CSP554—Big Data Technologies

Assignment #13

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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. Note, enter the command manually rather than cutting or pasting them which sometimes picks up non-printing characters.

```
  *** Welcome to the Bitnami MongoDB 3.4.10-1 ***
  *** Service accessible using hostname 65.52.219.66 port  ***
  *** Documentation:  https://docs.bitnami.com/azure/infrastructure/mongodb/ ***
  ***                 https://docs.bitnami.com/azure/ ***
  *** Bitnami Forums: https://community.bitnami.com/ ***
Last login: Thu May  2 03:04:06 2019 from 207.237.207.206
bitnami@mdb1:~$ cd A20424020
bitnami@mdb1:~/A20424020$ mongo admin --username root --password Unix79127912
MongoDB shell version v3.4.10
connecting to: mongodb:///opt/bitnami/mongodb/tmp/mongodb-27017.sock/admin
MongoDB server version: 3.4.10
Server has startup warnings:
2019-05-02T00:46:54.176+0000 I STORAGE  [initandlisten]
2019-05-02T00:46:54.176+0000 I STORAGE  [initandlisten] ** WARNING: Using the XF
S filesystem is strongly recommended with the WiredTiger storage engine
2019-05-02T00:46:54.176+0000 I STORAGE  [initandlisten] **          See http://d
ochub.mongodb.org/core/prodnotes-filesystem
> db
admin
> use A20424020
switched to db A20424020
> db
A20424020
```

```
> load("/home/mdb1/jrosen/ex3.js")
true
> db.unicorns.find();
{ "_id" : ObjectId("5cca5f70ab95c1a868092f09"), "name" : "Horny", "dob" : ISODat
e("1992-03-13T07:47:00Z"), "loves" : [ "carrot", "papaya" ], "weight" : 600, "ge
nder" : "m", "vampires" : 63 }
{ "_id" : ObjectId("5cca5f71ab95c1a868092f0a"), "name" : "Aurora", "dob" : ISODa
te("1991-01-24T13:00:00Z"), "loves" : [ "carrot", "grape" ], "weight" : 450, "ge
nder" : "f", "vampires" : 43 }
{ "_id" : ObjectId("5cca5f71ab95c1a868092f0b"), "name" : "Unicrom", "dob" : ISOD
ate("1973-02-09T22:10:00Z"), "loves" : [ "energon", "redbull" ], "weight" : 984,
 "gender" : "m", "vampires" : 182 }
{ "_id" : ObjectId("5cca5f71ab95c1a868092f0c"), "name" : "Roooooodles", "dob" :
ISODate("1979-08-18T18:44:00Z"), "loves" : [ "apple" ], "weight" : 575, "gender"
 : "m", "vampires" : 99 }
{ "_id" : ObjectId("5cca5f71ab95c1a868092f0d"), "name" : "Solnara", "dob" : ISOD
ate("1985-07-04T02:01:00Z"), "loves" : [ "apple", "carrot", "chocolate" ], "weig
ht" : 550, "gender" : "f", "vampires" : 80 }
```

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 }});
{ "_id" : ObjectId("5cca5f71ab95c1a868092f0a"), "name" : "Aurora", "dob" : ISODat
e("1991-01-24T13:00:00Z"), "loves" : [ "carrot", "grape" ], "weight" : 450, "gend
er" : "f", "vampires" : 43 }
{ "_id" : ObjectId("5cca5f71ab95c1a868092f10"), "name" : "Raleigh", "dob" : ISODa
te("2005-05-03T00:57:00Z"), "loves" : [ "apple", "sugar" ], "weight" : 421, "gend
er" : "m", "vampires" : 2 }
```

Command:

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

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" });
{ "_id" : ObjectId("5cca5f71ab95c1a868092f0c"), "name" : "Roooooodles", "dob" : I
SODate("1979-08-18T18:44:00Z"), "loves" : [ "apple" ], "weight" : 575, "gender" :
 "m", "vampires" : 99 }
{ "_id" : ObjectId("5cca5f71ab95c1a868092f0d"), "name" : "Solnara", "dob" : ISODa
te("1985-07-04T02:01:00Z"), "loves" : [ "apple", "carrot", "chocolate" ], "weight
" : 550, "gender" : "f", "vampires" : 80 }
{ "_id" : ObjectId("5cca5f71ab95c1a868092f10"), "name" : "Raleigh", "dob" : ISODa
te("2005-05-03T00:57:00Z"), "loves" : [ "apple", "sugar" ], "weight" : 421, "gend
er" : "m", "vampires" : 2 }
{ "_id" : ObjectId("5cca5f71ab95c1a868092f11"), "name" : "Leia", "dob" : ISODate(
"2001-10-08T14:53:00Z"), "loves" : [ "apple", "watermelon" ], "weight" : 601, "ge
nder" : "f", "vampires" : 33 }
{ "_id" : ObjectId("5cca5f71ab95c1a868092f12"), "name" : "Pilot", "dob" : ISODate
("1997-03-01T05:03:00Z"), "loves" : [ "apple", "watermelon" ], "weight" : 650, "g
ender" : "m", "vampires" : 54 }
>
```

