# MongoDB and MySQL Assignment

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

```
aman@Aman-Khandelwal:~$ sudo apt-get install mongodb
[sudo] password for aman:
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
  libboost-program-options1.65.1 libgoogle-perftools4 libpcrecpp0v5 libtcmalloc-minimal4
  libyaml-cpp0.5v5 mongo-tools mongodb-clients mongodb-server mongodb-server-core
The following NEW packages will be installed:
  libboost-program-options1.65.1 libgoogle-perftools4 libpcrecpp0v5 libtcmalloc-minimal4
  libyaml-cpp0.5v5 mongo-tools mongodb mongodb-clients mongodb-server mongodb-server-core
0 upgraded, 10 newly installed, 0 to remove and 0 not upgraded.
Need to get 53.4 MB of archives.
```

2. **Create a database student.**

```
> use student;
switched to db student
>
```

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

```
aman@Aman-Khandelwal: ~
File  Edit  View  Search  Terminal  Help
> db.class1.insertMany( [ {name: "Aman", contact: "8058622555", city: "Alwar", roll_no: 1, branch: "c
s"}, {name: "Sampurna", contact: "8112292233", city: "Jaipur", roll_no: 2, branch: "cloud"}, {name: "
Akshay", contact: "8563123456", city: "Noida", roll_no: 3, branch: "cs"}, {name: "Vaibhav", contact:
"1234567891", city: "Gahzibad", roll_no: 4, branch: "civil"}, {name: "Shreya", contact: "8058644444",
 city: "Mumbai", roll_no: 5, branch: "cs"} ] )
{
        "acknowledged" : true,
        "insertedIds" : [
                ObjectId("5e48363723730655560bc9e2"),
                ObjectId("5e48363723730655560bc9e3"),
                ObjectId("5e48363723730655560bc9e4"),
                ObjectId("5e48363723730655560bc9e5"),
                ObjectId("5e48363723730655560bc9e6")
        ]
}
>
```

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

```
aman@Aman-Khandelwal: ~
File  Edit  View  Search  Terminal  Help
> db.class1.find({city: "Jaipur"})
{ "_id" : ObjectId("5e48363723730655560bc9e3"), "name" : "Sampurna", "contact" : "8112292233", "city" : "
Jaipur", "roll_no" : 2, "branch" : "cloud" }
```

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

```
File  Edit  View  Search  Terminal  Help
> db.class1.find()
{ "_id" : ObjectId("5e48363723730655560bc9e2"), "name" : "Aman", "contact" : "8058622555", "city" : "Alwa
r", "roll_no" : 1, "branch" : "cs", "Branch" : "CS" }
{ "_id" : ObjectId("5e48363723730655560bc9e3"), "name" : "Sampurna", "contact" : "8112292233", "city" : "
Jaipur", "roll_no" : 2, "branch" : "cloud", "Branch" : "CS" }
{ "_id" : ObjectId("5e48363723730655560bc9e4"), "name" : "Akshay", "contact" : "8563123456", "city" : "No
ida", "roll_no" : 3, "branch" : "cs", "Branch" : "CS" }
{ "_id" : ObjectId("5e48363723730655560bc9e5"), "name" : "Vaibhav", "contact" : "1234567891", "city" : "G
ahzibad", "roll_no" : 4, "branch" : "civil", "Branch" : "CS" }
{ "_id" : ObjectId("5e48363723730655560bc9e6"), "name" : "Shreya", "contact" : "8058644444", "city" : "Mu
mbai", "roll_no" : 5, "branch" : "cs", "Branch" : "CS" }
>
```

