020-02-21T11:57:13.292+0530 I STORAGE [initandlisten] ** WARNING: Using the XFS filesystem is strongly recommended with the WiredTiger stora
                             e engine
                                                                                                                                                                                                      [initandlisten] **
                             020-02-21T11:57:13.292+0530 I STORAGE
                                                                                                                                                                                                                                                                                                                          See http://dochub.mongodb.org/core/prodnotes-filesystem
                          2020-02-21T11:57:13.773+0530 I CONTROL [initandlisten] ** WARNING: Access control is not enabled for the database.
2020-02-21T11:57:13.773+0530 I CONTROL [initandlisten] ** Read and write access to data and configuration
2020-02-21T11:57:13.773+0530 I CONTROL [initandlisten] ** Read and write access to data and configuration
2020-02-21T11:57:13.773+0530 I CONTROL [initandlisten] ** Read and write access to data and configuration
                                                                                                                                                                                                                                                                                                                              Read and write access to data and configuration is unrestricted.
                            switched to db admin
                            b db.createUser(
colored to the state of the state o
                            "role" : "userAdminAnyDatabase",
"db" : "admin"
                                                                                         }
                                                          ]
```

d. Re-start the MongoDB instance with access control

e. Connect and authenticate as the user administrator

```
2020-02-23T22:49:07.764+0530 I CONTROL [initandlisten] shutting down with code:100
arun@Arun-Parmar:02-16-20 § mongo --port 27017 -u "adminArun" -p "arun" --authenticationDatabase "admin"
MongoDB shell version v3.6.3
Server bas startup warnings:
2020-02-21T11:57:13.292+0530 I STORAGE [initandlisten]
2020-02-21T11:57:13.292+0530 I STORAGE [initandlisten] ** WARNING: Using the XFS filesystem is strongly recommended with the WiredTiger stora ge engine
2020-02-21T11:57:13.292+0530 I STORAGE [initandlisten] ** See http://dochub.mongodb.org/core/prodnotes-filesystem
2020-02-21T11:57:13.773+0530 I CONTROL [initandlisten] ** WARNING: Access control is not enabled for the database.
2020-02-21T11:57:13.773+0530 I CONTROL [initandlisten] ** Read and write access to data and configuration is unrestricted.
```

- 11. Install another version of MongoDB from source (Version 2.6.3) and run it on port 27009
- 12. Create init service of Mongo installed later.

MySQL:

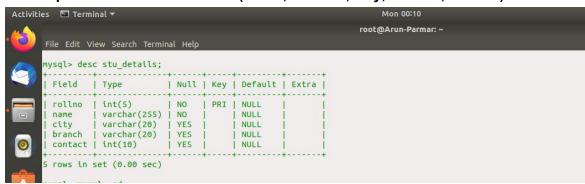
1. Install latest version of MySQL from apt-get repository



2. Create a database student



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



```
mysql> insert into stu_details values(1,"Aakash","New Delhi","CS",971979615);
Query OK, 1 row affected (0.01 sec)

mysql> insert into stu_details values(1,"Arun","Agra","CS",947899615);
ERROR 1062 (23000): Duplicate entry '1' for key 'PRIMARY'
mysql> insert into stu_details values(12,"Arun","Agra","CS",947899615);
Query OK, 1 row affected (0.01 sec)

mysql> insert into stu_details values(12,"Mikesh","Jaipur","CS",948299615);
Query OK, 1 row affected (0.01 sec)

mysql> insert into stu_details values(19,"Ekansh","Ajmer","CS",999299615);
Query OK, 1 row affected (0.01 sec)

mysql> insert into stu_details values(19,"Fahed","Panaji","CS",706299615);
ERROR 1062 (23000): Duplicate entry '19' for key 'PRIMARY'
mysql> insert into stu_details values(23,"Fahed","Panaji","CS",706299615);
Query OK, 1 row affected (0.01 sec)

mysql> insert into stu_details values(23,"Fahed","Panaji","CS",706299615);

prollno | name | city | branch | contact |

| 1 | Aakash | New Delhi | CS | 971979615 | |
| 1 | 2 | Arun | Agra | CS | 947899615 |
| 1 | 9 | Ekansh | Ajmer | CS | 999299615 |
| 1 | 33 | Mikesh | Ajmer | CS | 999299615 |
| 33 | Mikesh | Jaipur | CS | 948299615 |

5 rows in set (0.01 sec)

mysql>;

mysql>;

| 5 rows in set (0.01 sec)

mysql>;

mysql>;

| 1 | Makash | Mayor | CS | 948299615 | |
| 2 | 3 | Fahed | Panaji | CS | 706299615 |
| 3 | 3 | Mikesh | Jaipur | CS | 948299615 |
| 5 rows in set (0.01 sec)
```

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

```
mysql>
mysql> select * from stu_details where city="agra";

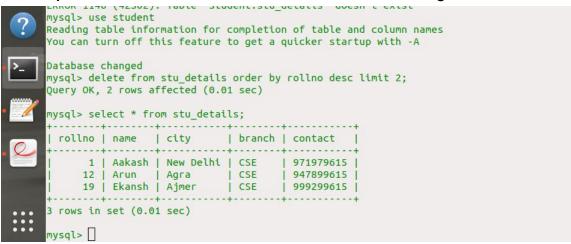
| rollno | name | city | branch | contact |
| 12 | Arun | Agra | CS | 947899615 |
| 1 row in set (0.00 sec)
```

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

6. Take dump of the database

```
2990/2.]pg runsatu-190/-mustang-walipaper.jpg Untitled 1.odt wp1808944.]pg
arun@Arun-Parmar:Documents $ sudo mysqldump student > /home/arun/Documents/dump.sql;
[sudo] password for arun:
arun@Arun-Parmar:Documents $ ls
1665324.jpg Assignments FUns3Eu-1967-mustang-wallpaper.jpg 'Untitled 1.odt' wp1808944.jpg
299072.jpg dump.sql mongoBackup uW7boRI-1967-mustang-wallpaper.jpg
arun@Arun-Parmar:Documents $ [
```

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

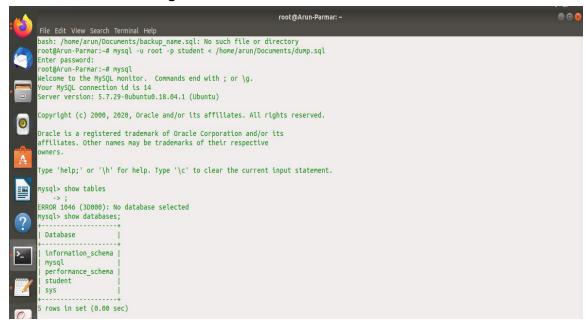


8. Drop the database

```
mysql> drop database student;
Query OK, 1 row affected (0.03 sec)

mysql> exit
Bye
```

9. Restore the database again to have the full data





- 10. Install another version of MongoDB from source (Version 2.6.3) and run it on port 27009
- 11. Create init service of Mongo installed later*