Command:

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

Exercise 3) (2 points)

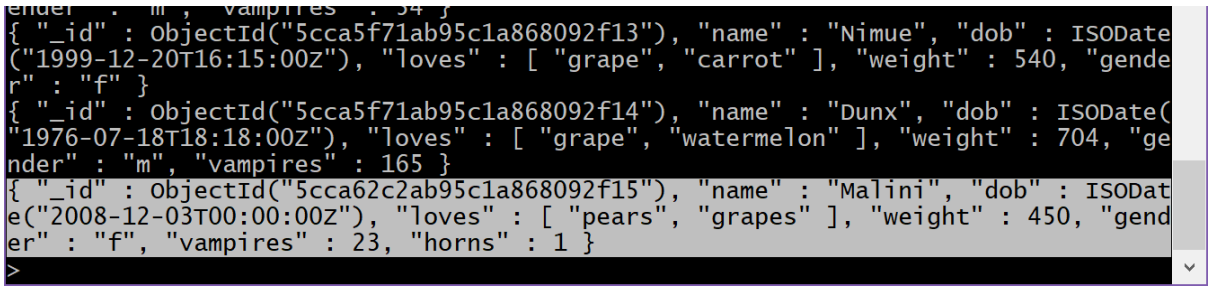
Write a command that adds a unicorn with the following attributes to the collection. Note dob means "Date of Birth."

Attribute	Value(s)
name	Malini
dob	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, 11, 03),
... loves: ['pears','grapes'],
... weight:450,
... gender:'f',
... vampires:23,
... horns:1});
{
        "acknowledged" : true,
        "insertedId" : ObjectId("5cca62c2ab95c1a868092f15")
}
> db.unicorns.find();
{ "_id" : ObjectId("5cca5f70ab95c1a868092f09"), "name" : "Horny", "dob" : ISODate
("1992-03-13T07:47:00Z"), "loves" : [ "carrot", "papaya" ], "weight" : 600, "gend
er" : "m", "vampires" : 63 }
{ "_id" : ObjectId("5cca5f71ab95c1a868092f0a"), "name" : "Aurora", "dob" : ISODat
e("1991-01-24T13:00:00Z"), "loves" : [ "carrot", "grape" ], "weight" : 450, "gend
er" : "f", "vampires" : 43 }
{ "_id" : ObjectId("5cca5f71ab95c1a868092f0b"), "name" : "Unicrom", "dob" : ISODa
te("1973-02-09T22:10:00Z"), "loves" : [ "energon", "redbull" ], "weight" : 984, "
gender" : "m", "vampires" : 182 }
{ "_id" : ObjectId("5cca5f71ab95c1a868092f0c"), "name" : "Roooooodles", "dob" : I
SODate("1979-08-18T18:44:00Z"), "loves" : [ "apple" ], "weight" : 575, "gender" :
 "m", "vampires" : 99 }
```