**6. Take dump of the database**

```
aman@Aman-Khandelwal:~$ mongodump --db student -o /home/aman
2020-02-16T01:06:37.306+0530     writing student.class1 to
2020-02-16T01:06:37.306+0530     done dumping student.class1 (5 documents)
aman@Aman-Khandelwal:~$ ls -l /home/aman
total 56
drwxr-xr-x 9 aman aman 4096 Feb 10 10:29 Desktop
drwxr-xr-x 3 aman aman 4096 Feb  7 17:15 django_work
drwxr-xr-x 2 aman aman 4096 Jan 22 14:37 Documents
drwxr-xr-x 2 aman aman 4096 Feb 13 18:03 Downloads
-rw-r--r-- 1 aman aman 8980 Jan 22 14:31 examples.desktop
drwxr-xr-x 3 aman aman 4096 Feb  3 15:42 exercise
drwxr-xr-x 2 aman aman 4096 Jan 22 14:37 Music
drwxr-xr-x 2 aman aman 4096 Feb 13 23:28 Pictures
drwxr-xr-x 2 aman aman 4096 Jan 22 14:37 Public
drwxr-xr-x 2 aman aman 4096 Feb 16 01:06 student
drwxr-xr-x 2 aman aman 4096 Jan 22 14:37 Templates
drwxr-xr-x 2 aman aman 4096 Jan 22 14:37 Videos
aman@Aman-Khandelwal:~$ cd student
aman@Aman-Khandelwal:~/student$ ls
class1.bson  class1.metadata.json
aman@Aman-Khandelwal:~/student$
```

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

```
File  Edit  View  Search  Terminal  Help
> db.class1.find().sort( { roll_no:-1 } ).limit(3).forEach(function(doc) { db.class1.remove({_id: doc._id
}); })
> db.class1.find()
{ "_id" : ObjectId("5e48d10cf2e66b39932389fe"), "name" : "Aman", "contact" : "8058622555", "city" : "Alwa
r", "roll_no" : 1, "branch" : "cs" }
{ "_id" : ObjectId("5e48d10cf2e66b39932389ff"), "name" : "Sampurna", "contact" : "8112292233", "city" : "
Jaipur", "roll_no" : 2, "branch" : "cloud" }
>
```

8. **Drop the database.**

```
                                    aman@Aman-Khandelwal: ~/student

File Edit View Search Terminal Help
> db.dropDatabase()
{ "dropped" : "student", "ok" : 1 }
> show dbs
admin    0.000GB
config   0.000GB
local    0.000GB
test     0.000GB
```

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

```
aman@Aman-Khandelwal:~/student$ mongorestore -d Student /home/aman/student/
2020-02-16T11:01:22.383+0530    the --db and --collection args should only b
BSON file. Other uses are deprecated and will not exist in the future; use -
2020-02-16T11:01:22.383+0530    building a list of collections to restore fr
2020-02-16T11:01:22.383+0530    reading metadata for Student.class1 from /ho
ta.json
2020-02-16T11:01:22.414+0530    restoring Student.class1 from /home/aman/stu
2020-02-16T11:01:22.419+0530    no indexes to restore
2020-02-16T11:01:22.419+0530    finished restoring Student.class1 (5 documen
2020-02-16T11:01:22.419+0530    done
aman@Aman-Khandelwal:~/student$ 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:
2020-02-15T21:46:53.188+0530 I STORAGE  [initandlisten]
2020-02-15T21:46:53.188+0530 I STORAGE  [initandlisten] ** WARNING: Using th
recommended with the WiredTiger storage engine
2020-02-15T21:46:53.188+0530 I STORAGE  [initandlisten] **          See http
odnotes-filesystem
2020-02-15T21:46:53.656+0530 I CONTROL  [initandlisten]
2020-02-15T21:46:53.656+0530 I CONTROL  [initandlisten] ** WARNING: Access c
 database.
2020-02-15T21:46:53.656+0530 I CONTROL  [initandlisten] **          Read and
figuration is unrestricted.
2020-02-15T21:46:53.656+0530 I CONTROL  [initandlisten]
> show dbs
Student  0.000GB
```

10. **Enable authentication on the Mongo.**

```
> db.createUser({ user: "aman2", pwd: "123qwe123", roles: [ {role: "userAdminAnyDatabase", db: "admin"} ]
})
Successfully added user: {
        "user" : "aman2",
        "roles" : [
                {
                        "role" : "userAdminAnyDatabase",
                        "db" : "admin"
                }
        ]
}
> ^C
bye
aman@Aman-Khandelwal:~/student$ mongo -u "aman2" -p "123qwe123" --authenticationDatabase "admin"
MongoDB shell version v3.6.3
connecting to: mongodb://127.0.0.1:27017
MongoDB server version: 3.6.3
>
```

