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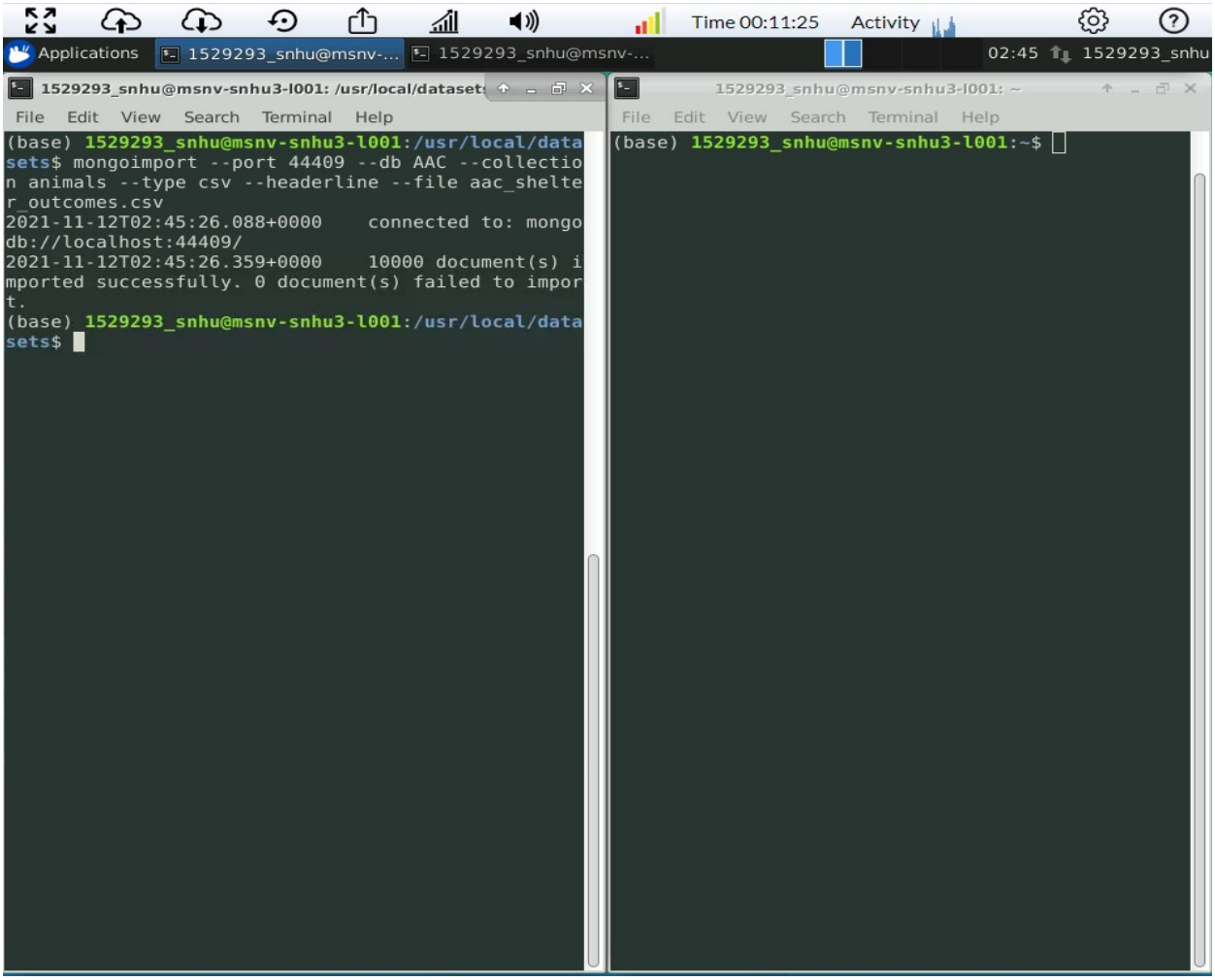
CS 340 Client/Server Development

