

School of Computing Technologies

ISYS1101/ 1102 Database Applications

Week 9: Tute/Lab – Using MongoDB

Semester 2 2022

1 Objective

The objective of this tute/lab session is to learn how to create a document collection on MongoDB, and learn how to retrieve documents from a document collection.

2 Preparation Tasks

MongoDB is not available on School's servers or on mydesktop.rmit.edu.au. However, we can do all of the activities in these lab sessions and assignment activities on Mongo Atlas, their cloud-based database deployment. Mongo Atlas (<https://www.mongodb.com/cloud/atlas>) fully managed database-as-a-service (DBaaS) offering. It has a free tier that is suited for learning and exploring MongoDB in a sandbox environment.

In this course, you will make full use of this free-tier offering of the MongoDB installation.

In order to use the Mongo Atlas, you are required to have two components:

1. A database deployed on Mongo Atlas
2. Mongo Compass desktop client.

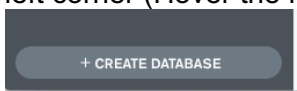
In Week 8 lab, we have outlined in detail, the steps required to get Mongo Atlas configured. If you haven't completed the Week 8, please complete the configuration activities prior to attempting this week's activities.

3 Working with MongoDB


3.1 Creating a small document collection via MongoDB Compass

In this activity, we create a new database and a new document collection and populate it with few documents.

Open MongoDB Compass, on the main window, click the "Create Database" button at the bottom left corner (Hover the mouse over "+" symbol).



On the "Create Database" dialog box, enter

	Database Name: MyDB Collection Name: MyUsersCollection
---	---

Leave the tick boxes unticked

Create Database

Database Name
MyDB

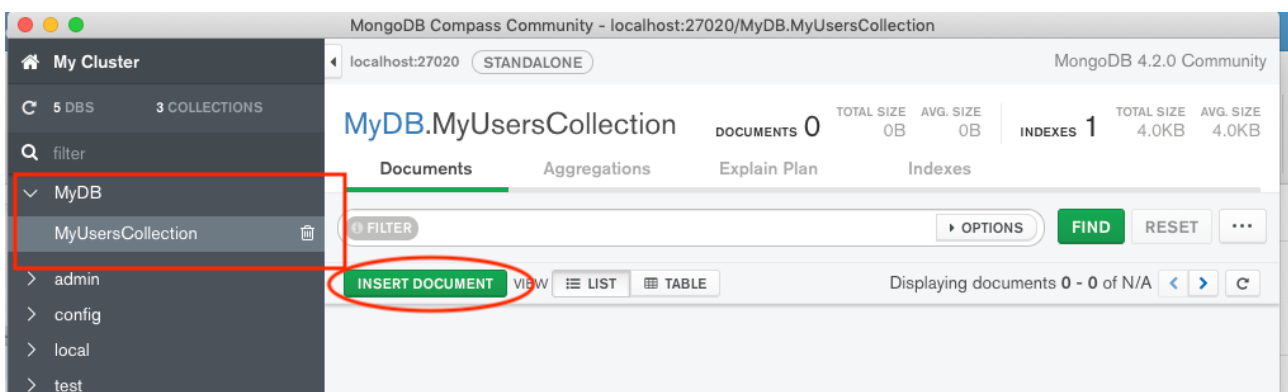
Collection Name
MyUsersCollection

☐ Capped Collection ⓘ

☐ Use Custom Collation ⓘ

Before MongoDB can save your new database, a collection name must also be specified at the time of creation. [More Information](#)

The new database with a new blank collection should appear on database list.



Click on "Insert Document" button to insert a new document.

When clicked, a document insertion template will appear with the document number already generated.

Insert Document

1 id : ObjectId("5d7507c528e5b1700b734868 ") ObjectId

2 : " " String

Populate the template with the following data. You are required to enter both field name AND data for the field.

Name:String	Age:Integer	Address:Object				Sports:Array	DoB:Date
		No	StreetName	Suburb	Postcode		
Chan	20	1	Happy St	HappyVille	3999	Chess, Rugby	
Vic	24	20	Old Road	Carlton	3004	Cricket	
John	18	7	Main St	Melbourne	3000	AFL, Cricket, Soccer	
Jenny	30		PO Box 1234	Melbourne	3001	Soccer, Athletics	14/01/1998

3.1.1 Finding documents in the collection

Run the following queries to find matching documents.

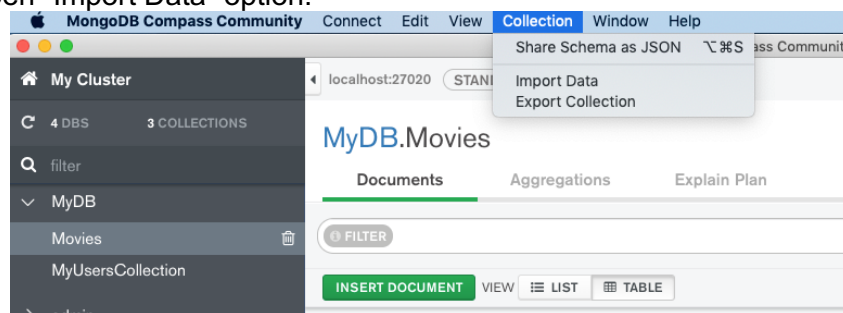
1. Find all documents
2. Find people who are 20 years old
3. Find people who live in Melbourne
4. Find people who are not living in Melbourne
5. Find people who are 24 years or older
6. Find people who are 24 years or older and living in Melbourne.
7. Find people who are playing Cricket.

