Lab 2

Task 1

Please use the following command to connect to the class Atlas cluster. You should issue this command in the cmd shell, the linux Terminal application, or another command-line interface of your choice.

```
mongo
"mongodb://cluster0-shard-00-00-jxeqq.mongodb.net:27017,cluster0-shard-00-01-jxeqq.mongodb.net:27017,cluster0-shard-00-02-jxeqq.mongodb.net:27017/test?replicaSet=Cluster0-shard-0"
--authenticationDatabase admin --ssl --username m001-student
--password m001-mongodb-basics
```

Task 2

Creating Atlas free tier cluster from https://www.mongodb.com/cloud/atlas

1. Go to https://cloud.mongodb.com/links/registerForAtlas and complete the account creation form you see on that page. Please make sure you see the message "Sign up for MongoDB Atlas" at the top of the page.
2. Once you have completed the registration form, in the next page that appears, you will be asked to choose a new group name. We use groups to manage access to Atlas clusters. Please use the name, m001-sandbox.
3. Once you have created a group, in the next page, enter the name, Sandbox for your cluster.
4. On the same page, select the M0 instance size. Note that the "Pricing" now changes to say "$0.00/forever". You do NOT need to enter a credit card to create a free-tier Atlas cluster (M0). They are free.
5. Scroll to the bottom of the cluster-creation form and enter an administrative username and password. Please enter the username, m001-student and the password, m001-mongodb-basics
6. Once you've entered your username and password, click Confirm & Deploy. You will need to wait a few minutes for your cluster to be spun up.
7. Once your cluster is ready, click on the Security tab and then on the IP Whitelist tab. Click the ADD IP ADDRESS button and, then, in the modal that pops up, click ALLOW ACCESS FROM ANYWHERE. Click the CONFIRM button and wait while the security settings for your cluster are configured.

Note that it is not generally recommend opening an Atlas cluster to allow access from anywhere. We do that for this class to minimize network issues that you might run into.

Task 3

Connect to your mongo shell of the cluster you created in Task 2 with the password m001-mongodb-basics

Task 4

How Many Comedies?:

1. If you have not already loaded the video.movieDetails collection, please use the script, loadMovieDetailsDataset.js, provided in the lab folder, "Connecting to an Atlas Cluster from the Mongo Shell" to load the movieDetails collection.
2. Use Compass to connect to your sandbox cluster.
3. In Compass, view the video.movieDetails collection and apply the filter {genres: "Comedy"}.

How many documents in video.movieDetails match the filter {genres: "Comedy"}?

Task 5

Explore the movieDetails collection that you loaded into your Atlas sandbox cluster and then issue a query to answer the following question. How many movies in the movieDetails collection

1. have exactly 2 award wins and 2 award nominations?
2. are rated PG and have exactly 10 award nominations?
3. list just two writers: "Ethan Coen" and "Joel Coen", in that order?
4. list "Family" among its genres?
5. list "Western" second among its genres?

You will find the count() method useful in answering this question using the mongo shell.

Task 6

Using the $in operator, filter the video.movieDetails collection to determine how many movies list "Ethan Coen" or "Joel Coen" among their writers. Your filter should match all movies that list one of the Coen brothers as writers regardless of how many other writers are also listed.

Task 7

Connect to our class Atlas cluster from the mongo shell or Compass and answer the following question. How many documents in the 100YWeatherSmall.data collection do NOT contain the key atmosphericPressureChange.

Task 8

Connect to our class Atlas cluster from the mongo shell or Compass and view the ships.shipwreckscollection. In this collection, watlev describes the water level at the shipwreck site and depth describes how far below sea level the ship rests. How many documents in the ships.shipwrecks collection match either of the following criteria: watlev equal to "always dry" or depth equal to 0.

Task 9

Connect to our class Atlas cluster from the mongo shell or Compass and view the 100YWeatherSmall.data collection. The sections field in this collection identifies supplementary readings available in a given document by a three-character code. How many documents list: "AG1", "MD1", and "OA1" among the codes in their sections array. Your count should include all documents that include these three codes regardless of what other codes are also listed.

Task 10

In the M001 class Atlas cluster you will find a database called results. Within this database you will find two collections: surveys and scores. Documents in the results.surveys collection have the following schema.
{_id: ObjectId("5964e8e5f0df64e7bc2d7373"),
 results: [{product: "abc", score: 10}, {product: "xyz", score: 9}]}

The field called results that has an array as its value. This array contains survey results for products and lists the product name and the survey score for each product.
How many documents in the results.surveys collection contain a score of 7 for the product, "abc"?

Task 11

In the M001 class Atlas cluster you will find a database called results. Within this database you will find two collections: surveys and scores. Documents in the results.scores collection have the following schema.
{"_id": ObjectId("5964e8e5f0df64e7bc2d7373"), "results": [75, 88, 89]}

Connect to our class Atlas cluster from the mongo shell or Compass and view the results.scores collection. How many documents contain at least one score in the results array that is greater than or equal to 70 and less than 80?

Task 12

Please connect to the M001 class Atlas cluster. You may answer this question using either the mongo shell or Compass.
For this question we will use the citibike database.
How many documents in the citibike.trips collection have the key tripduration set to null? Ignore any documents that do not contain the tripduration key.

Task 13

Using the video.movieDetails collection, which of the queries below would produce output documents that resemble the following. Check all that apply.
{ "title" : "P.S. I Love You" }
{ "title" : "Love Actually" }
{ "title" : "Shakespeare in Love" }

NOTE: We are not asking you to consider specifically which documents would be output from the queries below, but rather what fields the output documents would contain.

- db.movieDetails.find({}, {title: 1, _id: 0})
- db.movieDetails.find({}, {title})
- db.movieDetails.find({title: ""}, {title: 1})
- db.movieDetails.find({title: "Muppets from Space"}, {title: 1})
- db.movieDetails.find({}, {title: 1})
- db.movieDetails.find({year: 1964}, {title: 1, _id: 0})

Task 14

Please connect to the M001 class Atlas cluster from the mongo shell or Compass and view the video.movies collection. How many movies match the following criteria?

- The cast includes either of the following actors: "Jack Nicholson", "John Huston".
- The viewerRating is greater than 7.
- The mpaaRating is "R".

Task 15

Try to use the following methods in mongodb shell for doing the below tasks
Methods:

1. find()
2. insertOne(), insertMany()
3. updateOne(), updateMany(), with upsert
4. deleteOne(), deleteMany()

Try to use the CRUD operations while creating the below collections. Also try to understand how and where mongoDB is helping you compared to relational database.

1. Create Products collection based on your knowledge or by taking a look at flipkart.com or amazon.in
2. Create Books collection based on goodreads.