11/13/2021

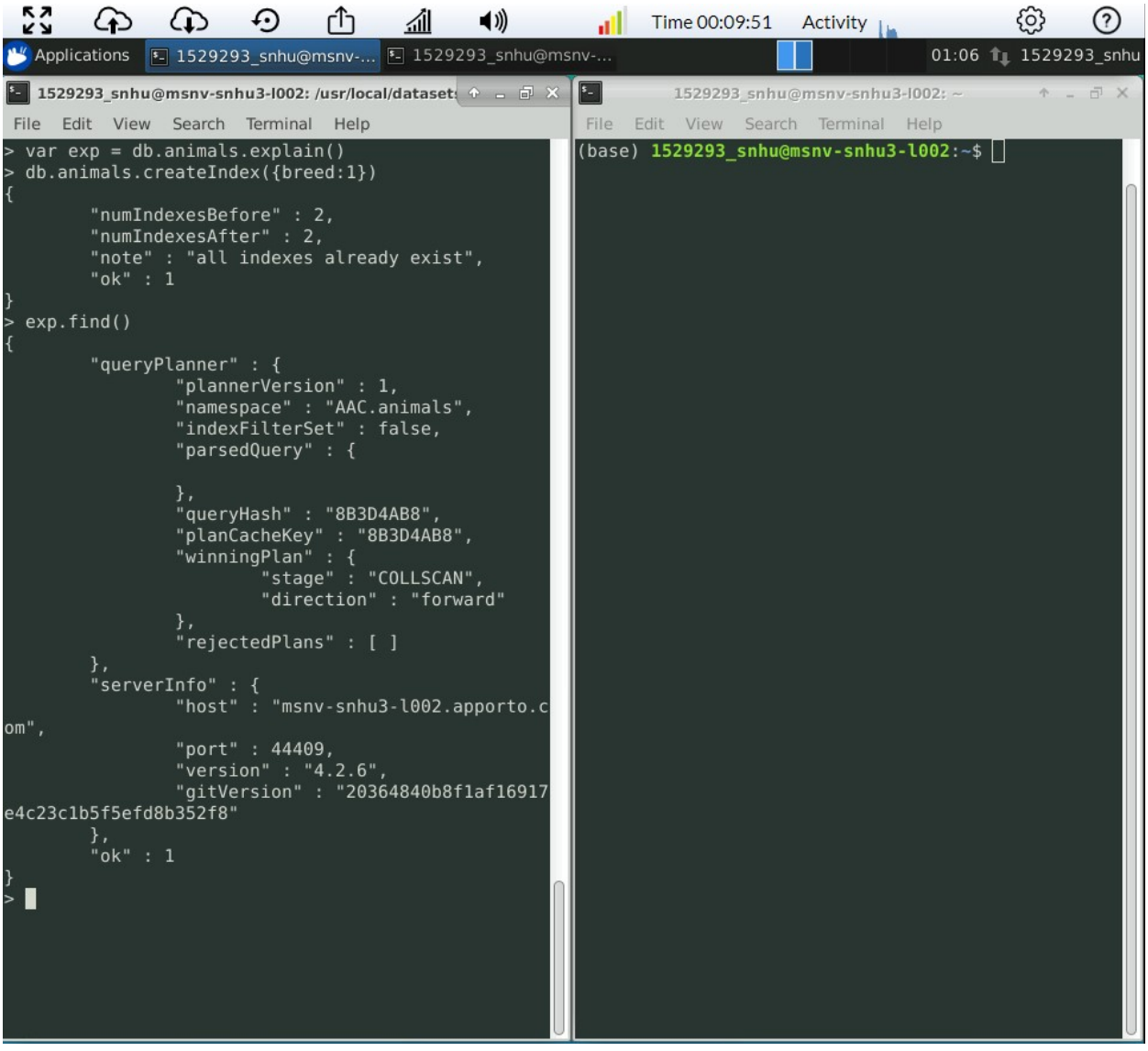
DATABASE INDEXING AND AUTHENTICATION

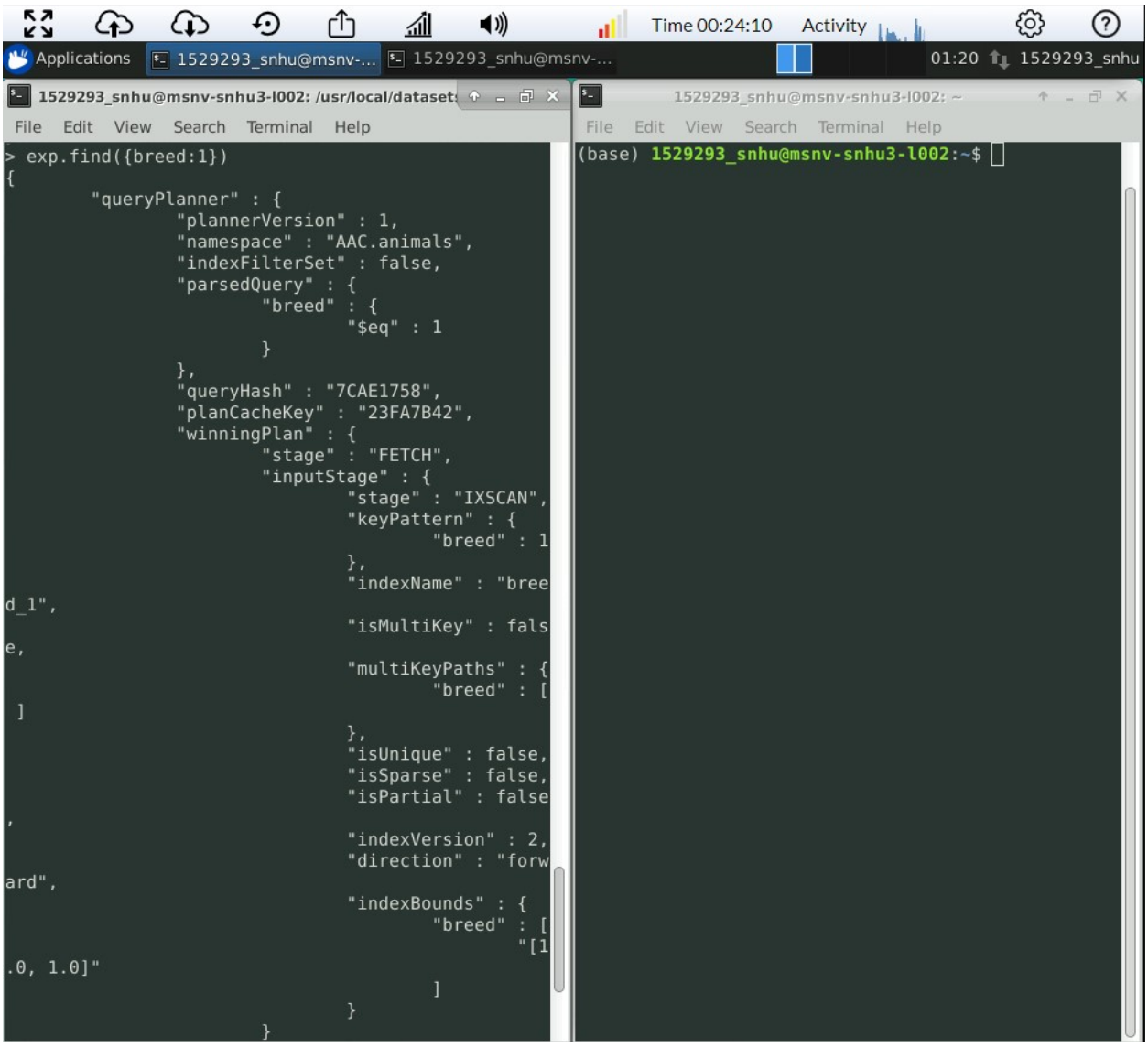
PART 1: IMPORTING AND INDEXING A DATA SET