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

```
aman@Aman-Khandelwal:~/Downloads$ tar -zxvf mongodb-linux-x86_64-ubuntu1604-3.2.
7-rc0.tgz
mongodb-linux-x86_64-ubuntu1604-3.2.7-rc0/README
mongodb-linux-x86_64-ubuntu1604-3.2.7-rc0/THIRD-PARTY-NOTICES
mongodb-linux-x86_64-ubuntu1604-3.2.7-rc0/MPL-2
mongodb-linux-x86_64-ubuntu1604-3.2.7-rc0/GNU-AGPL-3.0
mongodb-linux-x86_64-ubuntu1604-3.2.7-rc0/bin/mongodump
mongodb-linux-x86_64-ubuntu1604-3.2.7-rc0/bin/mongorestore
mongodb-linux-x86_64-ubuntu1604-3.2.7-rc0/bin/mongoexport
mongodb-linux-x86_64-ubuntu1604-3.2.7-rc0/bin/mongoimport
mongodb-linux-x86_64-ubuntu1604-3.2.7-rc0/bin/mongostat
mongodb-linux-x86_64-ubuntu1604-3.2.7-rc0/bin/mongotop
mongodb-linux-x86_64-ubuntu1604-3.2.7-rc0/bin/bsondump
mongodb-linux-x86_64-ubuntu1604-3.2.7-rc0/bin/mongofiles
mongodb-linux-x86_64-ubuntu1604-3.2.7-rc0/bin/mongooplog
mongodb-linux-x86_64-ubuntu1604-3.2.7-rc0/bin/mongoperf
mongodb-linux-x86_64-ubuntu1604-3.2.7-rc0/bin/mongosniff
mongodb-linux-x86_64-ubuntu1604-3.2.7-rc0/bin/mongod
mongodb-linux-x86_64-ubuntu1604-3.2.7-rc0/bin/mongos
mongodb-linux-x86_64-ubuntu1604-3.2.7-rc0/bin/mongo
```

```
aman@Aman-Khandelwal:~/Downloads$ mv mongodb-linux-x86_64-ubuntu1604-3.2.7-rc0 m
ongoDb3.2
aman@Aman-Khandelwal:~/Downloads$ cd mongoDb3.2/
aman@Aman-Khandelwal:~/Downloads/mongoDb3.2$ ls
bin  GNU-AGPL-3.0  MPL-2  README  THIRD-PARTY-NOTICES
aman@Aman-Khandelwal:~/Downloads/mongoDb3.2$ cd bin/
aman@Aman-Khandelwal:~/Downloads/mongoDb3.2/bin$ mongod --port 27009 --dbpath /d
ata3.2/db1
2020-02-16T13:40:34.697+0530 I CONTROL  [initandlisten] MongoDB starting : pid=2
1777 port=27009 dbpath=/data3.2/db1 64-bit host=Aman-Khandelwal
2020-02-16T13:40:34.697+0530 I CONTROL  [initandlisten] db version v3.6.3
2020-02-16T13:40:34.697+0530 I CONTROL  [initandlisten] git version: 9586e557d54
ef70f9ca4b43c26892cd55257e1a5
2020-02-16T13:40:34.697+0530 I CONTROL  [initandlisten] OpenSSL version: OpenSSL
 1.1.1  11 Sep 2018
2020-02-16T13:40:34.697+0530 I CONTROL  [initandlisten] allocator: tcmalloc
2020-02-16T13:40:34.697+0530 I CONTROL  [initandlisten] modules: none
2020-02-16T13:40:34.697+0530 I CONTROL  [initandlisten] build environment:
2020-02-16T13:40:34.697+0530 I CONTROL  [initandlisten]     distarch: x86_64
2020-02-16T13:40:34.697+0530 I CONTROL  [initandlisten]     target_arch: x86_64
2020-02-16T13:40:34.697+0530 I CONTROL  [initandlisten] options: { net: { port:
27009 }  storage: { dbPath: "/data3.2/db1" } }
```