```
{ "_id" : ObjectId("5cca5f71ab95c1a868092f13"), "name" : "Nimue", "dob" : ISODate
("1999-12-20T16:15:00Z"), "loves" : [ "grape", "carrot" ], "weight" : 540, "gende
r" : "f" }
{ "_id" : ObjectId("5cca5f71ab95c1a868092f14"), "name" : "Dunx", "dob" : ISODate(
"1976-07-18T18:18:00Z"), "loves" : [ "grape", "watermelon" ], "weight" : 704, "ge
nder" : "m", "vampires" : 165 }
{ "_id" : ObjectId("5cca62c2ab95c1a868092f15"), "name" : "Malini", "dob" : ISODat
e("2008-12-03T00:00:00Z"), "loves" : [ "pears", "grapes" ], "weight" : 450, "gend
er" : "f", "vampires" : 23, "horns" : 1 }
>
```

Command:

```
db.unicorns.insertOne({name: 'Malini',
dob: new Date(2008, 11, 03),
loves: ['pears', 'grapes'],
weight: 450,
gender: 'f',
vampires: 23,
horns: 1});

db.unicorns.find();
```

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" }, { $push:{ loves:'apricots' }} );
{ "acknowledged" : true, "matchedCount" : 1, "modifiedCount" : 1 }
> db.unicorns.find();
{ "_id" : ObjectId("5cca5f70ab95c1a868092f09"), "name" : "Horny", "dob" : ISODate
("1992-03-13T07:47:00Z"), "loves" : [ "carrot", "papaya" ], "weight" : 600, "gend
er" : "m", "vampires" : 63 }
{ "_id" : ObjectId("5cca5f71ab95c1a868092f0a"), "name" : "Aurora", "dob" : ISODat
e("1991-01-24T13:00:00Z"), "loves" : [ "carrot", "grape" ], "weight" : 450, "gend
er" : "f", "vampires" : 43 }
{ "_id" : ObjectId("5cca5f71ab95c1a868092f0b"), "name" : "Unicrom", "dob" : ISODa
te("1973-02-09T22:10:00Z"), "loves" : [ "energon", "redbull" ], "weight" : 984, "
gender" : "m", "vampires" : 182 }
{ "_id" : ObjectId("5cca5f71ab95c1a868092f0c"), "name" : "Roooooodles", "dob" : I
SODate("1979-08-18T18:44:00Z"), "loves" : [ "apple" ], "weight" : 575, "gender" :
 "m", "vampires" : 99 }
{ "_id" : ObjectId("5cca5f71ab95c1a868092f0d"), "name" : "Solnara", "dob" : ISODa
te("1985-07-04T02:01:00Z"), "loves" : [ "apple", "carrot", "chocolate" ], "weight
" : 550, "gender" : "f", "vampires" : 80 }
```

Command:

```
db.unicorns.updateOne(
        { name: "Malini" },
        { $push: { loves: 'apricots' } }
);

db.unicorns.find({ name: "Malini" });
```

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 }
> db.unicorns.find();
{ "_id" : ObjectId("5cca5f70ab95c1a868092f09"), "name" : "Horny", "dob" : ISODate
("1992-03-13T07:47:00Z"), "loves" : [ "carrot", "papaya" ], "weight" : 600, "gend
er" : "m", "vampires" : 63 }
{ "_id" : ObjectId("5cca5f71ab95c1a868092f0a"), "name" : "Aurora", "dob" : ISODat
e("1991-01-24T13:00:00Z"), "loves" : [ "carrot", "grape" ], "weight" : 450, "gend
er" : "f", "vampires" : 43 }
{ "_id" : ObjectId("5cca5f71ab95c1a868092f0c"), "name" : "Roooooodles", "dob" : I
SODate("1979-08-18T18:44:00Z"), "loves" : [ "apple" ], "weight" : 575, "gender" :
 "m", "vampires" : 99 }
{ "_id" : ObjectId("5cca5f71ab95c1a868092f0d"), "name" : "Solnara", "dob" : ISODa
te("1985-07-04T02:01:00Z"), "loves" : [ "apple", "carrot", "chocolate" ], "weight
" : 550, "gender" : "f", "vampires" : 80 }
{ "_id" : ObjectId("5cca5f71ab95c1a868092f10"), "name" : "Raleigh", "dob" : ISODa
te("2005-05-03T00:57:00Z"), "loves" : [ "apple", "sugar" ], "weight" : 421, "gend
er" : "m", "vampires" : 2 }
```

Command:

```
db.unicorns.deleteMany({ weight: { $gt: 600 }});

db.unicorns.find();
```