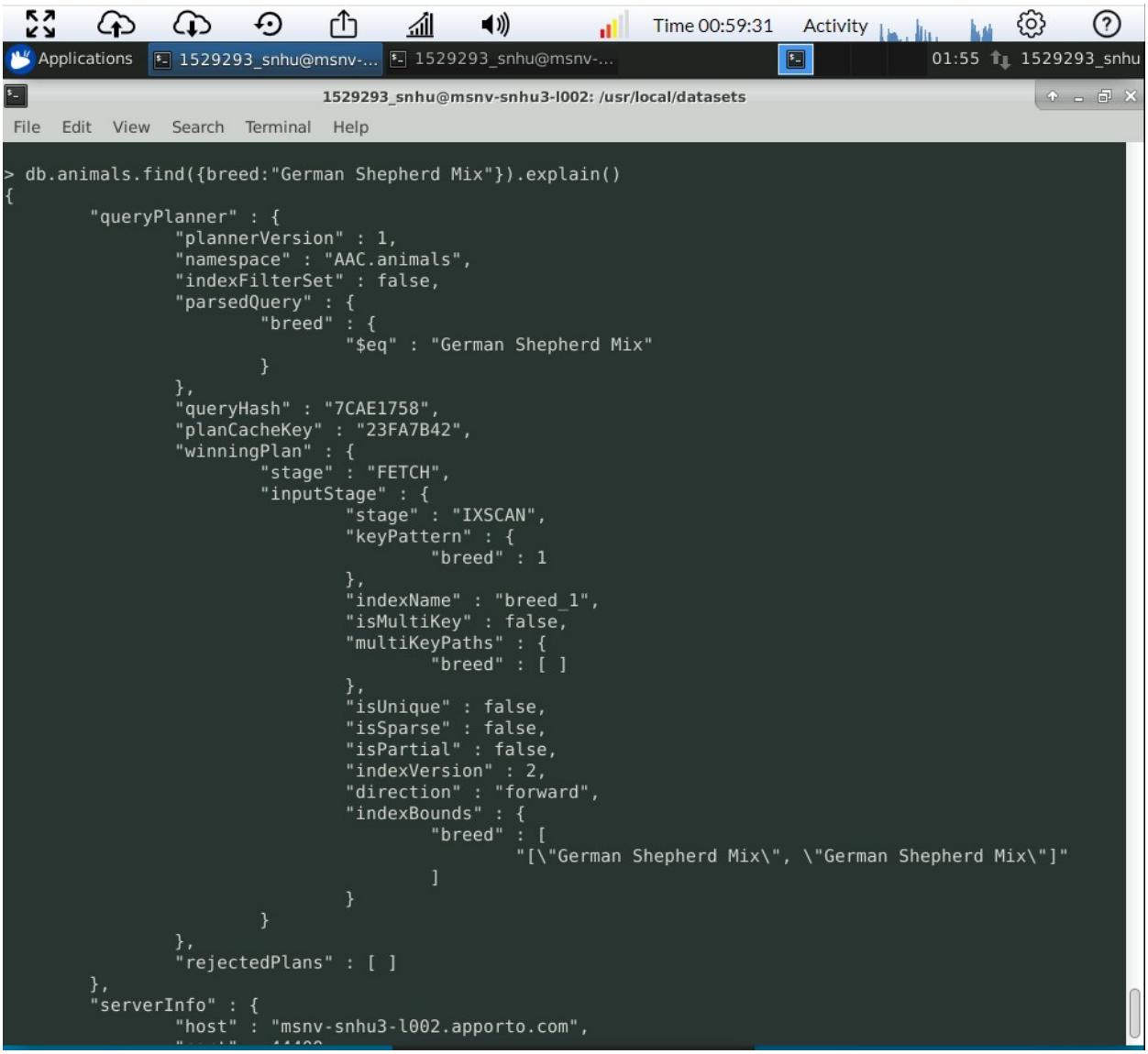
1.) IMPORT AAC_SHELTER_OUTCOMES.CSV FILE USING THE APPROPRIATE MONGODB IMPORT TOOL.