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



```
aman@Aman-Khandelwal: /etc/init.d
File  Edit  View  Search  Terminal  Help
  GNU nano 2.9.3                      mongodb

PATH=/usr/local/sbin:/usr/local/bin:/sbin:/bin:/usr/sbin:/usr/bin
DAEMON=/usr/bin/mongod
DESC=database

# Default defaults.  Can be overridden by the /etc/default/$NAME
NAME=mongodb
CONF=/etc/mongodb.conf
RUNDIR=/run/mongodb
PIDFILE=$RUNDIR/$NAME.pid
ENABLE_MONGODB=yes

# Include mongodb defaults if available
if [ -f /etc/default/$NAME ] ; then
        . /etc/default/$NAME
fi

# Handle NUMA access to CPUs (SERVER-3574)
# This verifies the existence of numactl as well as testing that the command wo$
NUMACTL_ARGS="--interleave=all"

^G Get Help   ^O Write Out  ^W Where Is   ^K Cut Text   ^J Justify    ^C Cur Pos
^X Exit       ^R Read File  ^\ Replace    ^U Uncut Text ^T To Linter  ^_ Go To Line
```

```
aman@Aman-Khandelwal:/etc/init.d$ ls -l |grep mongodb
-rwxr-xr-x 1 root root 7764 Mar 22  2019 mongodb
aman@Aman-Khandelwal:/etc/init.d$
```

**13. Install latest version of Mysql from apt-get repository.**

```
aman@Aman-Khandelwal:~$ sudo apt-get install mysql-server
[sudo] password for aman:
Reading package lists... Done
Building dependency tree
Reading state information... Done
mysql-server is already the newest version (5.7.29-0ubuntu0.18.04.1).
0 upgraded, 0 newly installed, 0 to remove and 0 not upgraded.
aman@Aman-Khandelwal:~$
```

14. **Create a database student.**

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

mysql> use student;
Database changed
```

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

```
mysql> insert into class1(name,contact,city,roll_no,branch) values ('aman','8058
622555','alwar','1','cs');
Query OK, 1 row affected (0.01 sec)
```

```
                           aman@Aman-Khandelwal: ~

File  Edit  View  Search  Terminal  Help
mysql> select * from class1;
+----+----------+-----------+--------+---------+--------+
| id | name     | contact   | city   | roll_no | branch |
+----+----------+-----------+--------+---------+--------+
|  1 | aman     | 8058622555| alwar  | 1       | cs     |
|  2 | rahul    | 805822225 | alwar  | 2       | civil  |
|  3 | sampurna | 123456789 | jaipur | 3       | cs     |
|  4 | rajat    | 123456789 | jaipur | 4       | cs     |
|  5 | vaibhav  | 123456789 | jaipur | 5       | cs     |
+----+----------+-----------+--------+---------+--------+
5 rows in set (0.00 sec)
```

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

```
mysql> select * from class1 where city='jaipur';
+----+----------+-----------+--------+---------+--------+
| id | name     | contact   | city   | roll_no | branch |
+----+----------+-----------+--------+---------+--------+
|  3 | sampurna | 123456789 | jaipur | 3       | cs     |
|  4 | rajat    | 123456789 | jaipur | 4       | cs     |
|  5 | vaibhav  | 123456789 | jaipur | 5       | cs     |
+----+----------+-----------+--------+---------+--------+
3 rows in set (0.00 sec)
```

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

