ICT2103 INFORMATION MANAGEMENT

LAB 5: GETTING STARTED ON MongoDB

Objectives

In this lab session you are expected:

- To practice how to create/access MongoDB locally
- To learn the basic queries and execute them over MongoDB

Deliverables

You are required to attend the lab session and submit a report of the work that you have done in the lab. The report should answer all the exercise questions in this lab sheet. You can make use of the "snipping tool" in Windows to do selective screen capture to ***capture your queries and outputs.***

The report should be in PDF format and submit via the online submission Dropbox in xSiTe. The submission deadline for the report is 4 Nov 2021. You can make use of the "snipping tool" in Windows to do selective screen capture.

Software required

- MongoDB Community Server

Part I: Configure MongoDB on local machine

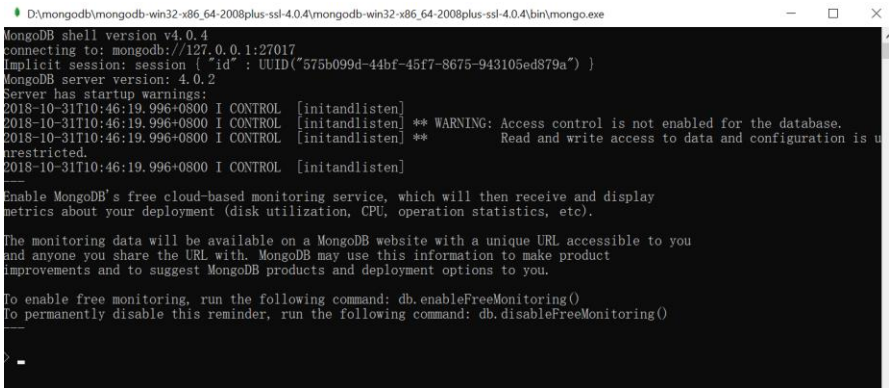
NOTE: if you have already installed MongoDB in your machine, please skip this part and start from part II directly.

1. Please download the "MongoDB Community Server" from: https://www.mongodb.com/download-center/community

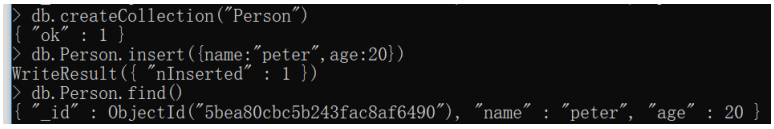
2. Choose "MongoDB community server", OS setting of your local machine and "ZIP" package.

3. Unzip the archive to disk "D:/" and execute "mongo" in "bin" folder.

4. The MongoDB server console is shown below:



5. Example of creating a collection, inserting a document and reading from the collection:



Part II. MongoDB queries

In this lab, you need to practice how to use the NoSQL database – MongoDB. You are required to practice different operations in MongoDB by using below manual, which provides the one-to-one comparison between SQL and the MongoDB query language.

SQL to MongoDB Mapping Chart:

https://docs.mongodb.com/manual/reference/sql-comparison/

MongoDB Manual:

https://docs.mongodb.com/manual/

You need to understand the different terminologies and concepts between MongoDB and RDBMS, and figure out how to perform below tasks in MongoDB:

1. Create/alter/drop one collection
2. Create index on the collection
3. Insert/select/update/delete records in the collection.

Part III. MongoDB Exercises for Submission

Suppose you are going to design one product catalog for one online shopping website e.g. Amazon. The catalog must have the capacity to store many differed types of objects with different sets on attributes. For instance, in Amazon, there are many different types of the products such as books, cell phones and laptops etc. Each of these product has its own attributes. Therefore, these kinds of data collections are quite compatible with MongoDB's data model.

Design and query the data collection by following the below instructions.

A. Create one new collection, called "ProductCatalog", to store all the products in Amazon.
B. Create and add new product information into the ProductCatalog collection. You are required to create two different types of objects including books and laptops. You are the one to decide the important attributes of each type that should be included. Amazon can help you in designing object attributes. You can view sample JSON files in the sample data zip file on XSITE. Create and add at least three books and three laptops into the collection for query purpose.
C. Based on the data you added, write the query to list all information for all the laptops
D. To speed up the following queries, please create indexes on the right fields.
E. Write the query to list all the book names which are published after year 2000.
F. Write the query to list all the laptops with white colour.
G. Write the query to list all the laptops' price with an ascending order.
H. Write the query to list all the products whose price is higher than 1500.
I. Write the query to list all the books that are published between year 2000 and 2015.

You are highly encouraged to try more queries to understand the MongoDB query languages according to the data you inserted.

---- END OF ICT2103 LAB #5 -----