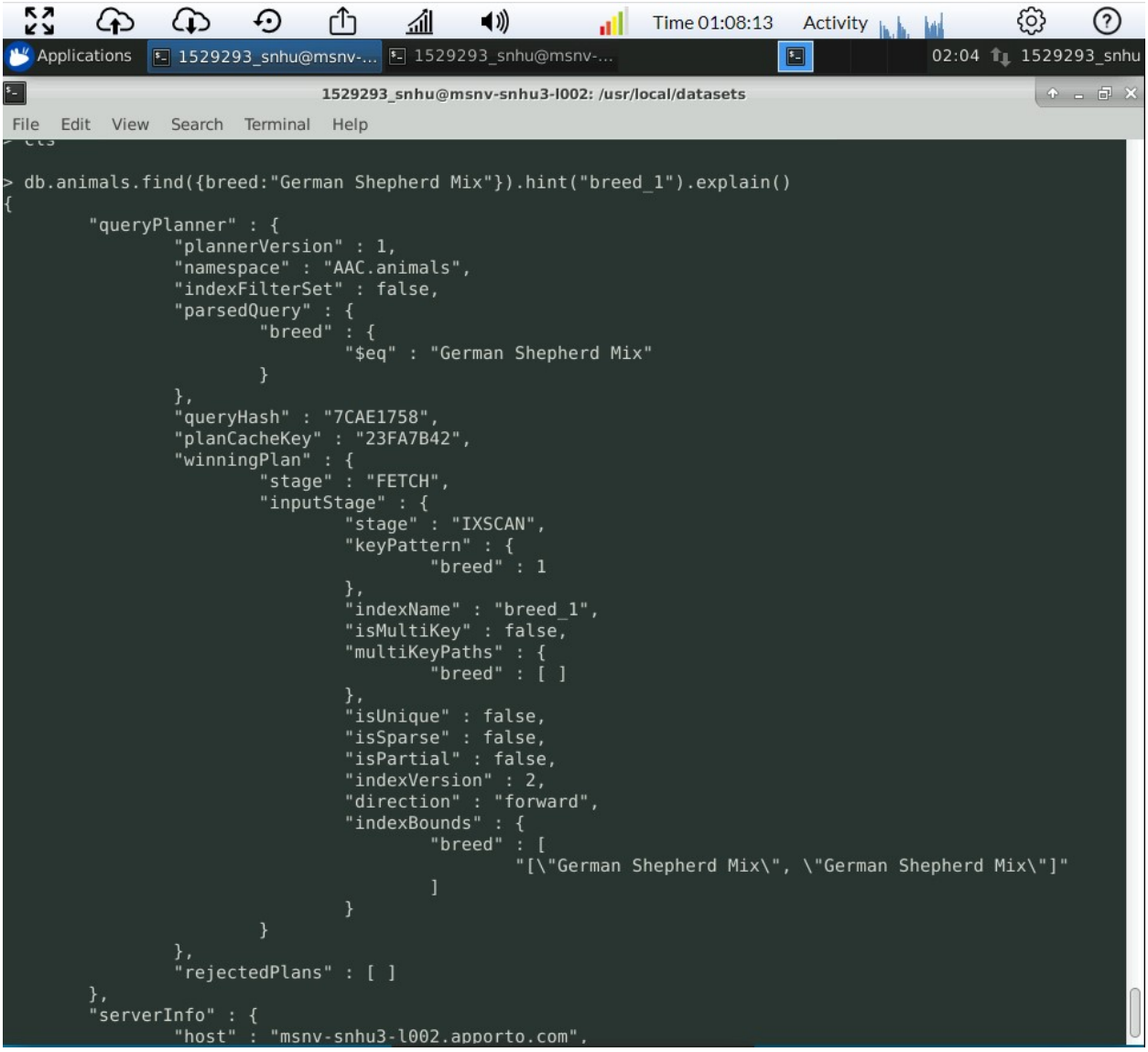


2.) CREATE A SIMPLE INDEX ON THE KEY “BREED” AND SHOW AN EXAMPLE QUERY THAT WILL USE THIS INDEX AND VERIFY WITH THE EXPLAIN FUNCTION.

