CS595—Big Data Technologies

Assignment #11

Worth: 12 points

Due by the start of the next class period

Assignments should be uploaded via the Blackboard portal.

Set Up:

You will use and instance of the MongoDB database that I have set up for you in the Azure cloud. Note, as I am paying for this myself, I will only keep the database available until next Thursday.

To access the database do the following:

a) Access the databaseVM via ssh…

   ssh –p 22 mdb1@65.52.219.66

b) When prompted for a password use…

   Unix79127912

c) Once logged in to the MongoDB VM create a working directory for yourself. The name of the directory should be your IIT id (mine is A20155104): mkdir <IITid>

d) This will be your working directory into which you will place your command files

e) Open a second terminal window and ssh into the VM again as above.

f) Change to the working directory you created previously: cd <IIT id>

g) Start the MongoDB shell by entering the following…

   mongo admin –username root –password Unix79127912

h) Create a database and give it your IIT id. To do this just enter the following at the mongodb shell: use <IIT ID>. This will set the shell variable 'db' to this new database.

i) Load the collection unicorns with data by executing the script ex2.js which is located in the jrosen subdirectory as follows:

   load("/home/mdb1/jrosen/ex3.js")

j) Confirm this has all worked by executing the following command

   db.unicorns.find();

Look at the content of the script file to see how each unicorn is described.

Exercise 1) (2 points)

Write a command that finds all unicorns having weight less than 500 pounds. Include the code you executed and some sample output as the result of this exercise.

```
> db.unicorns.find({"weight":{$lt:500}});
```

```
> db.unicorns.find({"weight":{$lt:500}});
{ "_id" : ObjectId("5a1e0136a8e7a18417bbd850"), "name" : "Aurora", "dob" : ISODa
te("1991-01-24T13:00:00Z"), "loves" : [ "carrot", "grape" ], "weight" : 450, "ge
nder" : "f", "vampires" : 43 }
{ "_id" : ObjectId("5a1e0136a8e7a18417bbd856"), "name" : "Raleigh", "dob" : ISOD
ate("2005-05-03T00:57:00Z"), "loves" : [ "apple", "sugar" ], "weight" : 421, "ge
nder" : "m", "vampires" : 2 }
```

Exercise 2) (2 points)

Write a command that finds all unicorns who love apples. Hint, search for "apple". Include the code you executed and some sample output as the result of this exercise.

```
> db.unicorns.find({"loves":"apple"});
```

```
> db.unicorns.find({"loves":"apple"});
{ "_id" : ObjectId("5a1e0136a8e7a18417bbd852"), "name" : "Roooooodles", "dob" :
ISODate("1979-08-18T18:44:00Z"), "loves" : [ "apple" ], "weight" : 575, "gender"
 : "m", "vampires" : 99 }
{ "_id" : ObjectId("5a1e0136a8e7a18417bbd853"), "name" : "Solnara", "dob" : ISOD
ate("1985-07-04T02:01:00Z"), "loves" : [ "apple", "carrot", "chocolate" ], "weig
ht" : 550, "gender" : "f", "vampires" : 80 }
{ "_id" : ObjectId("5a1e0136a8e7a18417bbd856"), "name" : "Raleigh", "dob" : ISOD
ate("2005-05-03T00:57:00Z"), "loves" : [ "apple", "sugar" ], "weight" : 421, "ge
nder" : "m", "vampires" : 2 }
{ "_id" : ObjectId("5a1e0136a8e7a18417bbd857"), "name" : "Leia", "dob" : ISODate
("2001-10-08T14:53:00Z"), "loves" : [ "apple", "watermelon" ], "weight" : 601, "
gender" : "f", "vampires" : 33 }
{ "_id" : ObjectId("5a1e0136a8e7a18417bbd858"), "name" : "Pilot", "dob" : ISODat
e("1997-03-01T05:03:00Z"), "loves" : [ "apple", "watermelon" ], "weight" : 650,
"gender" : "m", "vampires" : 54 }
>
```

Exercise 3) (2 points)

Write a command that adds a unicorn with the following attributes to the collection:

Attribute	Value(s)
name	Malini
dob (Data of Birth)	11/03/2008
loves	Pears and grapes
weight	450
Gender	F
vampires	23
Horns	1

Include the code you executed to insert this unicorn into the collection along with the output of a find command showing it is in the collection.

```
> db.unicorns.insertOne({ name: "Malini", dob: new
Date("2008-03-11"), loves: ["Pears", "grapes"],weight:
450, gender: "F", vampires: 23 , horns: 1 });
{
    "acknowledged" : true,
    "insertedId" : ObjectId("5a1e02c0a8e7a18417bbd85b")
}
>
```

```
> db.unicorns.find({"name":"Malini"});
{ "_id" : ObjectId("5a1e02c0a8e7a18417bbd85b"), "name" : "Malini", "dob" : ISODa
te("2008-03-11T00:00:00Z"), "loves" : [ "Pears", "grapes" ], "weight" : 450, "ge
nder" : "F", "vampires" : 23, "horns" : 1 }
>
```

Exercise 4) (4 points)

Write a command that updates the above record to add apricots to the list of things Malini loves. Include the code you executed and some sample output showing the addition.

```
> db.unicorns.updateOne({"name":"Malini"}, {$set:
{"loves" : ["pear", "grape", "apricot"]}});
{ "acknowledged" : true, "matchedCount" : 1,
"modifiedCount" : 1 }
>
```

```
> db.unicorns.find({"name":"Malini"});
{ "_id" : ObjectId("5a1e02c0a8e7a18417bbd85b"), "name" : "Malini", "dob" : ISODa
te("2008-03-11T00:00:00Z"), "loves" : [ "pear", "grape", "apricot" ], "weight" :
 450, "gender" : "F", "vampires" : 23, "horns" : 1 }
>
```

Exercise 5) (2 points)

Write a command that deletes all unicorns with weight more than 600 pounds. Include the code you executed and some sample output as the result of this exercise.

```
> db.unicorns.deleteMany({"weight": {$gt:600}})
{ "acknowledged" : true, "deletedCount" : 6 }
>
```