```
aman@Aman-Khandelwal: ~

File  Edit  View  Search  Terminal  Help
mysql> update class1 set branch = 'cs';
Query OK, 1 row affected (0.02 sec)
Rows matched: 5  Changed: 1  Warnings: 0

mysql> select * from class1;
+----+----------+-----------+--------+---------+--------+
| id | name     | contact   | city   | roll_no | branch |
+----+----------+-----------+--------+---------+--------+
|  1 | aman     | 8058622555 | alwar  | 1       | cs     |
|  2 | rahul    | 805822225  | alwar  | 2       | cs     |
|  3 | sampurna | 123456789  | jaipur | 3       | cs     |
|  4 | rajat    | 123456789  | jaipur | 4       | cs     |
|  5 | vaibhav  | 123456789  | jaipur | 5       | cs     |
+----+----------+-----------+--------+---------+--------+
```

**18.  Take dump of the database**

```
aman@Aman-Khandelwal: ~

File  Edit  View  Search  Terminal  Help
aman@Aman-Khandelwal:~$ sudo mysqldump -u root student > /home/aman/student.sql
[sudo] password for aman:
aman@Aman-Khandelwal:~$ cat /home/aman/student.sql
-- MySQL dump 10.13  Distrib 5.7.29, for Linux (x86_64)
--
-- Host: localhost    Database: student
-- ------------------------------------------------------
-- Server version       5.7.29-0ubuntu0.18.04.1

/*!40101 SET @OLD_CHARACTER_SET_CLIENT=@@CHARACTER_SET_CLIENT */;
/*!40101 SET @OLD_CHARACTER_SET_RESULTS=@@CHARACTER_SET_RESULTS */;
/*!40101 SET @OLD_COLLATION_CONNECTION=@@COLLATION_CONNECTION */;
/*!40101 SET NAMES utf8 */;
/*!40103 SET @OLD_TIME_ZONE=@@TIME_ZONE */;
```

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

```
                          aman@Aman-Khandelwal: ~
File  Edit  View  Search  Terminal  Help
mysql> delete from class1 order by roll_no desc limit 2;
Query OK, 2 rows affected (0.01 sec)

mysql> select * from class1;
+----+----------+-----------+--------+---------+--------+
| id | name     | contact   | city   | roll_no | branch |
+----+----------+-----------+--------+---------+--------+
|  1 | aman     | 8058622555 | alwar | 1       | cs     |
|  2 | rahul    | 805822225  | alwar | 2       | cs     |
|  3 | sampurna | 123456789  | jaipur| 3       | cs     |
+----+----------+-----------+--------+---------+--------+
3 rows in set (0.00 sec)
```

**20. Drop Database.**

```
mysql> drop database student;
Query OK, 1 row affected (0.02 sec)
```

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

```
aman@Aman-Khandelwal:~$ sudo mysqldump -u root student < /home/aman/student.sql

-- MySQL dump 10.13  Distrib 5.7.29, for Linux (x86_64)
--
-- Host: localhost    Database: student
-- ------------------------------------------------------
-- Server version       5.7.29-0ubuntu0.18.04.1

/*!40101 SET @OLD_CHARACTER_SET_CLIENT=@@CHARACTER_SET_CLIENT */;
/*!40101 SET @OLD_CHARACTER_SET_RESULTS=@@CHARACTER_SET_RESULTS */;
/*!40101 SET @OLD_COLLATION_CONNECTION=@@COLLATION_CONNECTION */;
/*!40101 SET NAMES utf8 */;
/*!40103 SET @OLD_TIME_ZONE=@@TIME_ZONE */;
/*!40103 SET TIME_ZONE='+00:00' */;
```

**22. Enable authentication on the mysql**



```
mysql> grant all privileges on *.* to 'aman'@'localhost' identified by '123qwe12
3';
Query OK, 0 rows affected, 1 warning (0.00 sec)

mysql> flush privileges;
Query OK, 0 rows affected (0.00 sec)
```



```
aman@Aman-Khandelwal:~$ mysql -u aman -p
Enter password:
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 160
Server version: 5.7.29-0ubuntu0.18.04.1 (Ubuntu)

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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>
```

```
mysql> select user from user;
+------------------+
| user             |
+------------------+
| aman             |
| debian-sys-maint |
| mysql.session    |
| mysql.sys        |
| root             |
| wpuser           |
+------------------+
6 rows in set (0.00 sec)
```