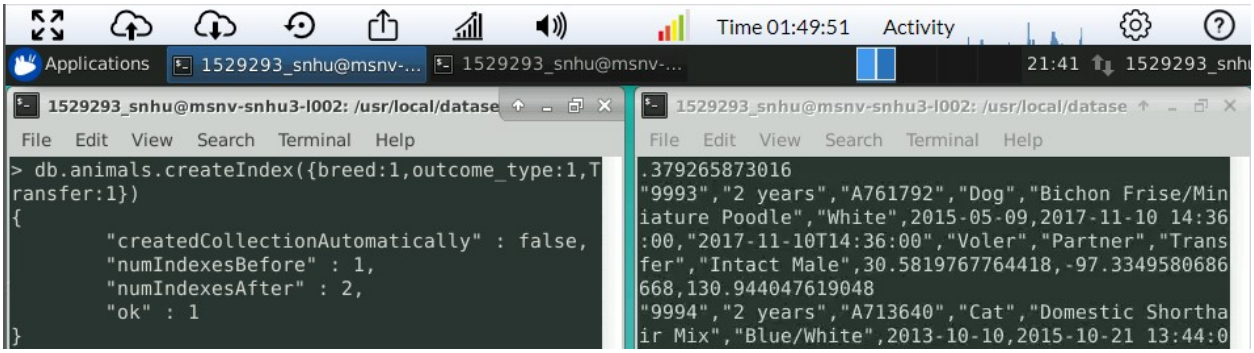


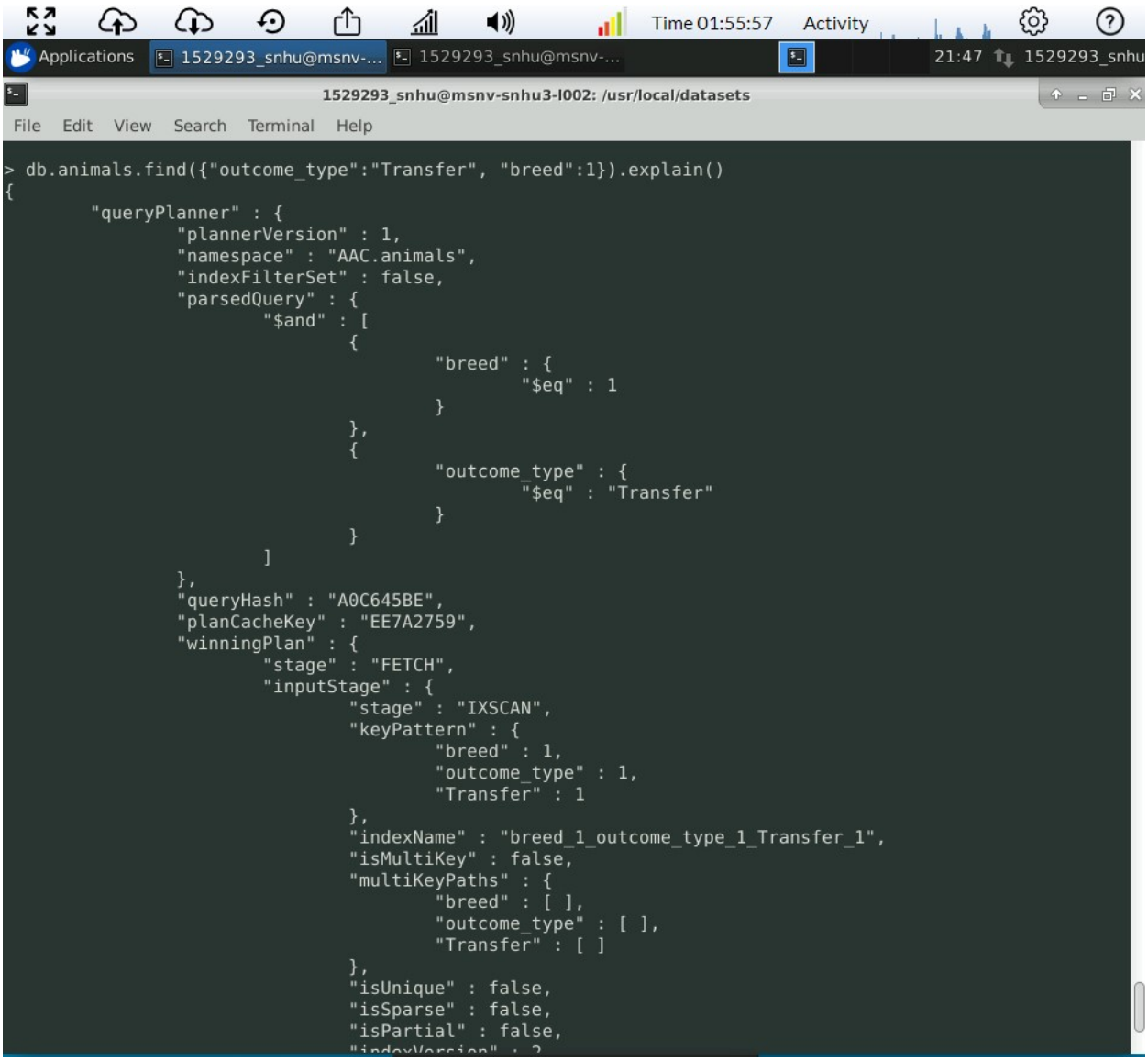

Time 00:24:10
Activity
Applications
1529293_snhu@msnv-...
1529293_snhu@msnv-...
01:20
1529293_snhu
1529293_snhu@msnv-snhu3-l002: /usr/local/dataset
File Edit View Search Terminal Help
> exp.find({breed:1})
{
"queryPlanner" : {
"plannerVersion" : 1,
"namespace" : "AAC.animals",
"indexFilterSet" : false,
"parsedQuery" : {
"breed" : {
"$eq" : 1
}
},
"queryHash" : "7CAE1758",
"planCacheKey" : "23FA7B42",
"winningPlan" : {
"stage" : "FETCH",
"inputStage" : {
"stage" : "IXSCAN",
"keyPattern" : {
"breed" : 1
},
"indexName" : "bree
d_1",
"isMultiKey" : fals
e,
"multiKeyPaths" : {
"breed" : [
]
},
"isUnique" : false,
"isSparse" : false,
"isPartial" : false
,
"indexVersion" : 2,
"direction" : "forw
ard",
"indexBounds" : {
"breed" : [
"[1
.0, 1.0]"
]
}
}
1529293_snhu@msnv-snhu3-l002: ~
File Edit View Search Terminal Help
(base) 1529293_snhu@msnv-snhu3-l002:~$