3.2 Bulk insertion of documents

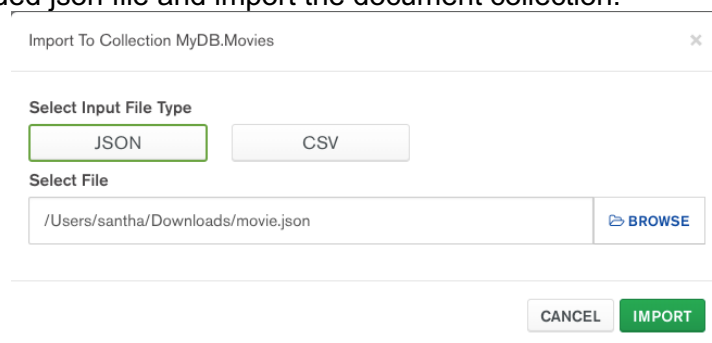
MongoDB compass allows you to insert a collection of documents in one pass, using a .csv file or a JSON file. In the case of .csv file, the first row of the file will be used to define the fields in the document collection. In the – more native – JSON format, each document can have their own structure.

Goto Week 8 Module on Canvas and download two input files: movie.csv and movie.json.

On MongoDB Compass, create a blank document collection, called “Movies”, and open the collection. When you open the collection, a new menu option appears (on top level menu, as “Collection”). Open “Import Data” option.



Choose the downloaded json file and import the document collection.



3.2.1 Finding documents in the collection

Run the following queries to find matching documents.

1. Find movies made in 1971.
2. Find DRAMA movies made in 1971.
3. Display movie titles for movies that won 2 or awards. Can you generate the desired output using these data?

3.2.2 Expanding the movie

RMIT Classification: Trusted

collection.

Let's suppose we are required to enter entire Harry Potter series of movies. Each movie title will have a series name, series number and movie name.

Insert following two movies into the collection.

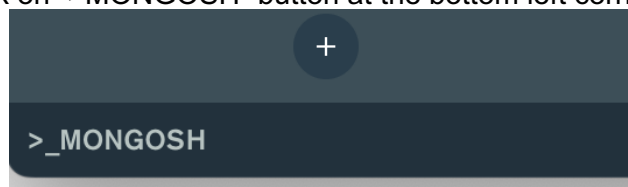
mvNumb:Integer	mvTitle:Object			Stars:Array	yrMade
	No	seriesName	mvName		
25	1	Harry Potter	Harry Potter and the Philosophers Stone	Daniel Radcliffe Rupert Grint Emma Watson	2001
26	2	Harry Potter	Harry Potter and Chamber of Secrets	Daniel Radcliffe Rupert Grint Emma Watson	2002

How do they appear on "list mode" and "table mode" on MongoDB Compass?

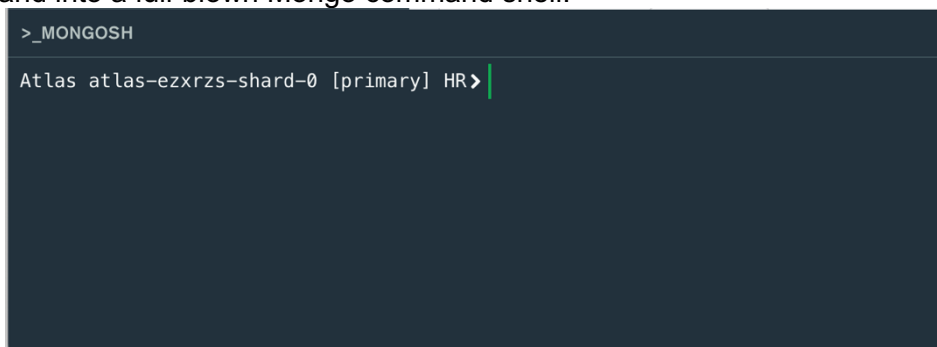
3.3 Access the database via MongoDB Shell

Mongo Shell is now embedded with Mongo Compass. Unlike in the past, you are not required to install a separate command-line application to run Mongo Shell commands.

As illustrated below, click on ">MONGOSH" button at the bottom left corner on Compass.



That will expand into a full-blown Mongo command shell.



Activity 1: Check the list of databases.



> show databases

Activity 2: Use one of the databases



> use MyDB

IMPORTANT: Unlike Oracle, MongoDB is case sensitive. So, MyDB is different to MYDB or mydb and so on. Use the exact case as displayed on Activity 1.

Activity 3: Check the list of collections.



> show collections

Activity 4: Check the contents of the 'MyUsersCollection' collection.



```
> db.MyUsersCollection.find()
```

3.3.1 Exercise:

Repeat exercises in Sections 3.1.1, 3.2.1 and 3.2.2 on the MongoDB shell.