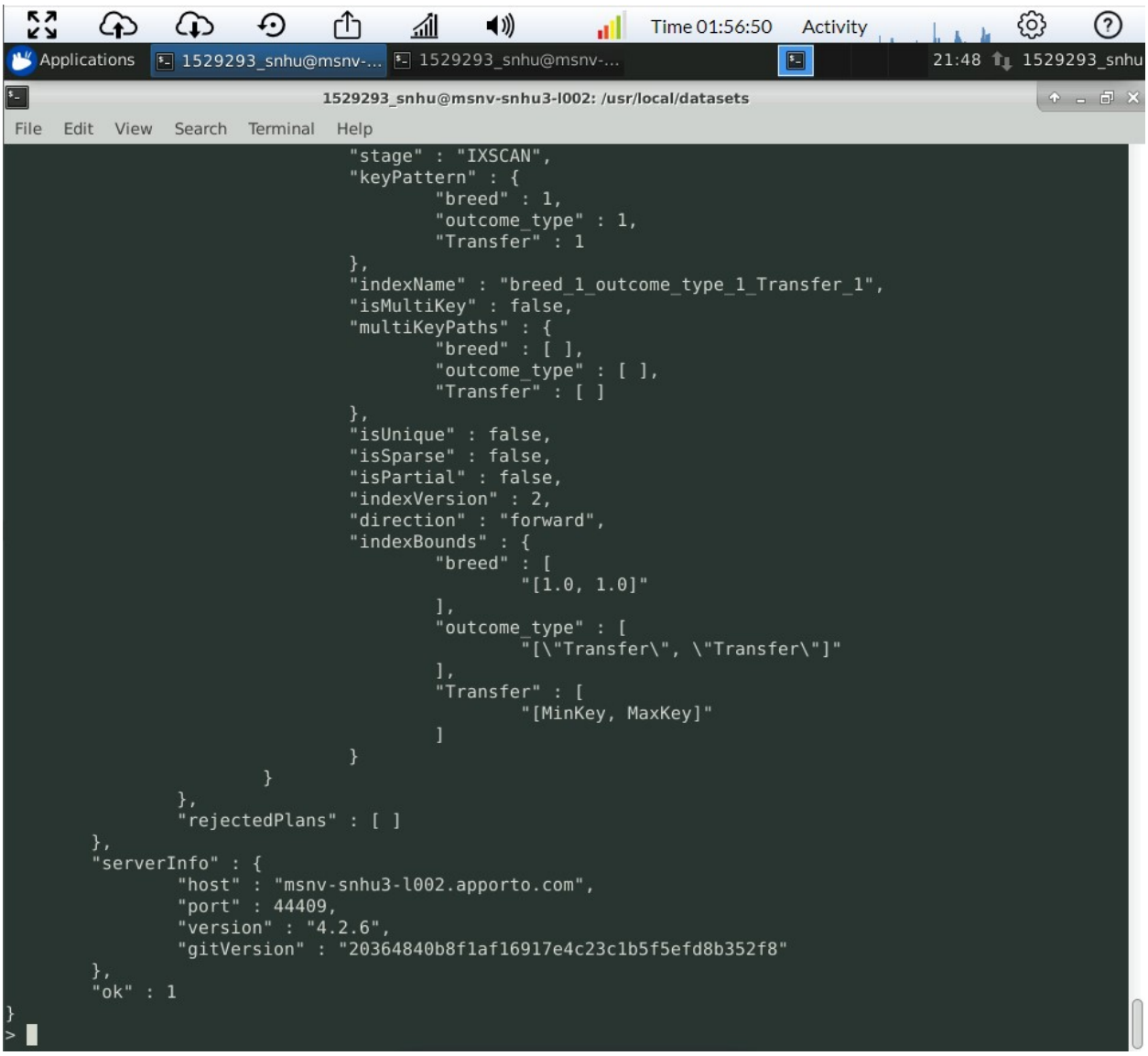

Time 00:59:31
Activity
Applications
1529293_snhu@msnv-...
1529293_snhu@msnv-...
01:55
1529293_snhu
1529293_snhu@msnv-snhu3-l002: /usr/local/datasets
File Edit View Search Terminal Help
> db.animals.find({breed:"German Shepherd Mix"}).explain()
{
"queryPlanner" : {
"plannerVersion" : 1,
"namespace" : "AAC.animals",
"indexFilterSet" : false,
"parsedQuery" : {
"breed" : {
"$eq" : "German Shepherd Mix"
}
},
"queryHash" : "7CAE1758",
"planCacheKey" : "23FA7B42",
"winningPlan" : {
"stage" : "FETCH",
"inputStage" : {
"stage" : "IXSCAN",
"keyPattern" : {
"breed" : 1
},
"indexName" : "breed_1",
"isMultiKey" : false,
"multiKeyPaths" : {
"breed" : [ ]
},
"isUnique" : false,
"isSparse" : false,
"isPartial" : false,
"indexVersion" : 2,
"direction" : "forward",
"indexBounds" : {
"breed" : [
"[\"German Shepherd Mix\", \"German Shepherd Mix\"]"
]
}
}
},
"rejectedPlans" : [ ]
},
"serverInfo" : {
"host" : "msnv-snhu3-l002.apporto.com",



3.) CREATE A COMPOUND INDEX, SHOW AN EXAMPLE QUERY THAT WILL USE THIS COMPOUND INDEX AND CONFIRM WITH THE EXPLAIN FUNCTION.




Time 01:55:57
Activity
Applications
1529293_snhu@msnv-...
1529293_snhu@msnv-...
21:47
1529293_snhu
1529293_snhu@msnv-snhu3-l002: /usr/local/datasets
File Edit View Search Terminal Help
> db.animals.find({"outcome_type":"Transfer", "breed":1}).explain()
{
"queryPlanner" : {
"plannerVersion" : 1,
"namespace" : "AAC.animals",
"indexFilterSet" : false,
"parsedQuery" : {
"$and" : [
{
"breed" : {
"$eq" : 1
}
},
{
"outcome_type" : {
"$eq" : "Transfer"
}
}
]
},
"queryHash" : "A0C645BE",
"planCacheKey" : "EE7A2759",
"winningPlan" : {
"stage" : "FETCH",
"inputStage" : {
"stage" : "IXSCAN",
"keyPattern" : {
"breed" : 1,
"outcome_type" : 1,
"Transfer" : 1
},
"indexName" : "breed_1_outcome_type_1_Transfer_1",
"isMultiKey" : false,
"multiKeyPaths" : {
"breed" : [ ],
"outcome_type" : [ ],
"Transfer" : [ ]
},
"isUnique" : false,
"isSparse" : false,
"isPartial" : false,



PART 2: USER AUTHENTICATION

1.) CREATE AN ADMINISTRATOR ACCOUNT IN THE MONGO SHELL

a. I had previously seen the announcement and created an admin user before this week. I did so by running the mongodb server without authentication by /usr/local/bin/mongod_ctl start-noauth . then entering the mongo shell with

mongo. Once in the mongo command prompt I used the command “use admin”, then db.createUser({ user:”admin”, pwd:passwordPrompt(), roles: [{role”userAdminAnyDatabase”,db:”admin”},”readWriteAnyDatabase”]})

2.) ENABLE USER AUTHENTICATION FOR THE DATABASE

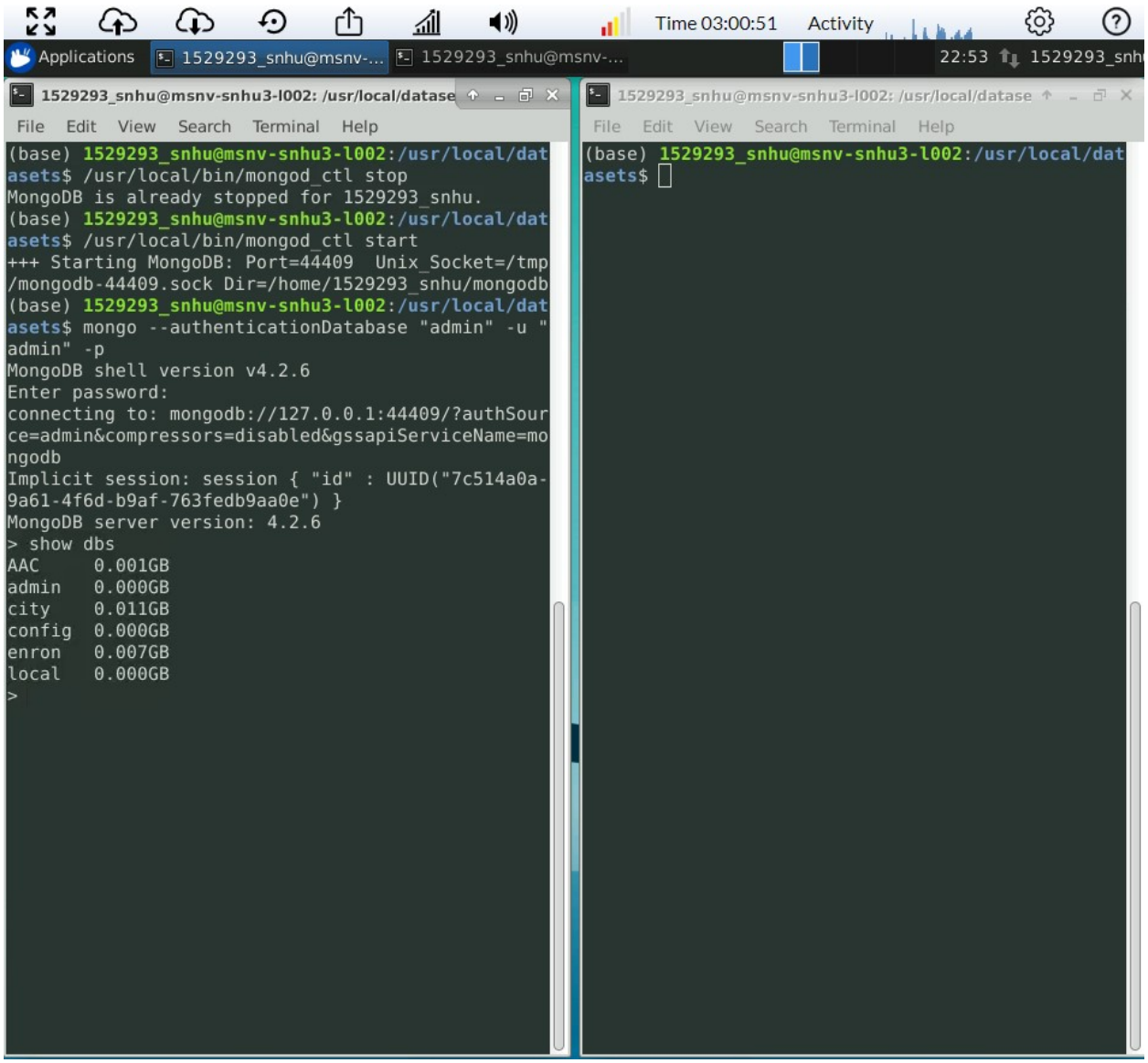
a. Once I created an admin account I exited the shell with the “exit” command. I then stopped mongo with /usr/local/bin/mongod_ctl stop. I restarted the mongo shell with authentication using /usr/local/bin/mongod_ctl start. I then ran mongo with my “admin” account by using the command mongo –authenticationDatabase “admin” -u “admin” -p, entered my password and went on to create a user account.

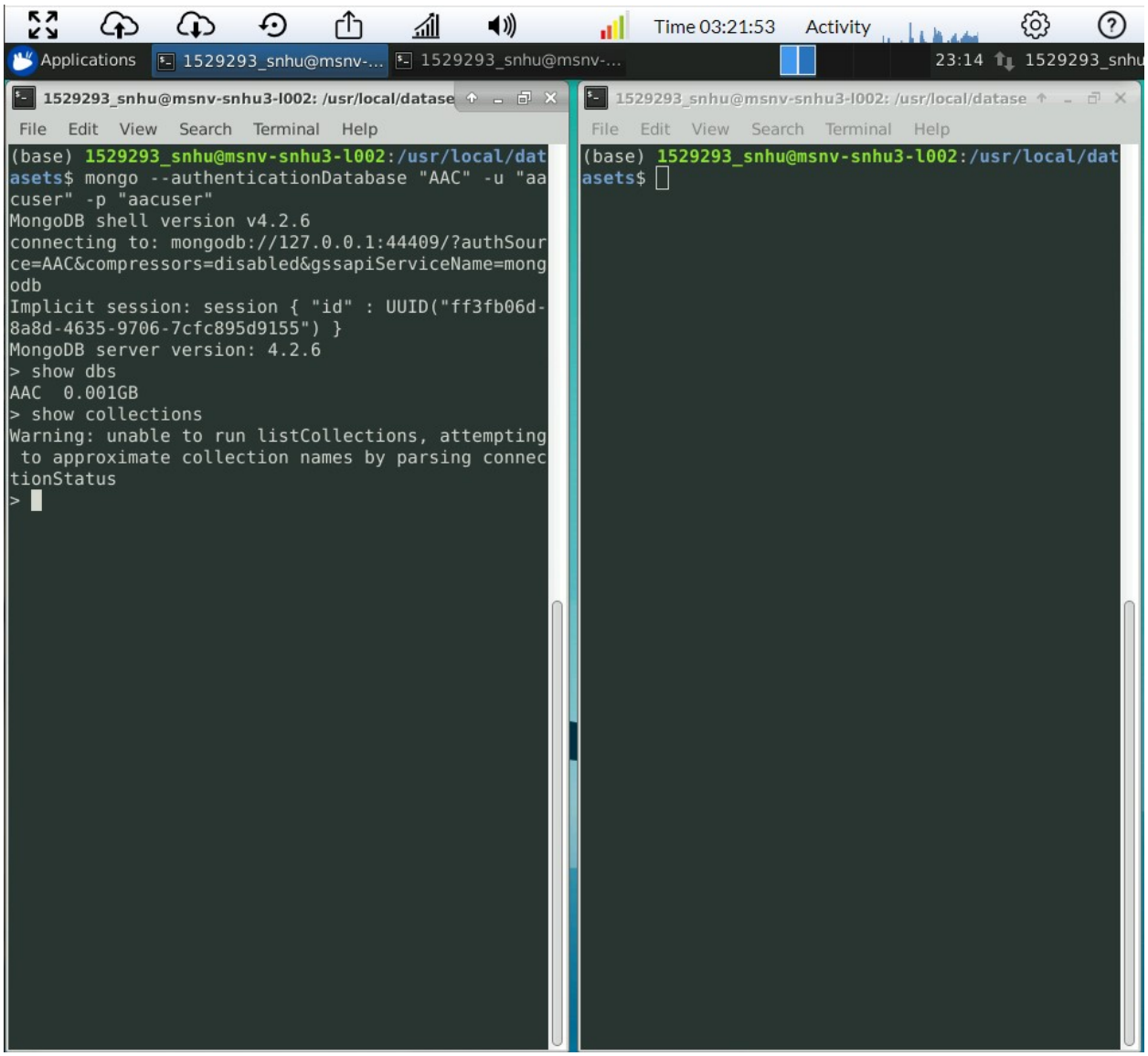
3.) CREATE A NEW USER ACCOUNT CALLED “AACUSER”

a. I entered the command “use AAC” then db.createUser({user:”aacuser”,pwd:passwordPrompt(),roles[{role:”readWrite”,db:”AAC”}]})

4.) TAKE A SCREENSHOT OF YOUR LOGIN PROCESS

Here are the screenshots I have of the login, I had forgot the password I originally created for the aacuser so I used the documentation to figure out how to change the password for a user by logging into the admin user account and using the command db.changeUserPassword(“aacuser”,passwordPrompt()) and entering a new password.


Time 03:00:51
Activity
Applications
1529293_snhu@msnv-...
1529293_snhu@msnv-...
22:53
1529293_snhu@msnv-snhu3-l002: /usr/local/datase
File Edit View Search Terminal Help
(base) 1529293_snhu@msnv-snhu3-l002:/usr/local/datasets$ /usr/local/bin/mongod_ctl stop
MongoDB is already stopped for 1529293_snhu.
(base) 1529293_snhu@msnv-snhu3-l002:/usr/local/datasets$ /usr/local/bin/mongod_ctl start
+++ Starting MongoDB: Port=44409 Unix_Socket=/tmp/mongodb-44409.sock Dir=/home/1529293_snhu/mongodb
(base) 1529293_snhu@msnv-snhu3-l002:/usr/local/datasets$ mongo --authenticationDatabase "admin" -u "admin" -p
MongoDB shell version v4.2.6
Enter password:
connecting to: mongodb://127.0.0.1:44409/?authSource=admin&compressors=disabled&gssapiServiceName=mongodb
Implicit session: session { "id" : UUID("7c514a0a-9a61-4f6d-b9af-763fedb9aa0e") }
MongoDB server version: 4.2.6
> show dbs
AAC 0.001GB
admin 0.000GB
city 0.011GB
config 0.000GB
enron 0.007GB
local 0.000GB
>
1529293_snhu@msnv-snhu3-l002: /usr/local/datase
File Edit View Search Terminal Help
(base) 1529293_snhu@msnv-snhu3-l002:/usr/local/datasets$


Time 03:21:53
Activity
Applications
1529293_snhu@msnv-...
1529293_snhu@msnv-...
23:14
1529293_snhu
1529293_snhu@msnv-snhu3-l002: /usr/local/datase
File Edit View Search Terminal Help
(base) 1529293_snhu@msnv-snhu3-l002:/usr/local/datasets$ mongo --authenticationDatabase "AAC" -u "aacuser" -p "aacuser"
MongoDB shell version v4.2.6
connecting to: mongodb://127.0.0.1:44409/?authSource=AAC&compressors=disabled&gssapiServiceName=mongodb
Implicit session: session { "id" : UUID("ff3fb06d-8a8d-4635-9706-7cfc895d9155") }
MongoDB server version: 4.2.6
> show dbs
AAC 0.001GB
> show collections
Warning: unable to run listCollections, attempting to approximate collection names by parsing connectionStatus
>
1529293_snhu@msnv-snhu3-l002: /usr/local/datase
File Edit View Search Terminal Help
(base) 1529293_snhu@msnv-snhu3-l002:/usr/local/datasets$